force in implementing regulatory requirements and any models developed under clause (ii);

(iv) inventory current or emerging activities that transform captured carbon dioxide into a product of commercial value, or as an input to products of commercial value;

(v) identify any priority carbon dioxide pipelines needed to enable efficient, orderly, and responsible development of carbon capture, utilization, and sequestration projects at increased scale;

(vi) identify gaps in the current Federal and State regulatory framework and in existing data for the deployment of carbon capture, utilization, and sequestration projects and carbon dioxide pipelines;

(vii) identify Federal and State financing mechanisms available to project developers; and

(viii) develop recommendations for relevant Federal agencies on how to develop and research technologies that—

(I) can capture carbon dioxide; and

(II) would be able to be deployed within the region covered by the task force, including any projects that have received technical or financial assistance for research under paragraph (6) of section 103(g) of the Clean Air Act (42 U.S.C. 7403(g)).

(E) REPORT.—Each year, each task force shall prepare and submit to the Chair and to the other task forces a report that includes—

(i) any recommendations for improvements in efficient, orderly, and responsible issuance or administration of Federal permits and other Federal authorizations required under a law described in paragraph (3)(B)(i); and

(ii) any other nationally relevant information that the task force has collected in carrying out the duties under subparagraph (D).

(F) EVALUATION.—Not later than 5 years after the date of enactment of this Act, the Chair shall—

(i) reevaluate the need for the task forces; and

(ii) submit to Congress a recommendation as to whether the task forces should continue.

SA 1407. Ms. MURKOWSKI submitted an amendment intended to be proposed by her to the bill S. 2657, to support innovation in advanced geothermal research and development, and for other purposes; which was ordered to lie on the table; as follows:

Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the ''American Energy Innovation Act of 2020''.

(b) TABLE OF CONTENTS.—The table of contents for 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

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.
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.
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.

SEC. 2. DEFINITIONS.

In this Act:

(1) DEPARTMENT.—The term ''Department'' means the Department of Energy.

(2) NATIONAL LABORATORY.—The term ''National Laboratory'' has the meaning given the term in section 2 of the Energy Policy Act of 2005 (42 U.S.C. 15801).

(3) SECRETARY.—Unless otherwise specified, the term ''Secretary'' means the Secretary of Energy.

TITLE I—INNOVATION

Subtitle A—Efficiency

PART I—ENERGY SAVINGS AND INDUSTRIAL COMPETITIVENESS

Subpart A—Buildings

CHAPTER 1—BUILDING EFFICIENCY

SEC. 1001. COMMERCIAL BUILDING ENERGY CONSUMPTION INFORMATION SHARING.

(a) IN GENERAL.—Not later than 120 days after the date of enactment of this Act, the Administrator of the Energy Information Administration (referred to in this section as the ''Administrator'') and the Administrator of the Environmental Protection Agency shall sign, and submit to Congress, an information sharing agreement (referred to in this section as the ''agreement'') relating to commercial building energy consumption data.

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

(1) provide that the Administrator shall have access to building-specific data in the Portfolio Manager database of the Environmental Protection Agency;

(2) describe the manner in which the Administrator shall incorporate appropriate data (including the data described in subsection (c)) into any Commercial Buildings Energy Consumption Survey (referred to in this section as ''CBECS'') published after the date of enactment of this Act for the purpose of analyzing and estimating building population, size, location, activity, energy usage, and any other relevant building characteristic; and

(3) describe and compare—

(A) the methodologies that the Energy Information Administration, the Environmental Protection Agency, and State and local government managers use to maximize the quality, reliability, and integrity of data collected through CBECS, the Portfolio Manager database of the Environmental Protection Agency, and State and local building energy disclosure laws (including regulations), respectively, and the manner in which those methodologies can be improved; and

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

(c) DATA.—The data referred in subsection (b)(2) includes data that—

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

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

(3) includes information on private sector buildings that are not less than 250,000 square feet.

(d) PROTECTION OF INFORMATION.—In carrying out the agreement, the Administrator and the Administrator of the Environmental Protection Agency shall protect information in accordance with—

(1) section 552(b)(4) of title 5, United States Code (commonly known as the 'Freedom of Information Act');

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

(3) any other applicable law (including regulations).

SEC. 1002. ENERGY EFFICIENCY MATERIALS PILOT PROGRAM.

(a) DEFINITIONS.—In this section:

(1) APPLICANT.—The term ''applicant'' means a nonprofit organization that applies for a grant under this section.

(2) ENERGY-EFFICIENCY MATERIAL.—

(A) IN GENERAL.—The term ''energy-efficiency material'' means a material (including a product, equipment, or system) the installation of which results in a reduction in use by a nonprofit organization of energy or fuel.

(B) INCLUSIONS.—The term ''energy-efficiency material'' includes—

(i) a roof or lighting system or component of the system;

(ii) a window;

(iii) a door, including a security door;

(iv) a heating, ventilation, or air conditioning system or component of the system (including insulation and wiring and plumbing improvements needed to serve a more efficient system); and

(v) a renewable energy generation or heating system, including a solar, photovoltaic, wind, geothermal, or biomass (including wood pellet) system or component of the system.

(3) NONPROFIT BUILDING.—

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

(B) INCLUSIONS.—The term ''nonprofit building'' includes a building described in subparagraph (A) that is—

(i) a hospital;

(ii) a youth center;

(iii) a school;

(iv) a social-welfare program facility;

(v) a faith-based organization; or

(vi) any other nonresidential and noncommercial structure.

(b) ESTABLISHMENT.—Not later than 1 year after the date of enactment of this Act, the Secretary shall establish a pilot program to award grants for the purpose of providing nonprofit buildings with energy-efficiency materials.

(c) GRANTS.—

(1) IN GENERAL.—The Secretary may award grants under the program established under subsection (b).

(2) APPLICATION.—The Secretary may award a grant under paragraph (1) if an applicant submits to the Secretary an application at such time, in such form, and containing such information as the Secretary may prescribe.

(3) CRITERIA FOR GRANT.—In determining whether to award a grant under paragraph (1), the Secretary shall apply performance-based criteria, which shall give priority to applicants based on—

(A) the energy savings achieved;

(B) the cost-effectiveness of the use of energy-efficiency materials;

(C) an effective plan for evaluation, measurement, and verification of energy savings; and

(D) the financial need of the applicant.

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

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

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

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

(A) the geographic location of the recipient; and

(B) the size of the organization of the recipient.

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

SEC. 1003. COORDINATION OF ENERGY RETROFITTING ASSISTANCE FOR SCHOOLS.

(a) DEFINITION OF SCHOOL.—In this section, the term ''school'' means—

(1) an elementary school or secondary school (as defined in section 8101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7801));

(2) an institution of higher education (as defined in section 102(a) of the Higher Education Act of 1965 (20 U.S.C. 1002(a)));

(3) a school of the defense dependents' education system under the Defense Dependents' Education Act of 1978 (20 U.S.C. 921 et seq.) or established under section 2164 of title 10, United States Code;

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

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

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

(b) DESIGNATION OF LEAD AGENCY.—The Secretary, acting through the Office of Energy Efficiency and Renewable Energy, shall act as the lead Federal agency for coordinating and disseminating information on existing Federal programs and assistance that may be used to help initiate, develop, and finance energy efficiency, renewable energy, and energy retrofitting projects for schools.

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

(1) in consultation and coordination with the appropriate Federal agencies, carry out a review of existing programs and financing mechanisms (including revolving loan funds and loan guarantees) available in or from the Department of Agriculture, the Department, the Department of Education, the Department of the Treasury, the Internal Revenue Service, the Environmental Protection Agency, and other appropriate Federal agencies with jurisdiction over energy financing and facilitation that are currently used or may be used to help initiate, develop, and finance energy efficiency, renewable energy, and energy retrofitting projects for schools;

(2) establish a Federal cross-departmental collaborative coordination, education, and outreach effort to streamline communication and promote available Federal opportunities and assistance described in paragraph (1), for energy efficiency, renewable energy, and energy retrofitting projects that enables States, local educational agencies, and schools—

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

(B) to form partnerships with Governors, State energy programs, local educational, financial, and energy officials, State and local government officials, nonprofit organizations, and other appropriate entities, to support the initiation of the projects;

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

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

(B) to install systems that individually generate energy from renewable energy resources;

(C) to establish partnerships to leverage economies of scale and additional financing mechanisms available to larger clean energy initiatives; or

(D) to promote—

(i) the maintenance of health, environmental quality, and safety in schools, including the ambient air quality, through energy efficiency, renewable energy, and energy retrofit projects; and

(ii) the achievement of expected energy savings and renewable energy production through proper operations and maintenance practices;

(4) develop and maintain a single online resource website with contact information for relevant technical assistance and support staff in the Office of Energy Efficiency and Renewable Energy for States, local educational agencies, and schools to effectively access and use Federal opportunities and assistance described in paragraph (1) to develop energy efficiency, renewable energy, and energy retrofitting projects; and

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

(A) have successfully implemented energy efficiency, renewable energy, and energy retrofitting projects; and

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

(d) REPORT.—Not later than 180 days after the date of enactment of this Act, the Secretary shall submit to Congress a report describing the implementation of this section.

SEC. 1004. GRANTS FOR ENERGY EFFICIENCY IMPROVEMENTS AND RENEWABLE ENERGY IMPROVEMENTS AT PUBLIC SCHOOL FACILITIES.

(a) DEFINITIONS.—In this section:

(1) ELIGIBLE ENTITY.—The term ''eligible entity'' means a consortium of—

(A) 1 local educational agency; and

(B) 1 or more—

(i) schools;

(ii) nonprofit organizations;

(iii) for-profit organizations; or

(iv) community partners that have the knowledge and capacity to partner and assist with energy improvements.

(2) ENERGY IMPROVEMENT.—The term ''energy improvement'' means—

(A) any improvement, repair, renovation, or installation to a school, including school grounds, that will result in a direct reduction in school energy costs, including improvements to building envelope, air conditioning, ventilation, heating system, domestic hot water heating, compressed air systems, distribution systems, lighting, power systems, and controls;

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

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

(ii) results in a reduction in school energy costs as described in subparagraph (A);

(C) the installation of renewable energy technologies (such as wind power, photovoltaics, solar thermal systems, geothermal energy, hydrogen-fueled systems, biomass-based systems, biofuels, anaerobic digesters, and hydropower) that provide power to a school;

(D) the installation of zero-emissions vehicle infrastructure on school grounds for exclusive use of school buses, school fleets, or students, or for the general public; and

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

(3) LOCAL EDUCATIONAL AGENCY.—The term ''local educational agency'' has the meaning given the term in section 8101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7801).

(4) PARTNERING LOCAL EDUCATIONAL AGENCY.—The term ''partnering local educational agency'', when used with respect to an eligible entity, means the local educational agency participating in the eligible entity.

(5) ZERO-EMISSIONS VEHICLE INFRASTRUCTURE.—The term ''zero-emissions vehicle infrastructure'' means infrastructure used to charge or fuel—

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

(B) a vehicle that does not produce exhaust emissions of any criteria pollutant (or precursor pollutant) or greenhouse gas under any possible operational modes or conditions.

(b) AUTHORITY.—From amounts made available for grants under this section, the Secretary shall award competitive grants to eligible entities to make energy improvements authorized by this section.

(c) APPLICATIONS.—

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

(2) CONTENTS.—The application submitted under paragraph (1) shall include each of the following:

(A) A needs assessment of the current condition of the school and facilities that are to receive the energy improvements.

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

(C) A description of the capacity of the eligible entity to provide services and comprehensive support to make the energy improvements.

(D) An assessment of the applicant's expected needs of the eligible entity for operation and maintenance training funds, and a plan for use of those funds, if any.

(E) An assessment of the expected energy, safety, and health benefits of the energy improvements.

(F) A lifecycle cost estimate of the proposed energy improvements.

(G) An identification of other resources that are available to carry out the activities

for which funds are requested under this section, including the availability of utility programs and public benefit funds.

(d) PRIORITY.—In awarding grants under this section, the Secretary shall give a priority to eligible entities—

(1) that have renovation, repair, and improvement funding needs; and

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

(B) with a participating local educational agency designated with a school district locale code of 41, 42, or 43, as determined by the National Center for Education Statistics in consultation with the Bureau of the Census.

(e) COMPETITIVE CRITERIA.—The competitive criteria used by the Secretary to award grants under this section shall include the following:

(1) The difference between the fiscal capacity of the eligible entity to carry out, and the needs of the partnering local educational agency for, energy improvements at school facilities, including—

(A) the current and historic ability of the partnering local educational agency to raise funds for construction, renovation, modernization, and major repair projects for schools;

(B) whether the partnering local educational agency has been able to issue bonds or receive other funds to support current infrastructure needs of the partnering local educational agency; and

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

(2) The likelihood that the partnering local educational agency or eligible entity will maintain in good condition, and operate, the energy improvements at any facility the improvement of which is assisted.

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

(f) USE OF GRANT AMOUNTS.—

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

(2) OPERATION AND MAINTENANCE TRAINING.—An eligible entity receiving a grant under this section may use not more than 5 percent of the grant amounts for operation and maintenance training for energy efficiency and renewable energy improvements (such as maintenance staff and teacher training, education, and preventative maintenance training).

(3) AUDIT.—An eligible entity receiving a grant under this section may use funds under the grant for a third-party investigation and analysis for energy improvements (such as energy audits and existing building commissioning).

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

(g) CONTRACTING REQUIREMENTS.—

(1) DAVIS-BACON.—Any laborer or mechanic employed by any contractor or subcontractor in the performance of work on any energy improvements funded by a grant under this section shall be paid wages at rates not less than those prevailing on similar construction in the locality as determined by the Secretary of Labor under subchapter IV of chapter 31 of title 40, United States Code (commonly referred to as the ''Davis-Bacon Act'').

(2) COMPETITION.—Each eligible entity receiving a grant under this section shall ensure that, if the eligible entity uses grant funds to carry out repair or renovation through a contract, any such contract process—

(A) ensures the maximum number of qualified bidders, including small, minority, and women-owned businesses, through full and open competition; and

(B) gives priority to businesses located in, or resources common to, the State or the geographical area in which the project is carried out.

(h) REPORTING.—Each eligible entity receiving a grant under this section shall submit to the Secretary, at such time as the Secretary may require, a report describing the use of such funds for energy improvements, the estimated cost savings realized by those energy improvements, the results of any audit, the use of any utility programs and public benefit funds, and the use of performance tracking for energy improvements.

(i) BEST PRACTICES.—

(1) IN GENERAL.—The Secretary shall develop and publish guidelines and best practices for activities carried out under this section.

(2) DEVELOPMENT.—In carrying out paragraph (1), the Secretary shall—

(A) establish minimum technical requirements for the conduct of energy audits and indoor environmental quality assessments; and

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

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

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

SEC. 1005. SMART BUILDING ACCELERATION.

(a) DEFINITIONS.—In this section:

(1) PROGRAM.—The term ''program'' means the Federal Smart Building Program established under subsection (b)(1).

(2) SMART BUILDING.—The term ''smart building'' means a building, or collection of buildings, with an energy system that—

(A) is flexible and automated;

(B) has extensive operational monitoring and communication connectivity, allowing remote monitoring and analysis of all building functions;

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

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

(E) protects the health and safety of occupants and workers; and

(F) is cybersecure.

(3) SMART BUILDING ACCELERATOR.—The term ''smart building accelerator'' means an initiative that is designed to demonstrate specific innovative policies and approaches—

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

(B) that, on successful demonstration, would accelerate investment in energy efficiency.

(b) FEDERAL SMART BUILDING PROGRAM.—

(1) ESTABLISHMENT.—Not later than 1 year after the date of enactment of this Act, the Secretary shall, in consultation with the Administrator of General Services, establish a program to be known as the ''Federal Smart Building Program''—

(A) to implement smart building technology; and

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

(2) SELECTION.—

(A) IN GENERAL.—The Secretary shall coordinate the selection of not fewer than 1 building from among each of several key Federal agencies, as described in paragraph (4), to compose an appropriately diverse set of smart buildings based on size, type, and geographic location.

(B) INCLUSION OF COMMERCIALLY OPERATED BUILDINGS.—In making selections under subparagraph (A), the Secretary may include buildings that are owned by the Federal Government but are commercially operated.

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

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

(A) the Department of the Army;

(B) the Department of the Navy;

(C) the Department of the Air Force;

(D) the Department;

(E) the Department of the Interior;

(F) the Department of Veterans Affairs; and

(G) the General Services Administration.

(5) REQUIREMENT.—In implementing the program, the Secretary shall leverage existing financing mechanisms including energy savings performance contracts, utility energy service contracts, and annual appropriations.

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

(A) which advanced building technologies—

(i) are most cost-effective; and

(ii) show the most promise for—

(I) increasing building energy savings;

(II) increasing service performance to building occupants;

(III) reducing environmental impacts; and

(IV) establishing cybersecurity; and

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

(7) AWARDS.—The Secretary may expand awards made under the Federal Energy Management Program and the Better Building Challenge to recognize specific agency achievements in accelerating the adoption of smart building technologies.

(c) SURVEY OF PRIVATE SECTOR SMART BUILDINGS.—

(1) SURVEY.—The Secretary shall conduct a survey of privately owned smart buildings throughout the United States, including commercial buildings, laboratory facilities, hospitals, multifamily residential buildings, and buildings owned by nonprofit organizations and institutions of higher education.

(2) SELECTION.—From among the smart buildings surveyed under paragraph (1), the Secretary shall select not fewer than 1 building each from an appropriate range of building sizes, types, and geographic locations.

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

shall evaluate the costs and benefits of the buildings selected under paragraph (1), including an identification of—

(A) which advanced building technologies and systems—

(i) are most cost-effective; and

(ii) show the most promise for—

(I) increasing building energy savings;

(II) increasing service performance to building occupants;

(III) reducing environmental impacts; and

(IV) establishing cybersecurity; and

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

(d) LEVERAGING EXISTING PROGRAMS.—

(1) BETTER BUILDING CHALLENGE.—As part of the Better Building Challenge of the Department, the Secretary, in consultation with major private sector property owners, shall develop smart building accelerators to demonstrate innovative policies and approaches that will accelerate the transition to smart buildings in the public, institutional, and commercial buildings sectors.

(2) RESEARCH AND DEVELOPMENT.—

(A) IN GENERAL.—The Secretary shall conduct research and development to address key barriers to the integration of advanced building technologies and to accelerate the transition to smart buildings.

(B) INCLUSION.—The research and development conducted under subparagraph (A) shall include research and development on—

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

(ii) improving physical components, such as sensors and controls, to be adaptive, anticipatory, and networked;

(iii) reducing the cost of key components to accelerate the adoption of smart building technologies;

(iv) data management, including the capture and analysis of data and the interoperability of the energy systems;

(v) protecting against cybersecurity threats and addressing security vulnerabilities of building systems or equipment;

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

(vii) integration and application of combined heat and power systems and energy storage for resiliency;

(viii) characterization of buildings and components;

(ix) consumer and utility protections;

(x) continuous management, including the challenges of managing multiple energy systems and optimizing systems for disparate stakeholders; and

(xi) other areas of research and development, as determined appropriate by the Secretary.

(e) REPORT.—Not later than 2 years after the date of enactment of this Act, and every 2 years thereafter until a total of 3 reports have been made, the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Energy and Commerce and the Committee on Science, Space, and Technology of the House of Representatives a report on—

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

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

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

CHAPTER 2—WORKER TRAINING AND CAPACITY BUILDING

SEC. 1011. BUILDING TRAINING AND ASSESSMENT CENTERS.

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

(1) to identify opportunities for optimizing energy efficiency and environmental performance in buildings;

(2) to promote the application of emerging concepts and technologies in commercial and institutional buildings;

(3) to train engineers, architects, building scientists, building energy permitting and enforcement officials, and building technicians in energy-efficient design and operation;

(4) to assist institutions of higher education and Tribal Colleges or Universities in training building technicians;

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

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

(b) COORDINATION AND NONDUPLICATION.—

(1) IN GENERAL.—The Secretary shall coordinate the program with the industrial research and assessment centers program and with other Federal programs to avoid duplication of effort.

(2) COLLOCATION.—To the maximum extent practicable, building, training, and assessment centers established under this section shall be collocated with Industrial Assessment Centers.

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

SEC. 1012. CAREER SKILLS TRAINING.

(a) DEFINITION OF ELIGIBLE ENTITY.—In this section, the term ''eligible entity'' means a nonprofit partnership that—

(1) includes the equal participation of industry, including public or private employers, and labor organizations, including joint labor-management training programs;

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

(3) demonstrates—

(A) experience in implementing and operating worker skills training and education programs;

(B) the ability to identify and involve in training programs carried out under this section, target populations of individuals who would benefit from training and be actively involved in activities relating to energy efficiency and renewable energy industries; and

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

(b) ESTABLISHMENT.—The Secretary shall award grants to eligible entities to pay the Federal share of associated career skills training programs under which students concurrently receive classroom instruction and on-the-job training for the purpose of obtaining an industry-related certification to install energy efficient buildings technologies.

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

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

Subpart B—Industrial Efficiency and Competitiveness

SEC. 1021. PURPOSES.

The purposes of this subpart are—

(1) to establish a clear and consistent authority for industrial efficiency programs of the Department;

(2) to accelerate the deployment of technologies and practices that will increase industrial energy efficiency and improve productivity;

(3) to accelerate the development and demonstration of technologies that will assist the deployment goals of the industrial efficiency programs of the Department and increase manufacturing efficiency;

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

(5) to meet the future workforce needs of industry; and

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

SEC. 1022. FUTURE OF INDUSTRY PROGRAM AND INDUSTRIAL RESEARCH AND ASSESSMENT CENTERS.

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

(1) by striking the section heading and inserting the following: ''**FUTURE OF INDUSTRY PROGRAM**'';

(2) in subsection (a)(2)—

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

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

''(E) water and wastewater treatment facilities, including systems that treat municipal, industrial, and agricultural waste; and'';

(3) by striking subsection (e); and

(4) by redesignating subsection (f) as subsection (e).

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

''SEC. 454. INDUSTRIAL RESEARCH AND ASSESSMENT CENTERS.

''(a) DEFINITIONS.—In this section:

''(1) ENERGY SERVICE PROVIDER.—The term 'energy service provider' means—

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

''(B) any utility operating under a utility energy service project.

''(2) INDUSTRIAL RESEARCH AND ASSESSMENT CENTER.—The term 'industrial research and assessment center' means—

''(A) an institution of higher education-based industrial research and assessment center that is funded by the Secretary under subsection (b); and

''(B) an industrial research and assessment center at a trade school, community college, or union training program that is funded by the Secretary under subsection (f).

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

''(1) IN GENERAL.—The Secretary shall provide funding to institution of higher education-based industrial research and assessment centers.

''(2) PURPOSE.—The purpose of each institution of higher education-based industrial research and assessment center shall be—

''(A) to identify opportunities for optimizing energy efficiency and environmental performance, including implementation of—

''(i) smart manufacturing;

''(ii) energy management systems;

''(iii) sustainable manufacturing; and

''(iv) information technology advancements for supply chain analysis, logistics, system monitoring, industrial and manufacturing processes, and other purposes;

''(B) to promote applications of emerging concepts and technologies in small- and medium-sized manufacturers (including water and wastewater treatment facilities and federally owned manufacturing facilities);

''(C) to promote research and development for the use of alternative energy sources to supply heat, power, and new feedstocks for energy-intensive industries;

''(D) to coordinate with appropriate Federal and State research offices;

''(E) to provide a clearinghouse for industrial process and energy efficiency technical assistance resources; and

''(F) to coordinate with State-accredited technical training centers and community colleges, while ensuring appropriate services to all regions of the United States.

''(c) COORDINATION.—To increase the value and capabilities of the industrial research and assessment centers, the centers shall—

''(1) coordinate with Manufacturing Extension Partnership Centers of the National Institute of Standards and Technology;

''(2) coordinate with the Federal Energy Management Program and the Building Technologies Program of the Department of Energy to provide building assessment services to manufacturers;

''(3) increase partnerships with the National Laboratories of the Department of Energy to leverage the expertise, technologies, and research and development capabilities of the National Laboratories for national industrial and manufacturing needs;

''(4) increase partnerships with energy service providers and technology providers to leverage private sector expertise and accelerate deployment of new and existing technologies and processes for energy efficiency, power factor, and load management;

''(5) identify opportunities for reducing greenhouse gas emissions and other air emissions; and

''(6) promote sustainable manufacturing practices for small- and medium-sized manufacturers.

''(d) OUTREACH.—The Secretary shall provide funding for—

''(1) outreach activities by the industrial research and assessment centers to inform small- and medium-sized manufacturers of the information, technologies, and services available; and

''(2) coordination activities by each industrial research and assessment center to leverage efforts with—

''(A) Federal and State efforts;

''(B) the efforts of utilities and energy service providers;

''(C) the efforts of regional energy efficiency organizations; and

''(D) the efforts of other industrial research and assessment centers.

''(e) CENTERS OF EXCELLENCE.—

''(1) ESTABLISHMENT.—The Secretary shall establish a Center of Excellence at not more than 5 of the highest-performing industrial research and assessment centers, as determined by the Secretary.

''(2) DUTIES.—A Center of Excellence shall coordinate with and advise the industrial research and assessment centers located in the region of the Center of Excellence, including—

''(A) by mentoring new directors and staff of the industrial research and assessment centers with respect to—

''(i) the availability of resources; and

''(ii) best practices for carrying out assessments, including through the participation of the staff of the Center of Excellence in assessments carried out by new industrial research and assessment centers;

''(B) by providing training to staff and students at the industrial research and assessment centers on new technologies, practices, and tools to expand the scope and impact of the assessments carried out by the centers;

''(C) by assisting the industrial research and assessment centers with specialized technical opportunities, including by providing a clearinghouse of available expertise and tools to assist the centers and clients of the centers in assessing and implementing those opportunities;

''(D) by identifying and coordinating with regional, State, local, and utility energy efficiency programs for the purpose of facilitating efforts by industrial research and assessment centers to connect industrial facilities receiving assessments from those centers with regional, State, local, and utility energy efficiency programs that could aid the industrial facilities in implementing any recommendations resulting from the assessments;

''(E) by facilitating coordination between the industrial research and assessment centers and other Federal programs described in paragraphs (1) through (3) of subsection (c); and

''(F) by coordinating the outreach activities of the industrial research and assessment centers under subsection (d)(1).

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

''(f) EXPANSION OF INDUSTRIAL RESEARCH AND ASSESSMENT CENTERS.—

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

''(2) PURPOSE.—

''(A) IN GENERAL.—Subject to subparagraph (B), to the maximum extent practicable, an industrial research and assessment center established under paragraph (1) shall have the same purpose as an institution of higher education-based industrial research center that is funded by the Secretary under subsection (b)(1).

''(B) CONSIDERATION OF CAPABILITIES.—In evaluating or establishing the purpose of an industrial research and assessment center established under paragraph (1), the Secretary shall take into consideration the varying capabilities of trade schools, community colleges, and union training programs.

''(g) WORKFORCE TRAINING.—

''(1) INTERNSHIPS.—The Secretary shall pay the Federal share of associated internship programs under which students work with or for industries, manufacturers, and energy service providers to implement the recommendations of industrial research and assessment centers.

''(2) APPRENTICESHIPS.—The Secretary shall pay the Federal share of associated apprenticeship programs under which—

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

''(B) employees of facilities that have received an assessment from an industrial research and assessment center work with or for an industrial research and assessment center to gain knowledge on engineering practices and processes to improve productivity and energy savings.

''(3) FEDERAL SHARE.—The Federal share of the cost of carrying out internship programs described in paragraph (1) and apprenticeship programs described in paragraph (2) shall be 50 percent.

''(h) SMALL BUSINESS LOANS.—The Administrator of the Small Business Administration shall, to the maximum extent practicable, expedite consideration of applications from eligible small business concerns for loans under the Small Business Act (15 U.S.C. 631 et seq.) to implement recommendations developed by the industrial research and assessment centers.

''(i) FUNDING.—There is authorized to be appropriated to the Secretary to carry out this section $30,000,000 for each fiscal year, to remain available until expended.''.

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

''Sec. 454. Industrial research and assessment centers.''.

SEC. 1023. CHP TECHNICAL ASSISTANCE PARTNERSHIP PROGRAM.

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

''SEC. 375. CHP TECHNICAL ASSISTANCE PARTNERSHIP PROGRAM.

''(a) RENAMING.—

''(1) IN GENERAL.—The Clean Energy Application Centers of the Department of Energy are redesignated as the CHP Technical Assistance Partnership Program (referred to in this section as the 'Program').

''(2) PROGRAM DESCRIPTION.—The Program shall consist of—

''(A) the 10 regional CHP Technical Assistance Partnerships in existence on the date of enactment of the American Energy Innovation Act of 2020;

''(B) any other regional CHP Technical Assistance Partnerships as the Secretary may establish; and

''(C) any supporting technical activities under the Technical Partnership Program of the Advanced Manufacturing Office of the Department of Energy.

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

''(b) CHP TECHNICAL ASSISTANCE PARTNERSHIP PROGRAM.—

''(1) IN GENERAL.—The Program shall—

''(A) operate programs to encourage deployment of combined heat and power, waste heat to power, and efficient district energy (collectively referred to in this subsection as 'CHP') technologies by providing education and outreach—

''(i) to building, industrial, and electric and natural gas utility professionals;

''(ii) to State and local policymakers; and

''(iii) to other individuals and organizations with an interest in efficient energy use, local or opportunity fuel use, resiliency, energy security, microgrids, and district energy; and

''(B) provide project-specific support to building and industrial professionals through economic and engineering assessments and advisory activities.

''(2) FUNDING FOR CERTAIN ACTIVITIES.—

''(A) IN GENERAL.—The Program shall make funds available to institutions of higher education, research centers, and other appropriate institutions to ensure the continued operation and effectiveness of regional CHP Technical Assistance Partnerships.

''(B) USE OF FUNDS.—Funds made available under subparagraph (A) may be used—

''(i) to research, develop, and distribute informational materials relevant to manufacturers, commercial buildings, institutional facilities, and Federal sites;

''(ii) to support the mission goals of the Department of Defense relating to CHP and microgrid technologies;

''(iii) to continuously maintain and update—

''(I) the CHP installation database;

''(II) CHP technology potential analyses;

''(III) State CHP resource websites; and

''(IV) CHP Technical Assistance Partnerships websites;

''(iv) to research, develop, and conduct workshops, reports, seminars, internet programs, CHP resiliency resources, and other activities to provide education to end users, regulators, and stakeholders in a manner that leads to the deployment of CHP technologies;

''(v) to provide or coordinate onsite assessments for sites and enterprises that may consider deployment of CHP technology;

''(vi) to identify candidates for deployment of CHP technologies, hybrid renewable-CHP technologies, microgrids, and clean energy;

''(vii) to provide nonbiased engineering support to sites considering deployment of CHP technologies;

''(viii) to assist organizations developing clean energy technologies and policies in overcoming barriers to deployment; and

''(ix) to assist with field validation and performance evaluations of CHP and other clean energy technologies implemented.

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

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

(b) CONFORMING AMENDMENT.—Section 372(g) of the Energy Policy and Conservation Act (42 U.S.C. 6342(g)) is amended by striking ''Clean Energy Applications Center operated by the Secretary of Energy'' and inserting ''regional CHP Technical Assistance Partnerships''.

(c) CLERICAL AMENDMENT.—The table of contents of the Energy Policy and Conservation Act (Public Law 94–163; 89 Stat. 872; 92 Stat. 3272) is amended by striking the item relating to section 375 and inserting the following:

''Sec. 375. CHP Technical Assistance Partnership Program.''.

SEC. 1024. SUSTAINABLE MANUFACTURING INITIATIVE.

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

''SEC. 376. SUSTAINABLE MANUFACTURING INITIATIVE.

''(a) IN GENERAL.—As part of the Office of Energy Efficiency and Renewable Energy of the Department of Energy, the Secretary, on the request of a manufacturer, shall carry out onsite technical assessments to identify opportunities for—

''(1) maximizing the energy efficiency of industrial processes and cross-cutting systems;

''(2) preventing pollution and minimizing waste;

''(3) improving efficient use of water in manufacturing processes;

''(4) conserving natural resources; and

''(5) achieving such other goals as the Secretary determines to be appropriate.

''(b) COORDINATION.—To implement any recommendations resulting from an onsite technical assessment carried out under subsection (a) and to accelerate the adoption of new and existing technologies and processes that improve energy efficiency, the Secretary shall coordinate with—

''(1) the Advanced Manufacturing Office of the Department of Energy;

''(2) the Building Technologies Office of the Department of Energy;

''(3) the Federal Energy Management Program of the Department of Energy; and

''(4) the private sector and other appropriate agencies, including the National Institute of Standards and Technology.

''(c) RESEARCH AND DEVELOPMENT PROGRAM FOR SUSTAINABLE MANUFACTURING AND INDUSTRIAL TECHNOLOGIES AND PROCESSES.—As part of the industrial efficiency programs of the Department of Energy, the Secretary shall carry out a joint industry-government partnership program to research, develop, and demonstrate new sustainable manufacturing and industrial technologies and processes that maximize the energy efficiency of industrial plants, reduce pollution, and conserve natural resources.''.

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

''Sec. 376. Sustainable manufacturing initiative.''.

SEC. 1025. CONFORMING AMENDMENTS.

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

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

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

Subpart C—Federal Agency Energy Efficiency

SEC. 1031. ENERGY AND WATER PERFORMANCE REQUIREMENTS FOR FEDERAL BUILDINGS.

(a) IN GENERAL.—Section 543 of the National Energy Conservation Policy Act (42 U.S.C. 8253) is amended—

(1) in the section heading, by inserting ''**AND WATER**'' after ''**ENERGY**'';

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

''(a) ENERGY AND WATER PERFORMANCE REQUIREMENTS FOR FEDERAL BUILDINGS.—

''(1) ENERGY REQUIREMENTS.—Subject to paragraph (3), to the maximum extent life cycle cost-effective (as defined in subsection (f)(1)), each agency shall apply energy conservation measures to, and shall improve the design for the construction of, the Federal buildings of the agency (including each industrial or laboratory facility) so that the energy consumption per gross square foot of the Federal buildings of the agency in fiscal years 2021 through 2028 is reduced, as compared with the energy consumption per gross square foot of the Federal buildings of the agency in fiscal year 2018, by the percentage specified in the following table:

''Fiscal Year	Percentage Reduction
2021	2.5
2022	5
2023	7.5
2024	10
2025	12.5
2026	15
2027	17.5
2028	20.

''(2) WATER REQUIREMENTS.—Subject to paragraph (3), the head of each Federal agency shall, for each of fiscal years 2021 through 2030, improve water use efficiency and management, including stormwater management, at facilities of the agency by reducing agency potable water consumption intensity—

''(A) by reducing potable water consumption by 54 percent by fiscal year 2030, relative to the potable water consumption of the agency in fiscal year 2007, through reductions of 2 percent each fiscal year (as measured in gallons per gross square foot);

''(B) by reducing the industrial, landscaping, and agricultural water consumption of the agency, as compared to a baseline of that consumption by the agency in fiscal year 2010, through reductions of 2 percent each fiscal year (as measured in gallons); and

''(C) by installing appropriate infrastructure features on federally owned property to improve stormwater and wastewater management.

''(3) ENERGY AND WATER INTENSIVE BUILDING EXCLUSION.—

''(A) IN GENERAL.—An agency may exclude from the requirements of paragraphs (1) and (2) any building (including the associated energy consumption and gross square footage of the building) in which energy and water intensive activities are carried out.

''(B) REPORTS.—Each agency shall identify and include in each report under section 548(a) each building designated by the agency for exclusion under subparagraph (A) during the period covered by the report.

''(4) RECOMMENDATIONS.—Not later than December 31, 2026, the Secretary shall—

''(A) review the results of the implementation of the energy and water performance requirements established under paragraph (1);

''(B) submit to Congress recommendations concerning energy performance requirements for fiscal years 2029 through 2038; and

''(C) submit to Congress recommendations concerning water performance requirements for fiscal years 2031 through 2040.'';

(3) in subsection (b)—

(A) in the subsection heading, by inserting ''AND WATER'' after ''ENERGY''; and

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

''(1) IN GENERAL.—Each agency shall—

''(A) not later than October 1, 2022, to the maximum extent practicable, begin installing in Federal buildings owned by the United States all energy and water conservation measures determined by the Secretary to be life cycle cost-effective (as defined in subsection (f)(1)); and

''(B) complete the installation described in subparagraph (A) as soon as practicable after the date referred to in that subparagraph.

''(2) EXPLANATION OF NONCOMPLIANCE.—

''(A) IN GENERAL.—If an agency fails to comply with paragraph (1), the agency shall submit to the Secretary, using guidelines developed by the Secretary, an explanation of the reasons for the failure.

''(B) REPORT TO CONGRESS.—Not later than October 1, 2021, and every 2 years thereafter, the Secretary shall submit to Congress a report that describes any noncompliance by an agency with the requirements of paragraph (1).'';

(4) in subsection (c)(1)—

(A) in subparagraph (A)—

(i) in the matter preceding clause (i), by striking ''An agency'' and inserting ''The head of each agency''; and

(ii) by inserting ''or water'' after ''energy'' each place it appears; and

(B) in subparagraph (B)(i), by inserting ''or water'' after ''energy'';

(5) in subsection (d)(2), by inserting ''and water'' after ''energy'';

(6) in subsection (e)—

(A) in the subsection heading, by inserting ''and Water'' after ''Energy'';

(B) in paragraph (1)—

(i) in the first sentence—

(I) by striking ''October 1, 2012'' and inserting ''October 1, 2022'';

(II) by inserting ''and water'' after ''energy''; and

(III) by inserting ''and water'' after ''electricity'';

(ii) in the second sentence, by inserting ''and water'' after ''electricity''; and

(iii) in the fourth sentence, by inserting ''and water'' after ''energy'';

(C) in paragraph (2)—

(i) in subparagraph (A)—

(I) by striking ''and'' before ''Federal''; and

(II) by inserting ''and any other person the Secretary deems necessary,'' before ''shall'';

(ii) in subparagraph (B)—

(I) in clause (i)(II), by inserting ''and water'' after ''energy'' each place it appears;

(II) in clause (ii), by inserting ''and water'' after ''energy''; and

(III) in clause (iv), by inserting ''and water'' after ''energy''; and

(iii) by adding at the end the following:

''(C) UPDATE.—Not later than 180 days after the date of enactment of this subparagraph, the Secretary shall update the guidelines established under subparagraph (A) to take into account water efficiency requirements under this section.'';

(D) in paragraph (3), in the matter preceding subparagraph (A), by striking ''established under paragraph (2)'' and inserting ''updated under paragraph (2)(C)''; and

(E) in paragraph (4)—

(i) in subparagraph (A)—

(I) by striking ''this paragraph'' and inserting ''the American Energy Innovation Act of 2020''; and

(II) by inserting ''and water'' before ''use in''; and

(ii) in subparagraph (B)(ii), in the matter preceding clause (I), by inserting ''and water'' after ''energy''; and

(7) in subsection (f)—

(A) in paragraph (1)—

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

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

''(E) ONGOING COMMISSIONING.—The term 'ongoing commissioning' means an ongoing process of commissioning using monitored data, the primary goal of which is to ensure continuous optimum performance of a facility, in accordance with design or operating needs, over the useful life of the facility, while meeting facility occupancy requirements.'';

(B) in paragraph (2)—

(i) in subparagraph (A), by inserting ''and water'' before ''use'';

(ii) in subparagraph (B)—

(I) by striking ''energy'' before ''efficiency''; and

(II) by inserting ''or water'' before ''use''; and

(iii) by adding at the end the following:

''(C) ENERGY MANAGEMENT SYSTEM.—An energy manager designated for a facility under subparagraph (A) shall take into consideration—

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

''(ii) the applicability of the certification of the facility in accordance with the International Organization for Standardization standard numbered 50001 and entitled 'Energy Management Systems'.'';

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

''(3) ENERGY AND WATER EVALUATIONS AND COMMISSIONING.—

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

''(B) EXCEPTIONS.—An evaluation and recommissioning or retrocommissioning shall not be required under subparagraph (A) with respect to a facility that, as of the date on which the evaluation and recommissioning or retrocommissioning would occur—

''(i) has had a comprehensive energy and water evaluation during the preceding 8-year period;

''(ii)(I) has been commissioned, recommissioned, or retrocommissioned during the preceding 10-year period; or

''(II) is under ongoing commissioning, recommissioning, or retrocomissioning;

''(iii) has not had a major change in function or use since the previous evaluation and recommissioning or retrocommissioning;

''(iv) has been benchmarked with public disclosure under paragraph (8) during the preceding calendar year; and

''(v)(I) based on the benchmarking described in clause (iv), has achieved at a facility level the most recent cumulative energy savings target under subsection (a) compared to the earlier of—

''(aa) the date of the most recent evaluation; or

''(bb) the date—

''(AA) of the most recent commissioning, recommissioning, or retrocommissioning; or

''(BB) on which ongoing commissioning began; or

''(II) has a long-term contract in place guaranteeing energy savings at least as great as the energy savings target under subclause (I).

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

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

''(i) the Federal agency identified in the evaluation; and

''(ii) is life cycle cost-effective, as determined by evaluating an individual measure or a bundle of measures with varying paybacks.

''(B) PERFORMANCE CONTRACTING.—Each Federal agency shall use performance contracting to address at least 50 percent of the measures identified under subparagraph (A)(i).'';

(D) in paragraph (7)(B)(ii)(II), by inserting ''and water'' after ''energy''; and

(E) in paragraph (9)(A), in the matter preceding clause (i), by inserting ''and water'' after ''energy''.

(b) CONFORMING AMENDMENT.—The table of contents for the National Energy Conservation Policy Act (Public Law 95–619; 92 Stat. 3206) is amended by striking the item relating to section 543 and inserting the following:

''Sec. 543. Energy and water management requirements.''.

SEC. 1032. FEDERAL ENERGY MANAGEMENT PROGRAM.

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

''(h) FEDERAL ENERGY MANAGEMENT PROGRAM.—

''(1) IN GENERAL.—The Secretary shall carry out a program, to be known as the 'Federal Energy Management Program' (referred to in this subsection as the 'Program'), to facilitate the implementation by the Federal Government of cost-effective energy and water management and energy-related investment practices—

''(A) to coordinate and strengthen Federal energy and water resilience; and

''(B) to promote environmental stewardship.

''(2) PROGRAM ACTIVITIES.—

''(A) STRATEGIC PLANNING AND TECHNICAL ASSISTANCE.—Under the Program, the Federal Director appointed under paragraph (3)(A) (referred to in this subsection as the 'Federal Director') shall—

''(i) provide technical assistance and project implementation support and guidance to Federal agencies to identify, implement, procure, and track energy and water conservation measures required under this Act and under other provisions of law (including regulations);

''(ii) in coordination with the Administrator of the General Services Administration, establish appropriate procedures, methods, and best practices for use by Federal agencies to select, monitor, and terminate contracts entered into under section 546 with utilities;

''(iii) in coordination with the Federal Acquisition Regulatory Council, establish appropriate procedures, methods, and best practices for use by Federal agencies to select, monitor, and terminate contracts entered into under section 801 with energy service contractors and utilities;

''(iv) establish and maintain internet-based information resources and project tracking systems and tools for energy and water management;

''(v) coordinate comprehensive and strategic approaches to energy and water resilience planning for Federal agencies; and

''(vi) establish a recognition program for Federal achievement in energy and water management, energy-related investment practices, environmental stewardship, and other relevant areas, through events such as individual recognition award ceremonies and public announcements.

''(B) ENERGY AND WATER MANAGEMENT AND REPORTING.—Under the Program, the Federal Director shall—

''(i) track and report on the progress of Federal agencies in meeting the requirements of the agency under this section;

''(ii) make publicly available annual Federal agency performance data required under—

''(I) this section and sections 544 through 548; and

''(II) section 203 of the Energy Policy Act of 2005 (42 U.S.C. 15852);

''(iii)(I) collect energy and water use and consumption data from each Federal agency; and

''(II) based on that data, submit to each Federal agency a report that will facilitate the energy and water management, energy-related investment practices, and environmental stewardship of the agency in support of Federal goals under this Act and under other provisions of law (including regulations);

''(iv)(I) establish new Federal building energy efficiency standards; and

''(II) in consultation with the Administrator of the General Services Administration, acting through the head of the Office of High-Performance Green Buildings, establish and implement Federal building sustainable design principles for Federal facilities;

''(v) manage the implementation of Federal building energy efficiency standards established under section 305 of the Energy Conservation and Production Act (42 U.S.C. 6834); and

''(vi) designate products that meet the highest energy conservation standards for categories not covered under the Energy Star program established under section 324A of the Energy Policy and Conservation Act (42 U.S.C. 6294a).

''(C) FEDERAL POLICY COORDINATION.—Under the Program, the Federal Director shall—

''(i) develop and implement accredited training consistent with existing Federal programs and activities—

''(I) relating to energy and water use, management, and resilience in Federal buildings, energy-related investment practices, and environmental stewardship; and

''(II) that includes in-person training, internet-based programs, and national in-person training events;

''(ii) coordinate and facilitate energy and water management, energy-related investment practices, and environmental stewardship through the Interagency Energy Management Task Force established under section 547; and

''(iii) report on the implementation of the priorities of the President, including Executive orders, relating to energy and water use in Federal buildings, in coordination with—

''(I) the Office of Management and Budget;

''(II) the Council on Environmental Quality; and

''(III) any other entity, as considered necessary by the Federal Director.

''(D) FACILITY AND FLEET OPTIMIZATION.—Under the Program, the Federal Director shall develop guidance, supply assistance to, and track the progress of Federal agencies—

''(i) in conducting portfolio-wide facility energy and water resilience planning and project integration;

''(ii) in building new construction and major renovations to meet the sustainable design and energy and water performance standards required under this section;

''(iii) in developing guidelines for—

''(I) building commissioning; and

''(II) facility operations and maintenance; and

''(iv) in coordination with the Administrator of the General Services Administration, in meeting statutory and agency goals for Federal fleet vehicles.

''(3) FEDERAL DIRECTOR.—

''(A) APPOINTMENT.—The Secretary shall appoint an individual to serve as Federal Director of the Program, which shall be a career position in the Senior Executive service, to manage the Program and carry out the activities of the Program described in paragraph (2).

''(B) DUTIES.—The Federal Director shall—

''(i) oversee, manage, and administer the Program;

''(ii) provide leadership in energy and water management, energy-related investment practices, and environmental stewardship through coordination with Federal agencies and other appropriate entities; and

''(iii) establish a management council to advise the Federal Director that shall—

''(I) convene not less frequently than once every quarter; and

''(II) consist of representatives from—

''(aa) the Council on Environmental Quality;

''(bb) the Office of Management and Budget; and

''(cc) the Office of Federal High-Performance Green Buildings in the General Services Administration.

''(4) SAVINGS CLAUSE.—Nothing in this subsection impedes, supersedes, or alters the authority of the Secretary to carry out the remainder of this section or section 305 of the Energy Conservation and Production Act (42 U.S.C. 6834).

''(5) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out this subsection $36,000,000 for each of fiscal years 2021 through 2031.''.

SEC. 1033. USE OF ENERGY AND WATER EFFICIENCY MEASURES IN FEDERAL BUILDINGS.

(a) REPORTS.—Section 548(b) of the National Energy Conservation Policy Act (42 U.S.C. 8258(b)) is amended—

(1) in paragraph (3), by striking ''and'' at the end;

(2) in paragraph (4), by striking the period at the end and inserting ''; and''; and

(3) by adding at the end the following:

''(5)(A) the status of the energy savings performance contracts and utility energy service contracts of each agency, to the extent that the information is not duplicative of information provided to the Secretary under a separate authority;

''(B) the quantity and investment value of the contracts for the previous year;

''(C) the guaranteed energy savings, or for contracts without a guarantee, the estimated energy savings, for the previous year, as compared to the measured energy savings for the previous year;

''(D) a forecast of the estimated quantity and investment value of contracts anticipated in the following year for each agency; and

''(E)(i) a comparison of the information described in subparagraph (B) and the forecast described in subparagraph (D) in the report of the previous year; and

''(ii) if applicable, the reasons for any differences in the data compared under clause (i).''.

(b) DEFINITION OF ENERGY CONSERVATION MEASURES.—Section 551(4) of the National Energy Conservation Policy Act (42 U.S.C. 8259(4)) is amended by striking ''or retrofit activities'' and inserting ''retrofit activities, or energy consuming devices and required support structures''.

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

(1) in clause (i), by striking ''or'' at the end;

(2) in clause (ii), by striking the period at the end and inserting ''; or''; and

(3) by adding at the end the following:

''(iii) limit the recognition of operation and maintenance savings associated with systems modernized or replaced with the implementation of energy conservation measures, water conservation measures, or any combination of energy conservation measures and water conservation measures.''.

(d) MISCELLANEOUS AUTHORITY; EXCLUDED CONTRACTS.—Section 801(a)(2) of the National Energy Conservation Policy Act (42 U.S.C. 8287(a)(2)) is amended by adding at the end the following:

''(H) MISCELLANEOUS AUTHORITY.—Notwithstanding subtitle I of title 40, United States Code, a Federal agency may accept, retain, sell, or transfer, and apply the proceeds of the sale or transfer of, any energy and water incentive, rebate, grid services revenue, or credit (including a renewable energy certificate) to fund a contract under this title.

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

''(i) at a Federal hydroelectric facility that provides power marketed by a Power Marketing Administration; or

''(ii) at a hydroelectric facility owned and operated by the Tennessee Valley Authority established under the Tennessee Valley Authority Act of 1933 (16 U.S.C. 831 et seq.).''.

(e) PAYMENT OF COSTS.—Section 802 of the National Energy Conservation Policy Act (42 U.S.C. 8287a) is amended by striking ''(and related operation and maintenance expenses)'' and inserting '', including related operations and maintenance expenses''.

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

(1) in subparagraph (A), by striking ''federally owned building or buildings or other federally owned facilities'' and inserting ''Federal building (as defined in section 551)'' each place it appears;

(2) in subparagraph (C), by striking ''; and'' and inserting a semicolon;

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

(4) by adding at the end the following:

''(E) the use, sale, or transfer of any energy and water incentive, rebate, grid services revenue, or credit (including a renewable energy certificate); and

''(F) any revenue generated from a reduction in energy or water use, more efficient waste recycling, or additional energy generated from more efficient equipment.''.

SEC. 1034. FEDERAL BUILDING ENERGY EFFICIENCY PERFORMANCE STANDARDS; CERTIFICATION SYSTEM AND LEVEL FOR GREEN BUILDINGS.

(a) DEFINITIONS.—Section 303 of the Energy Conservation and Production Act (42 U.S.C. 6832) is amended—

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

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

(3) by inserting after paragraph (10) (as so redesignated) the following:

''(11) MAJOR RENOVATION.—The term 'major renovation' means a modification of the energy systems of a building that is sufficiently extensive to ensure that the entire building can achieve compliance with applicable energy standards for new buildings, as established by the Secretary.''.

(b) FEDERAL BUILDING EFFICIENCY STANDARDS.—Section 305 of the Energy Conservation and Production Act (42 U.S.C. 6834) is amended—

(1) in subsection (a)—

(A) in paragraph (2)(A), by striking ''the 2004 International Energy Conservation Code (in the case of residential buildings) or ASHRAE Standard 90.1–2004 (in the case of commercial buildings)'' and inserting ''the most recently published edition of the International Energy Conservation Code (in the case of residential buildings) or ASHRAE Standard 90.1 (in the case of commercial buildings) on the date of enactment of the American Energy Innovation Act of 2020''; and

(B) in paragraph (3)—

(i) by striking ''(3)(A) Not later than'' and all that follows through subparagraph (B) and inserting the following:

''(3) REVISED FEDERAL BUILDING ENERGY EFFICIENCY PERFORMANCE STANDARDS; CERTIFICATION FOR GREEN BUILDINGS.—

''(A) REVISED FEDERAL BUILDING ENERGY EFFICIENCY PERFORMANCE STANDARDS.—

''(i) IN GENERAL.—Not later than 1 year after the date of enactment of the American

Energy Innovation Act of 2020, the Secretary shall establish, by regulation, revised Federal building energy efficiency performance standards that require that—

''(I) subject to clause (ii), new Federal buildings and Federal buildings with major renovations—

''(aa) meet or exceed the most recently published version of the International Energy Conservation Code (in the case of residential buildings) or ASHRAE Standard 90.1 (in the case of commercial buildings) as of the date of enactment of the American Energy Innovation Act of 2020; and

''(bb) meet or exceed the energy provisions of the State and local building codes applicable to the building if the codes are more stringent than the most recently published version of the International Energy Conservation Code or ASHRAE Standard 90.1 as of the date of enactment of the American Energy Innovation Act of 2020, as applicable;

''(II) unless demonstrated not to be life cycle cost-effective for new Federal buildings and Federal buildings with major renovations—

''(aa) the buildings shall be designed to achieve energy consumption levels that are not less than 30 percent below the levels established in the most recently published version of the International Energy Conservation Code or the ASHRAE Standard, as of the date of enactment of the American Energy Innovation Act of 2020, as appropriate, unless the Secretary determines, pursuant to subparagraph (B), that a subsequent version of such a standard or code shall apply; and

''(bb) sustainable design principles are applied to the location, siting, design, and construction of all new Federal buildings and replacement Federal buildings;

''(III) if water is used to achieve energy efficiency, water conservation technologies shall be applied to the extent that the technologies are life-cycle cost effective; and

''(IV) if life-cycle cost effective, as compared to other reasonably available technologies, not less than 30 percent of the hot water demand for each new Federal building or Federal building undergoing a major renovation be met through the installation and use of solar hot water heaters.

''(ii) EXCEPTION.—Clause (i)(I) shall not apply to the unaltered portions of Federal buildings and systems that have undergone major renovations.

''(B) UPDATES.—Not later than 1 year after the date of approval of each subsequent revision of the ASHRAE Standard or the International Energy Conservation Code, as appropriate, the Secretary shall determine whether the revised standards established under subclauses (I) and (II) of subparagraph (A)(i) should be updated to reflect the revisions, based on the energy savings and life cycle cost-effectiveness of the revisions.'';

(ii) in subparagraph (C)—

(I) by striking ''(C) In the budget request'' and inserting the following:

''(C) BUDGET REQUEST.—In the budget request''; and

(II) by indenting clauses (i) and (ii) appropriately; and

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

''(D) CERTIFICATION FOR GREEN BUILDINGS.—

''(i) SUSTAINABLE DESIGN PRINCIPLES.—Sustainable design principles shall be applied to the siting, design, and construction of buildings covered by this subparagraph.

''(ii) SELECTION OF CERTIFICATION SYSTEMS.—The Secretary, after reviewing the findings of the Federal Director under section 436(h) of the Energy Independence and Security Act of 2007 (42 U.S.C. 17092(h)), in consultation with the Administrator of General Services, and in consultation with the Secretary of Defense relating to those facilities under the custody and control of the Department of Defense, shall determine those certification systems for green commercial and residential buildings that the Secretary determines to be the most likely to encourage a comprehensive and environmentally sound approach to certification of green buildings.

''(iii) BASIS FOR SELECTION.—The determination of the certification systems under clause (ii) shall be based on ongoing review of the findings of the Federal Director under section 436(h) of the Energy Independence and Security Act of 2007 (42 U.S.C. 17092(h)) and the criteria described in clause (v).

''(iv) ADMINISTRATION.—In determining certification systems under this subparagraph, the Secretary shall—

''(I) make a separate determination for all or part of each system; and

''(II) confirm that the criteria used to support the selection of building products, materials, brands, and technologies—

''(aa) are based on relevant technical data;

''(bb) use and reward evaluation of health, safety, and environmental risks and impacts across the lifecycle of the building product, material, brand, or technology, including methodologies generally accepted by the applicable scientific disciplines;

''(cc) as practicable, give preference to performance standards instead of prescriptive measures; and

''(dd) reward continual improvements in the lifecycle management of health, safety, and environmental risks and impacts.

''(v) CONSIDERATIONS.—In determining the green building certification systems under this subparagraph, the Secretary shall take into consideration—

''(I) the ability and availability of assessors and auditors to independently verify the criteria and measurement of metrics at the scale necessary to implement this subparagraph;

''(II) the ability of the applicable certification organization to collect and reflect public comment;

''(III) the ability of the standard to be developed and revised through a consensus-based process;

''(IV) an evaluation of the robustness of the criteria for a high-performance green building, which shall give credit for promoting—

''(aa) efficient and sustainable use of water, energy, and other natural resources;

''(bb) use of renewable energy sources;

''(cc) improved indoor environmental quality through enhanced indoor air quality, thermal comfort, acoustics, day lighting, pollutant source control, and use of low-emission materials and building system controls;

''(dd)(AA) the sourcing of grown, harvested, or mined materials; and

''(BB) certifications of responsible sourcing, such as certifications provided by the Forest Stewardship Council, the Sustainable Forestry Initiative, the American Tree Farm System, or the Programme for the Endorsement of Forest Certification; and

''(ee) such other criteria as the Secretary determines to be appropriate; and

''(V) national recognition within the building industry.

''(vi) REVIEW.—The Secretary, in consultation with the Administrator of General Services and the Secretary of Defense, shall conduct an ongoing review to evaluate and compare private sector green building certification systems, taking into account—

''(I) the criteria described in clause (v); and

''(II) the identification made by the Federal Director under section 436(h) of the Energy Independence and Security Act of 2007 (42 U.S.C. 17092(h)).

''(vii) EXCLUSIONS.—

''(I) IN GENERAL.—Subject to subclause (II), if a certification system fails to meet the review requirements of clause (v), the Secretary shall—

''(aa) identify the portions of the system, whether prerequisites, credits, points, or otherwise, that meet the review criteria of clause (v);

''(bb) determine the portions of the system that are suitable for use; and

''(cc) exclude all other portions of the system from identification and use.

''(II) ENTIRE SYSTEMS.—The Secretary shall exclude an entire system from use if an exclusion under subclause (I)—

''(aa) impedes the integrated use of the system;

''(bb) creates disparate review criteria or unequal point access for competing materials; or

''(cc) increases agency costs of the use.

''(viii) INTERNAL CERTIFICATION PROCESSES.—The Secretary may by rule allow Federal agencies to develop internal certification processes, using certified professionals, in lieu of certification by certification entities identified under clause (ii).

''(ix) PRIVATIZED MILITARY HOUSING.—With respect to privatized military housing, the Secretary of Defense, after consultation with the Secretary may, through rulemaking, develop alternative certification systems and levels than the systems and levels identified under clause (ii) that achieve an equivalent result in terms of energy savings, sustainable design, and green building performance.

''(x) WATER CONSERVATION TECHNOLOGIES.—In addition to any use of water conservation technologies otherwise required by this section, water conservation technologies shall be applied to the extent that the technologies are life-cycle cost-effective.

''(xi) EFFECTIVE DATE.—

''(I) DETERMINATIONS MADE AFTER DECEMBER 31, 2020.—This subparagraph shall apply to any determination made by a Federal agency after December 31, 2020.

''(II) DETERMINATIONS MADE ON OR BEFORE DECEMBER 31, 2020.—This subparagraph (as in effect on the day before the date of enactment of the American Energy Innovation Act of 2020) shall apply to any use of a certification system for green commercial and residential buildings by a Federal agency on or before December 31, 2020.''; and

(2) by striking subsections (c) and (d) and inserting the following:

''(c) PERIODIC REVIEW.—The Secretary shall—

''(1) once every 5 years, review the Federal building energy standards established under this section; and

''(2) on completion of a review under paragraph (1), if the Secretary determines that significant energy savings would result, upgrade the standards to include all new energy efficiency and renewable energy measures that are technologically feasible and economically justified.''.

(c) FEDERAL COMPLIANCE.—Section 306 of the Energy Conservation and Production Act (42 U.S.C. 6835) is amended—

(1) in subsection (a)—

(A) in paragraph (1)—

(i) by striking ''(1) The head'' and inserting the following:

''(1) IN GENERAL.—The head''; and

(ii) by striking ''assure that new Federal buildings'' and inserting ''ensure that new Federal buildings and Federal buildings with major renovations''; and

(B) in paragraph (2)—

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

''(B) PROCEDURES.—The Architect of the Capitol shall adopt procedures necessary to

ensure that the buildings referred to in subparagraph (A) meet or exceed the standards described in that subparagraph.''; and

(ii) in the first sentence—

(I) by inserting ''and Federal buildings with major renovations'' after ''new buildings''; and

(II) by striking ''(2) The Federal'' and inserting the following:

''(2) APPLICABILITY.—

''(A) IN GENERAL.—The Federal''; and

(2) in subsection (b)—

(A) by striking the subsection heading and inserting ''EXPENDITURES''; and

(B) by striking ''new Federal building'' and all that follows through the period at the end and inserting ''new Federal building or a Federal building with major renovations.''.

SEC. 1035. ENERGY-EFFICIENT AND ENERGY-SAVING INFORMATION TECHNOLOGIES.

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

''(i) FEDERAL IMPLEMENTATION STRATEGY FOR ENERGY-EFFICIENT AND ENERGY-SAVING INFORMATION TECHNOLOGIES.—

''(1) DEFINITIONS.—In this subsection:

''(A) DIRECTOR.—The term 'Director' means the Director of the Office of Management and Budget.

''(B) INFORMATION TECHNOLOGY.—The term 'information technology' has the meaning given that term in section 11101 of title 40, United States Code.

''(2) DEVELOPMENT OF IMPLEMENTATION STRATEGY.—Not later than 1 year after the date of enactment of the American Energy Innovation Act of 2020, each Federal agency shall coordinate with the Director, the Secretary, and the Administrator of the Environmental Protection Agency to develop an implementation strategy (including best-practices and measurement and verification techniques) for the maintenance, purchase, and use by the Federal agency of energy-efficient and energy-saving information technologies at or for facilities owned and operated by the Federal agency, taking into consideration the performance goals established under paragraph (4).

''(3) ADMINISTRATION.—In developing an implementation strategy under paragraph (2), each Federal agency shall consider—

''(A) advanced metering infrastructure;

''(B) energy efficient data center strategies and methods of increasing asset and infrastructure utilization;

''(C) advanced power management tools;

''(D) building information modeling, including building energy management;

''(E) secure telework and travel substitution tools; and

''(F) mechanisms to ensure that the agency realizes the energy cost savings of increased efficiency and utilization.

''(4) PERFORMANCE GOALS.—

''(A) IN GENERAL.—Not later than 180 days after the date of enactment of the American Energy Innovation Act of 2020, the Director, in consultation with the Secretary, shall establish performance goals for evaluating the efforts of Federal agencies in improving the maintenance, purchase, and use of energy-efficient and energy-saving information technology at or for facilities owned and operated by the Federal agencies.

''(B) BEST PRACTICES.—The Chief Information Officers Council established under section 3603 of title 44, United States Code, shall recommend best practices for the attainment of the performance goals established under subparagraph (A), which shall include, to the extent applicable by law, consideration by a Federal agency of the use of—

''(i) energy savings performance contracting; and

''(ii) utility energy services contracting.

''(5) REPORTS.—

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

''(B) OMB GOVERNMENT EFFICIENCY REPORTS AND SCORECARDS.—Effective beginning not later than October 1, 2022, the Director shall include in the annual report and scorecard of the Director required under section 528 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17144) a description of the efforts and results of Federal agencies under this subsection.

''(C) USE OF EXISTING REPORTING STRUCTURES.—The Director may require Federal agencies to submit any information required to be submitted under this subsection though reporting structures in use as of the date of enactment of the American Energy Innovation Act of 2020.''.

SEC. 1036. HIGH-PERFORMANCE GREEN FEDERAL BUILDINGS.

Section 436(h) of the Energy Independence and Security Act of 2007 (42 U.S.C. 17092(h)) is amended—

(1) in the subsection heading, by striking ''SYSTEM'' and inserting ''SYSTEMS'';

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

''(1) IN GENERAL.—Based on an ongoing review, the Federal Director shall identify and shall provide to the Secretary pursuant to section 305(a)(3)(D) of the Energy Conservation and Production Act (42 U.S.C. 6834(a)(3)(D)) a list of those certification systems that the Director identifies as the most likely to encourage a comprehensive and environmentally sound approach to certification of green buildings.''; and

(3) in paragraph (2)—

(A) in the matter preceding subparagraph (A), by striking ''system'' and inserting ''systems'';

(B) by striking subparagraph (A) and inserting the following:

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

''(i) be carried out by the Federal Director to compare and evaluate standards; and

''(ii) allow any developer or administrator of a rating system or certification system to be included in the review;'';

(C) in subparagraph (E)(v), by striking ''and'' after the semicolon at the end;

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

(E) by adding at the end the following:

''(G) a finding that, for all credits addressing the sourcing of grown, harvested, or mined materials, the system rewards the use of products that have obtained certifications of responsible sourcing, such as certifications provided by the Sustainable Forestry Initiative, the Forest Stewardship Council, the American Tree Farm System, or the Programme for the Endorsement of Forest Certification; and

''(H) a finding that the system incorporates life-cycle assessment as a credit pathway.''.

SEC. 1037. ENERGY EFFICIENT DATA CENTERS.

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

(1) in subsection (b)—

(A) in paragraph (2)(D)(iv), by striking ''determined by the organization'' and inserting ''proposed by the stakeholders''; and

(B) by striking paragraph (3); and

(2) by striking subsections (c) through (g) and inserting the following:

''(c) STAKEHOLDER INVOLVEMENT.—

''(1) IN GENERAL.—The Secretary and the Administrator shall carry out subsection (b) in collaboration with the information technology industry and other key stakeholders, with the goal of producing results that accurately reflect the most relevant and useful information.

''(2) CONSIDERATIONS.—In carrying out the collaboration described in paragraph (1), the Secretary and the Administrator shall pay particular attention to organizations that—

''(A) have members with expertise in energy efficiency and in the development, operation, and functionality of data centers, information technology equipment, and software, including representatives of hardware manufacturers, data center operators, and facility managers;

''(B) obtain and address input from the National Laboratories (as that term is defined in section 2 of the Energy Policy Act of 2005 (42 U.S.C. 15801)) or any institution of higher education, research institution, industry association, company, or public interest group with applicable expertise;

''(C) follow—

''(i) commonly accepted procedures for the development of specifications; and

''(ii) accredited standards development processes; or

''(D) have a mission to promote energy efficiency for data centers and information technology.

''(d) MEASUREMENTS AND SPECIFICATIONS.—The Secretary and the Administrator shall consider and assess the adequacy of the specifications, measurements, best practices, and benchmarks described in subsection (b) for use by the Federal Energy Management Program, the Energy Star Program, and other efficiency programs of the Department of Energy or the Environmental Protection Agency.

''(e) STUDY.—

''(1) DEFINITION OF REPORT.—In this subsection, the term 'report' means the report of the Lawrence Berkeley National Laboratory entitled 'United States Data Center Energy Usage Report' and dated June 2016, which was prepared as an update to the 'Report to Congress on Server and Data Center Energy Efficiency', published on August 2, 2007, pursuant to section 1 of Public Law 109–431 (120 Stat. 2920).

''(2) STUDY.—Not later than 4 years after the date of enactment of the American Energy Innovation Act of 2020, the Secretary, in collaboration with the Administrator, shall make available to the public an update to the report that provides—

''(A) a comparison and gap analysis of the estimates and projections contained in the report with new data regarding the period from 2015 through 2019;

''(B) an analysis considering the impact of information technologies, including virtualization and cloud computing, in the public and private sectors;

''(C) an evaluation of the impact of the combination of cloud platforms, mobile devices, social media, and big data on data center energy usage;

''(D) an evaluation of water usage in data centers and recommendations for reductions in that water usage; and

''(E) updated projections and recommendations for best practices through fiscal year 2025.

''(f) DATA CENTER ENERGY PRACTITIONER PROGRAM.—

''(1) IN GENERAL.—The Secretary, in collaboration with key stakeholders and the Director of the Office of Management and Budget, shall maintain a data center energy practitioner program that provides for the

certification of energy practitioners qualified to evaluate the energy usage and efficiency opportunities in federally owned and operated data centers.

''(2) EVALUATIONS.—Each Federal agency shall consider having the data centers of the agency evaluated once every 4 years by energy practitioners certified pursuant to the program, whenever practicable using certified practitioners employed by the agency.

''(g) OPEN DATA INITIATIVE.—

''(1) IN GENERAL.—The Secretary, in collaboration with key stakeholders and the Director of the Office of Management and Budget, shall establish an open data initiative relating to energy usage at federally owned and operated data centers, with the purpose of making the data available and accessible in a manner that encourages further data center innovation, optimization, and consolidation.

''(2) CONSIDERATION.—In establishing the initiative under paragraph (1), the Secretary shall consider using the online Data Center Maturity Model.

''(h) INTERNATIONAL SPECIFICATIONS AND METRICS.—The Secretary, in collaboration with key stakeholders, shall actively participate in efforts to harmonize global specifications and metrics for data center energy and water efficiency.

''(i) DATA CENTER UTILIZATION METRIC.—The Secretary, in collaboration with key stakeholders, shall facilitate in the development of an efficiency metric that measures the energy efficiency of a data center (including equipment and facilities).

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

Subpart D—Rebates and Certifications

SEC. 1041. THIRD-PARTY CERTIFICATION UNDER ENERGY STAR PROGRAM.

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

''(e) THIRD-PARTY CERTIFICATION.—

''(1) IN GENERAL.—Subject to paragraph (2), not later than 180 days after the date of enactment of this subsection, the Administrator shall revise the certification requirements for the labeling of consumer, home, and office electronic products for program partners that have complied with all requirements of the Energy Star program for a period of at least 18 months.

''(2) ADMINISTRATION.—In the case of a program partner described in paragraph (1), the new requirements under paragraph (1)—

''(A) shall not require third-party certification for a product to be listed; but

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

''(3) THIRD PARTIES.—Nothing in this subsection prevents the Administrator from using third parties in the course of the administration of the Energy Star program.

''(4) TERMINATION.—

''(A) IN GENERAL.—Subject to subparagraph (B), an exemption from third-party certification provided to a program partner under paragraph (1) shall terminate if the program partner is found to have violated program requirements with respect to at least 2 separate models during a 2-year period.

''(B) RESUMPTION.—A termination for a program partner under subparagraph (A) shall cease if the program partner complies with all Energy Star program requirements for a period of at least 3 years.''.

SEC. 1042. EXTENDED PRODUCT SYSTEM REBATE PROGRAM.

(a) DEFINITIONS.—In this section:

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

(2) ELECTRONIC CONTROL.—The term ''electronic control'' means—

(A) a power converter; or

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

(3) EXTENDED PRODUCT SYSTEM.—The term ''extended product system'' means an electric motor and any required associated electronic control and driven load that—

(A) offers variable speed or multispeed operation;

(B) offers partial load control that reduces input energy requirements (as measured in kilowatt-hours) as compared to identified base levels set by the Secretary; and

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

(ii) uses an extended product system technology, as determined by the Secretary.

(4) QUALIFIED EXTENDED PRODUCT SYSTEM.—

(A) IN GENERAL.—The term ''qualified extended product system'' means an extended product system that—

(i) includes an electric motor and an electronic control; and

(ii) reduces the input energy (as measured in kilowatt-hours) required to operate the extended product system by not less than 5 percent, as compared to identified base levels set by the Secretary.

(B) INCLUSIONS.—The term ''qualified extended product system'' includes commercial or industrial machinery or equipment that—

(i)(I) did not previously make use of the extended product system prior to the redesign described in subclause (II); and

(II) incorporates an extended product system that has greater than 1 horsepower into redesigned machinery or equipment; and

(ii) was previously used prior to, and was placed back into service during, calendar year 2021 or 2022.

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

(c) QUALIFIED ENTITIES.—

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

(A) in the case of a qualified extended product system described in subsection (a)(4)(A), the purchaser of the qualified extended product that is installed; and

(B) in the case of a qualified extended product system described in subsection (a)(4)(B), the manufacturer of the commercial or industrial machinery or equipment that incorporated the extended product system into that machinery or equipment.

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

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

(B) a certification that includes demonstrated evidence—

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

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

(aa) that the qualified entity installed the qualified extended product system during the 2 fiscal years following the date of enactment of this Act;

(bb) that the qualified extended product system meets the requirements of subsection (a)(4)(A); and

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

(II) in the case of a qualified entity described in paragraph (1)(B), demonstrated evidence—

(aa) that the qualified extended product system meets the requirements of subsection (a)(4)(B); and

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

(d) AUTHORIZED AMOUNT OF REBATE.—

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

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

(i) the electric motor to which the qualified extended product system is attached; and

(ii) the electronic control; and

(B) $25.

(2) MAXIMUM AGGREGATE AMOUNT.—A qualified entity shall not be entitled to aggregate rebates under this section in excess of $25,000 per calendar year.

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

SEC. 1043. ENERGY EFFICIENT TRANSFORMER REBATE PROGRAM.

(a) DEFINITIONS.—In this section:

(1) QUALIFIED ENERGY EFFICIENT TRANSFORMER.—The term ''qualified energy efficient transformer'' means a transformer that meets or exceeds the applicable energy conservation standards described in the tables in subsection (b)(2) and paragraphs (1) and (2) of subsection (c) of section 431.196 of title 10, Code of Federal Regulations (as in effect on the date of enactment of this Act).

(2) QUALIFIED ENERGY INEFFICIENT TRANSFORMER.—The term ''qualified energy inefficient transformer'' means a transformer with an equal number of phases and capacity to a transformer described in any of the tables in subsection (b)(2) and paragraphs (1) and (2) of subsection (c) of section 431.196 of title 10, Code of Federal Regulations (as in effect on the date of enactment of this Act) that—

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

(B)(i) was manufactured between January 1, 1987, and December 31, 2008, for a transformer with an equal number of phases and capacity as a transformer described in the table in subsection (b)(2) of section 431.196 of title 10, Code of Federal Regulations (as in effect on the date of enactment of this Act); or

(ii) was manufactured between January 1, 1992, and December 31, 2011, for a transformer with an equal number of phases and capacity as a transformer described in the table in paragraph (1) or (2) of subsection (c) of that section (as in effect on the date of enactment of this Act).

(3) QUALIFIED ENTITY.—The term ''qualified entity'' means an owner of industrial or manufacturing facilities, commercial buildings, or multifamily residential buildings, a utility, or an energy service company that fulfills the requirements of subsection (d).

(b) ESTABLISHMENT.—Not later than 90 days after the date of enactment of this Act, the

Secretary shall establish a program to provide rebates to qualified entities for expenditures made by the qualified entity for the replacement of a qualified energy inefficient transformer with a qualified energy efficient transformer.

(c) REQUIREMENTS.—To be eligible to receive a rebate under this section, an entity shall submit to the Secretary an application in such form, at such time, and containing such information as the Secretary may require, including demonstrated evidence—

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

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

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

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

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

(B) for transformers described in subsection (a)(2)(B)(i), as selected from a table of default values as determined by the Secretary in consultation with applicable industry; and

(5) that the qualified energy inefficient transformer has been permanently decommissioned and scrapped.

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

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

(A) the qualified energy inefficient transformer; and

(B) the qualified energy efficient transformer; or

(2) for a transformer described in subsection (a)(2)(B)(i), the amount determined using a table of default rebate values by rated transformer output, as measured in kilovolt-amperes, as determined by the Secretary in consultation with applicable industry.

(e) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section $5,000,000 for each of fiscal years 2021 and 2022, to remain available until expended.

(f) TERMINATION OF EFFECTIVENESS.—The authority provided by this section terminates on December 31, 2022.

Subpart E—Miscellaneous

SEC. 1051. ADVANCE APPROPRIATIONS REQUIRED.

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

PART II—WEATHERIZATION

SEC. 1101. WEATHERIZATION ASSISTANCE PROGRAM.

(a) DEFINITION OF WEATHERIZATION MATERIALS.—Section 412(9)(J) of the Energy Conservation and Production Act (42 U.S.C. 6862(9)(J)) is amended—

(1) by inserting '', including renewable energy technologies and other advanced technologies,'' after ''technologies''; and

(2) by striking ''Development,'' and all that follows through the period at the end and inserting ''Development and the Secretary of Agriculture.''.

(b) ALLOWANCE FOR HEALTH AND SAFETY BENEFITS.—Section 413(b) of the Energy Conservation and Production Act (42 U.S.C. 6863(b)) is amended—

(1) in paragraph (2)(B), by striking ''paragraph (5)'' and inserting ''paragraph (6)'';

(2) in paragraph (3)—

(A) in the first sentence, by striking ''and with the Director of the Community Services Administration''; and

(B) in the first sentence of the undesignated matter following subparagraph (C)—

(i) by striking ''part,'' and inserting ''part and by''; and

(ii) by striking '', and the Director'' and all that follows through ''1964'';

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

(4) by inserting after paragraph (4) the following:

''(5) In carrying out paragraph (3), the Secretary may take into consideration evidence-based values for improvements in the health and safety of occupants of weatherized homes, and other non-energy benefits, as determined by the Secretary.''.

(c) CONTRACTOR OPTIMIZATION.—

(1) TECHNICAL TRANSFER GRANTS.—Section 414B(a)(4) of the Energy Conservation and Production Act (42 U.S.C. 6864b(a)(4)) is amended—

(A) by striking ''for persons'' and inserting the following: ''for—

''(A) persons''; and

(B) in subparagraph (A) (as so designated), by striking the period at the end and inserting the following: ''; and

''(B) private entities that are contracted to provide weatherization assistance under this part, in accordance with rules determined by the Secretary.''.

(2) CONTRACTOR OPTIMIZATION.—The Energy Conservation and Production Act is amended by inserting after section 414B (42 U.S.C. 6864b) the following:

''SEC. 414C. CONTRACTOR OPTIMIZATION.

''The Secretary may request that entities receiving funding from the Federal Government or from a State through a weatherization assistance program under section 413 or 414—

''(1) perform periodic reviews of the use of private contractors in the provision of weatherization assistance, if applicable; and

''(2) encourage an increased use and expanded role of contractors as appropriate.''.

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

''Sec. 414C. Contractor optimization.''.

(d) FINANCIAL ASSISTANCE FOR WAP ENHANCEMENT AND INNOVATION.—

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

''SEC. 414D. FINANCIAL ASSISTANCE FOR WAP ENHANCEMENT AND INNOVATION.

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

''(1) to expand the number of dwelling units that are occupied by low-income persons that receive weatherization assistance under this section by making those dwelling units weatherization-ready;

''(2) to promote the deployment of renewable energy in dwelling units that are occupied by low-income persons;

''(3) to ensure healthy indoor environments by enhancing or expanding health and safety measures and resources available to dwellings that are occupied by low-income persons;

''(4) to disseminate new methods and best practices among eligible entities providing weatherization assistance under this section; and

''(5) to encourage eligible entities providing weatherization assistance to hire and retain employees who are individuals—

''(A) from the community in which the assistance is provided; and

''(B) from communities or groups underrepresented in the home energy performance workforce.

''(b) DEFINITION OF ELIGIBLE ENTITY.—In this section, the term 'eligible entity' means—

''(1) an entity receiving funding from the Federal Government or from a State, Tribal, or local government through a weatherization assistance program under section 413 or 414; and

''(2) a nonprofit organization.

''(c) FINANCIAL ASSISTANCE AWARDS.—The Secretary shall, to the extent funds are made available, award financial assistance on an annual basis through a competitive process to an eligible entity—

''(1) with respect to dwelling units that are occupied by low-income persons—

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

''(B) to install energy efficiency technologies, including home energy management systems, smart devices, and other technologies the Secretary determines to be appropriate;

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

''(D) to implement measures to ensure healthy indoor environments by improving indoor air quality, accessibility, and other healthy home measures, as determined by the Secretary;

''(2) to improve the capability of the eligible entity—

''(A) to significantly increase the number of energy retrofits performed by the eligible entity;

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

''(C) to leverage additional funds to sustain the provision of weatherization assistance and other work performed under this section after the financial assistance awarded under this section is expended; and

''(D) to hire and retain employees described in subsection (a)(5);

''(3) for innovative outreach and education regarding the benefits and availability of weatherization assistance and other assistance available under this section;

''(4) for quality control of work performed under this section;

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

''(6) for program monitoring, oversight, evaluation, and reporting of that work;

''(7) for labor, training, and technical assistance relating to that work;

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

''(9) for any other appropriate activity, as determined by the Secretary.

''(d) APPLICATIONS.—To be eligible for an award of financial assistance under this section, an eligible entity shall submit to the Secretary an application in such manner and containing such information as the Secretary may require.

''(e) AWARD FACTORS.—In awarding financial assistance under this section, the Secretary shall consider—

''(1) the record of the eligible entity, using the most recent year for which data are available, in constructing, renovating, repairing, and making energy efficient single-family, multifamily, or manufactured homes

that are occupied by low-income persons, either directly or through affiliates, chapters, or other partners;

''(2) the number of dwelling units occupied by low-income persons that the eligible entity has built, renovated, repaired, weatherized, and made more energy efficient in the 5 years immediately preceding the date on which the eligible entity submits an application under subsection (d);

''(3) the qualifications, experience, and past performance of the eligible entity, including experience successfully managing and administering Federal funds;

''(4) the strength of the proposal of the eligible entity to achieve one or more of the purposes described in subsection (a);

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

''(6) regional and climate zone diversity;

''(7) urban, suburban, and rural localities; and

''(8) any other appropriate factor, as determined by the Secretary.

''(f) FIRST AWARD.—Subject to the availability of appropriations, not later than 270 days after the date of enactment of this section, the Secretary shall make a first award of financial assistance under this section.

''(g) AMOUNT AND TERM.—

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

''(2) PLANNING, MANAGEMENT, AND ADMINISTRATION.—Of the amount awarded to an eligible entity under this section, not more than 15 percent may be used by the eligible entity for the purpose described in subsection (c)(8).

''(3) TECHNICAL AND TRAINING ASSISTANCE.—The total amount of financial assistance awarded to an entity under this section shall be reduced by the cost of any technical and training assistance provided by the Secretary under this section that relates to that financial assistance.

''(4) TERM.—The term of an award of financial assistance under this section shall not exceed 3 years.

''(5) RELATIONSHIP TO FORMULA GRANTS.—An eligible entity may use financial assistance awarded under this section in conjunction with other financial assistance provided to the eligible entity under this part.

''(h) GUIDANCE.—Not later than 90 days after the date of enactment of this section, the Secretary shall issue guidance on implementing this section, which shall include, with respect to eligible entities awarded financial assistance under this section—

''(1) standards for allowable expenditures;

''(2) a minimum saving-to-investment ratio; and

''(3) standards for—

''(A) training programs;

''(B) energy audits;

''(C) the provision of technical assistance;

''(D) monitoring activities carried out using the financial assistance;

''(E) verification of energy and cost savings;

''(F) liability insurance requirements; and

''(G) recordkeeping and reporting requirements, which shall include reporting to the Office of Weatherization and Intergovernmental Programs of the Department of Energy applicable data on each dwelling unit retrofitted or otherwise assisted by the eligible entity using the financial assistance.

''(i) COMPLIANCE WITH STATE AND LOCAL LAW.—Nothing in this section supersedes or modifies any State or local law to the extent that the State or local law is more stringent than this section.

''(j) REVIEW AND EVALUATION.—The Secretary shall review and evaluate the performance of each eligible entity that receives an award of financial assistance under this section, which may include an audit.

''(k) ANNUAL REPORT.—The Secretary shall submit to the relevant committees of Congress an annual report that describes—

''(1) the actions taken by the Secretary and eligible entities awarded financial assistance under this section to achieve the purposes of this section during the year covered by the report; and

''(2) the energy and cost savings, and any other accomplishments, achieved under this section during the year covered by the report.

''(l) FUNDING.—

''(1) IN GENERAL.—Subject to paragraphs (2) and (3), for each of fiscal years 2021 through 2025, of the amount appropriated under section 422—

''(A) if the amount is not more than $225,000,000, no funds shall be used to carry out this section;

''(B) if the amount is not more than $260,000,000, not more than 2 percent of that amount may be used to carry out this section;

''(C) if the amount is not more than $300,000,000, not more than 4 percent of that amount may be used to carry out this section; and

''(D) if the amount is more than $300,000,000, not more than 6 percent of that amount may be used to carry out this section.

''(2) AMOUNTS EXCLUDED.—Each amount described in paragraph (1) shall not include the amount made available for Department of Energy headquarters training or technical assistance.

''(3) MAXIMUM AMOUNT.—The maximum amount used to carry out this section in each fiscal year shall not exceed $25,000,000.''.

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

''Sec. 414D. Financial assistance for WAP enhancement and innovation.''.

(e) INCREASE IN ADMINISTRATIVE FUNDS.—Section 415(a)(1) of the Energy Conservation and Production Act (42 U.S.C. 6865(a)(1)) is amended by striking ''10 percent'' and inserting ''15 percent''.

(f) REWEATHERIZATION DATE.—Section 415(c) of the Energy Conservation and Production Act (42 U.S.C. 6865(c)) is amended by striking paragraph (2) and inserting the following:

''(2) FURTHER ASSISTANCE.—

''(A) DEFINITION OF INTERIM SERVICE.—

''(i) IN GENERAL.—In this paragraph, the term 'interim service' means an energy service that takes place between instances of weatherization or partial weatherization of a dwelling unit, as determined by the Secretary.

''(ii) INCLUSION.—In this paragraph, the term 'interim service' includes—

''(I) the provision of energy information and education to assist with energy management;

''(II) an evaluation of the effectiveness of installed weatherization measures; and

''(III) the provision of services, equipment, or other measures funded by non-Federal funds, as determined by the Secretary.

''(B) FURTHER ASSISTANCE.—Dwelling units weatherized or partially weatherized under this part, or under other Federal programs—

''(i) may not receive further financial assistance for weatherization under this part until the date that is 15 years after the date on which the previous weatherization was completed; and

''(ii) may receive further financial assistance for weatherization under this part for the purpose of providing an interim service.''.

(g) ANNUAL REPORT.—Section 421 of the Energy Conservation and Production Act (42 U.S.C. 6871) is amended in the second sentence by inserting ''the number of multifamily buildings in which individual dwelling units were weatherized during the previous year, the number of individual dwelling units in multifamily buildings weatherized during the previous year,'' after ''the average size of the dwellings being weatherized,''.

(h) REAUTHORIZATION OF WAP.—Section 422 of the Energy Conservation and Production Act (42 U.S.C. 6872) is amended in the matter preceding paragraph (1) by striking ''appropriated'' and all that follows through ''2012..'' in paragraph (5) and inserting ''appropriated $350,000,000 for each of fiscal years 2021 through 2025.''.

(i) WAIVER STUDY.—

(1) IN GENERAL.—It is the sense of Congress that, to the maximum extent practicable, the Secretary should coordinate with the Director of the Office of Management and Budget to grant waivers of requirements under section 200.313 of title 2, Code of Federal Regulations (or successor regulations), to better leverage private sector funds for the purposes of using funding awarded under the Weatherization Assistance Program for Low-Income Persons established under part A of title IV of the Energy Conservation and Production Act (42 U.S.C. 6861 et seq.).

(2) STUDY.—Not more than 180 days after the date of enactment of this Act, the Secretary shall submit to the relevant committees of Congress a report that describes—

(A) each waiver that has been requested under paragraph (1) after September 30, 2010; and

(B) the determination of the Secretary and the Director of the Office of Management and Budget regarding each waiver described in subparagraph (A).

Subtitle B—Renewable Energy

SEC. 1201. HYDROELECTRIC PRODUCTION INCENTIVES AND EFFICIENCY IMPROVEMENTS.

(a) HYDROELECTRIC PRODUCTION INCENTIVES.—Section 242 of the Energy Policy Act of 2005 (42 U.S.C. 15881) is amended—

(1) in subsection (b), by striking paragraph (1) and inserting the following:

''(1) QUALIFIED HYDROELECTRIC FACILITY.—The term 'qualified hydroelectric facility' means a turbine or other generating device owned or solely operated by a non-Federal entity—

''(A) that generates hydroelectric energy for sale; and

''(B)(i) that is added to an existing dam or conduit; or

''(ii)(I) that has a generating capacity of not more than 20 megawatts;

''(II) for which the non-Federal entity has received a construction authorization from the Federal Energy Regulatory Commission, if applicable; and

''(III) that is constructed in an area in which there is inadequate electric service, as determined by the Secretary, including by taking into consideration—

''(aa) access to the electric grid;

''(bb) the frequency of electric outages; or

''(cc) the affordability of electricity.'';

(2) in subsection (c), by striking ''10'' and inserting ''22'';

(3) in subsection (e)(2), by striking ''section 29(d)(2)(B)'' and inserting ''section 45K(d)(2)(B)'';

(4) in subsection (f), by striking ''20'' and inserting ''32''; and

(5) in subsection (g), by striking ''each of the fiscal years 2006 through 2015'' and inserting ''each of fiscal years 2021 through 2036''.

(b) HYDROELECTRIC EFFICIENCY IMPROVEMENT.—Section 243(c) of the Energy Policy Act of 2005 (42 U.S.C. 15882(c)) is amended by striking ''each of the fiscal years 2006 through 2015'' and inserting ''each of fiscal years 2021 through 2036''.

SEC. 1202. MARINE ENERGY RESEARCH AND DEVELOPMENT.

(a) PURPOSE.—The purpose of this section is to support marine energy programs that—

(1) promote research on, and the development of, increased energy generation and capacity at reduced costs;

(2) promote research and development activities that improve environmental outcomes of marine energy technologies;

(3) provide grid stability and create new market opportunities; and

(4) promote job creation in the energy sector.

(b) DEFINITION OF MARINE ENERGY.—

(1) IN GENERAL.—Section 632 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17211) is amended to read as follows:

''SEC. 632. DEFINITION OF MARINE ENERGY.

''In this subtitle, the term 'marine energy' means energy from—

''(1) waves, tides, and currents in oceans, estuaries, and tidal areas;

''(2) free-flowing hydrokinetic water in rivers, lakes, and streams;

''(3) free-flowing hydrokinetic water in man-made channels; and

''(4) differentials in ocean temperature or ocean thermal energy conversion.''.

(2) CONFORMING EDITS.—

(A) The subtitle heading for subtitle C of title VI of the Energy Independence and Security Act of 2007 (Public Law 110–440; 121 Stat. 1686) is amended by striking ''**and Hydrokinetic Renewable**''.

(B) Section 631 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17001 note; 121 Stat. 1686) is amended by striking ''and Hydrokinetic Renewable''.

(c) MARINE ENERGY RESEARCH AND DEVELOPMENT.—Section 633 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17212) is amended to read as follows:

''SEC. 633. MARINE ENERGY RESEARCH AND DEVELOPMENT.

''(a) IN GENERAL.—The Secretary, acting through the Director of the Water Power Technologies Office, in consultation with the Secretary of the Interior, the Secretary of Commerce, and the Federal Energy Regulatory Commission, shall carry out a program to accelerate the introduction of marine energy production into the United States energy supply, giving priority to technologies most likely to lead to commercial utilization, while fostering accelerated research, development, demonstration, and commercial application of technology, including programs—

''(1) to assist technology development on a variety of scales, including full-scale prototypes, to improve the components, processes, and systems used for power generation from marine energy resources;

''(2) to establish and expand critical testing infrastructure and facilities necessary—

''(A) to cost-effectively and efficiently test and prove marine energy devices; and

''(B) to accelerate the technological readiness and commercialization of those devices;

''(3) to support efforts to increase the efficiency of energy conversion, lower the cost, increase the use, improve the reliability, and demonstrate the applicability of marine energy technologies by participating in demonstration projects;

''(4) to investigate variability issues and the efficient and reliable integration of marine energy with the utility grid;

''(5) to identify and study critical short- and long-term needs to create a sustainable marine energy supply chain based in the United States;

''(6) to increase the reliability and survivability of marine energy technologies;

''(7) to verify the performance, reliability, maintainability, and cost of new marine energy device designs and system components in an operating environment;

''(8) to consider the protection of critical infrastructure, such as adequate separation between marine energy devices and projects and submarine telecommunications cables, including consideration of established industry standards;

''(9)(A) to coordinate the programs carried out under this section with, and avoid duplication of activities across, programs of the Department and other applicable Federal agencies, including National Laboratories; and

''(B) to coordinate public-private collaboration in carrying out the programs under this section;

''(10) to identify opportunities for joint research and development programs and the development of economies of scale between—

''(A) marine energy technologies; and

''(B) other renewable energy and fossil energy programs, offshore oil and gas production activities, and activities of the Department of Defense;

''(11) to identify, in conjunction with the Secretary of Commerce, acting through the Under Secretary of Commerce for Oceans and Atmosphere, and other relevant Federal agencies as appropriate, the potential environmental impacts, including potential impacts on fisheries and other marine resources, of marine energy technologies, measures to prevent adverse impacts, and technologies and other means available for monitoring and determining environmental impacts;

''(12) to identify, in conjunction with the Secretary of the Department in which the United States Coast Guard is operating, acting through the Commandant of the United States Coast Guard, the potential navigational impacts of marine energy technologies and measures to prevent adverse impacts on navigation;

''(13) to support in-water technology development with international partners using existing cooperative procedures (including memoranda of understanding)—

''(A) to allow cooperative funding and other support of value to be exchanged and leveraged; and

''(B) to encourage international research centers and international companies to participate in the development of marine energy technology in the United States and to encourage United States research centers and companies to participate in marine energy projects abroad; and

''(14) to assist in the development of technology necessary to support the use of marine energy—

''(A) for the generation and storage of power at sea, including in applications relating to—

''(i) ocean observation and navigation;

''(ii) underwater vehicle charging;

''(iii) marine aquaculture;

''(iv) production of marine algae; and

''(v) extraction of critical minerals and gasses from seawater;

''(B) for the generation and storage of power to promote the resilience of coastal communities, including in applications relating to—

''(i) desalination;

''(ii) disaster recovery and resilience; and

''(iii) community microgrids in isolated power systems; and

''(C) in any other applications, as determined by the Secretary.

''(b) COST SHARING AND MERIT REVIEW.—The Secretary shall carry out the program under this section in accordance with sections 988 and 989 of the Energy Policy Act of 2005 (42 U.S.C. 16352, 16353).''.

(d) NATIONAL MARINE ENERGY CENTERS.—Section 634 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17213) is amended—

(1) in the section heading, by striking ''**RENEWABLE ENERGY RESEARCH, DEVELOPMENT, AND DEMONSTRATION**'' and inserting ''**ENERGY**'';

(2) by redesignating subsection (c) as subsection (d); and

(3) by striking subsections (a) and (b) and inserting the following:

''(a) CENTERS.—

''(1) IN GENERAL.—The Secretary shall award grants to institutions of higher education for—

''(A) the continuation and expansion of research, development, and testing activities at National Marine Energy Centers established as of January 1, 2019; and

''(B) the establishment of new National Marine Energy Centers.

''(2) CRITERIA.—In selecting locations for new National Marine Energy Centers to be established under paragraph (1)(B), the Secretary shall consider sites that meet one of the following criteria:

''(A) The new Center hosts an existing marine energy research and development program in coordination with an engineering program at an institution of higher education.

''(B) The new Center has proven expertise to support environmental and policy-related issues associated with the harnessing of energy in the marine environment.

''(C) The new Center has access to and uses marine resources.

''(b) PURPOSES.—The National Marine Energy Centers shall coordinate with other National Marine Energy Centers, the Department, and the National Laboratories—

''(1) to advance research, development, and demonstration of marine energy technologies;

''(2) to support in-water testing and demonstration of marine energy technologies, including facilities capable of testing—

''(A) marine energy systems of various technology readiness levels and scales;

''(B) a variety of technologies in multiple test berths at a single location; and

''(C) arrays of technology devices; and

''(3) to serve as information clearinghouses for the marine energy industry by collecting and disseminating information on best practices in all areas relating to developing and managing marine energy resources and energy systems.

''(c) COST SHARING.—The Secretary shall carry out the program under this section in accordance with section 988(b)(4) of the Energy Policy Act of 2005 (42 U.S.C. 16352(b)(4)).''.

(e) AUTHORIZATION OF APPROPRIATIONS.—Section 636 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17215) is amended by striking ''$50,000,000 for each of the fiscal years 2008 through 2012'' and inserting ''$160,000,000 for each of fiscal years 2021 and 2022''.

(f) STUDY OF ENERGY INNOVATION IN MARINE TRANSPORTATION AND INFRASTRUCTURE RESILIENCE.—

(1) IN GENERAL.—The Secretary, in consultation with the Secretary of Transportation and the Secretary of Commerce, shall conduct a study to examine opportunities for research and development in advanced marine energy technologies—

(A) to support the maritime transportation sector to enhance job creation, economic development, and competitiveness;

(B) to support associated maritime energy infrastructure, including infrastructure that serves ports, to improve system resilience and disaster recovery; and

(C) to enable scientific missions at sea and in extreme environments, including the Arctic.

(2) REPORT.—Not later than 1 year after the date of enactment of this Act, the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report that describes the results of the study conducted under paragraph (1).

(g) CLERICAL AMENDMENTS.—The table of contents in section 1(b) of the Energy Independence and Security Act of 2007 (Public Law 110–140; 121 Stat. 1495) is amended—

(1) by striking the item relating to subtitle C of title VI and inserting the following:

''Subtitle C—Marine Renewable Energy Technologies''; and

(2) by striking the items relating to sections 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.''.

SEC. 1203. ADVANCED GEOTHERMAL INNOVATION LEADERSHIP.

(a) UPDATE TO GEOTHERMAL RESOURCE ASSESSMENT.—Section 2501 of the Energy Policy Act of 1992 (30 U.S.C. 1028) is amended—

(1) by redesignating subsections (a) and (b) as subsections (b) and (d), respectively;

(2) by inserting before subsection (b) (as so redesignated) the following:

''(a) DEFINITION OF ENHANCED GEOTHERMAL SYSTEMS.—In this section, the term 'enhanced geothermal systems' has the meaning given the term in section 612 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17191).'';

(3) by inserting after subsection (b) (as so redesignated) the following:

''(c) UPDATE TO GEOTHERMAL RESOURCE ASSESSMENT.—The Secretary of the Interior, acting through the United States Geological Survey, and in consultation with the Secretary of Energy, shall update the 2008 United States geothermal resource assessment carried out by the United States Geological Survey, including—

''(1) with respect to areas previously identified by the Department of Energy or the United States Geological Survey as having significant potential for hydrothermal energy or enhanced geothermal systems energy, by focusing on—

''(A) improving the resolution of resource potential at systematic temperatures and depths, including temperatures and depths appropriate for power generation and direct use applications;

''(B) quantifying the total potential to coproduce geothermal energy and minerals;

''(C) incorporating data relevant to underground thermal energy storage and exchange, such as aquifer and soil properties; and

''(D) producing high resolution maps, including—

''(i) maps that indicate key subsurface parameters for electric and direct use resources; and

''(ii) risk maps for induced seismicity based on geologic, geographic, and operational parameters; and

''(2) to the maximum extent practicable, by coordinating with relevant State officials and institutions of higher education to expand geothermal assessments, including enhanced geothermal systems assessments, to include assessments for the Commonwealth of Puerto Rico and the States of Alaska and Hawaii.''; and

(4) in subsection (d) (as so redesignated), by striking ''necesary'' and inserting ''necessary''.

(b) GENERAL GEOTHERMAL RESEARCH AND DEVELOPMENT PROGRAMS.—Section 614 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17193) is amended by adding at the end the following:

''(d) OIL AND GAS TECHNOLOGY TRANSFER INITIATIVE.—

''(1) IN GENERAL.—The Secretary shall support an initiative among the Office of Fossil Energy, the Office of Energy Efficiency and Renewable Energy, and the private sector to modify, improve, and demonstrate the use in geothermal energy development of relevant advanced technologies and operation techniques used in the oil and gas sector.

''(2) PRIORITIES.—In carrying out paragraph (1), the Secretary shall prioritize technologies with the greatest potential to significantly increase the use and lower the cost of geothermal energy in the United States, including the cost and speed of small- and large-scale geothermal drilling.

''(e) COPRODUCTION OF GEOTHERMAL ENERGY AND MINERALS PRODUCTION PRIZE COMPETITION.—

''(1) IN GENERAL.—The Secretary shall carry out a prize competition under which the Secretary shall award prizes to demonstrate the coproduction of critical minerals (as defined by the Secretary of the Interior on the date of enactment of the American Energy Innovation Act of 2020) from geothermal resources.

''(2) REQUIREMENTS.—A demonstration awarded a prize under paragraph (1) shall—

''(A) improve the cost-effectiveness of removing minerals from geothermal brines as part of the coproduction process;

''(B) increase recovery rates of the targeted mineral commodity;

''(C) decrease water use and other environmental impacts, as determined by the Secretary; and

''(D) demonstrate a path to commercial viability.

''(3) MAXIMUM PRIZE AMOUNT.—The maximum amount of a prize awarded under paragraph (1) shall be $10,000,000.

''(f) DRILLING DATA REPOSITORY.—

''(1) IN GENERAL.—The Secretary shall, in coordination with the Secretary of the Interior, establish and operate a voluntary, industry-wide repository of geothermal drilling information to lower the cost of future geothermal drilling.

''(2) REPOSITORY.—

''(A) IN GENERAL.—In carrying out paragraph (1), the Secretary shall collaborate with geothermally significant countries, such as Iceland, Switzerland, Kenya, Australia, the Philippines, and any other relevant country, as determined by the Secretary.

''(B) DATA SYSTEM.—The repository established under paragraph (1) shall be integrated with the National Geothermal Data System.''.

(c) ENHANCED GEOTHERMAL RESEARCH AND DEVELOPMENT.—

(1) DEFINITION OF ENGINEERED.—Section 612(1) of the Energy Independence and Security Act of 2007 (42 U.S.C. 17191(1)) is amended in the matter preceding subparagraph (A) by striking ''subjected to intervention, including intervention'' and inserting ''designed to access subsurface heat, including nonstimulation technologies,''.

(2) PROGRAMS.—Section 615(b) of the Energy Independence and Security Act of 2007 (42 U.S.C. 17194(b)) is amended—

(A) in paragraph (1)—

(i) in subparagraph (C), by striking ''mapping'' and inserting ''and fracture mapping, including real-time modeling'';

(ii) in subparagraph (E), by striking ''and'' at the end;

(iii) by redesignating subparagraph (F) as subparagraph (K); and

(iv) by inserting after subparagraph (E) the following:

''(F) well placement and orientation;

''(G) long-term reservoir management;

''(H) drilling technologies, methods, and tools;

''(I) improved exploration tools;

''(J) zonal isolation; and''; and

(B) by striking paragraph (2) and inserting the following:

''(2) FRONTIER OBSERVATORIES FOR RESEARCH IN GEOTHERMAL ENERGY.—

''(A) PROGRAM.—The Secretary shall support 2 field research sites, which shall each be known as a 'Frontier Observatory for Research in Geothermal Energy' or 'FORGE' site, to develop, test, and enhance techniques and tools for enhanced geothermal energy.

''(B) SITE SELECTION.—Of the FORGE sites referred to in subparagraph (A)—

''(i) 1 shall be the existing research site in Milford, Utah; and

''(ii) 1 shall be—

''(I) selected by the Secretary through a competitive selection process; and

''(II) located in a different geologic type than the existing research site described in clause (i).

''(C) SITE OPERATION.—

''(i) INITIAL DURATION.—The FORGE site selected under subparagraph (B)(ii) shall operate for an initial term of not more than 7 years after the date on which site preparation is complete.

''(ii) PERFORMANCE METRICS.—The Secretary shall establish performance metrics for each FORGE site supported under this paragraph, which may be used by the Secretary to determine whether a FORGE site should continue to receive funding.

''(D) ADDITIONAL TERMS.—

''(i) IN GENERAL.—At the end of an operational term described in clause (ii), a FORGE site may—

''(I) be transferred to other public or private entities for further enhanced geothermal testing; or

''(II) subject to appropriations and a merit review by the Secretary, operate for an additional term of not more than 7 years.

''(ii) OPERATIONAL TERM DESCRIBED.—An operational term referred to in clause (i)—

''(I) in the case of the FORGE site designated under subparagraph (B)(i), is the existing operational term; and

''(II) in the case of the FORGE site selected under subparagraph (B)(ii), is the initial term under subparagraph (C) or an additional term under clause (i)(II).

''(3) ENHANCED GEOTHERMAL SYSTEMS DEMONSTRATIONS.—

''(A) IN GENERAL.—Beginning on the date of enactment of the American Energy Innovation Act of 2020, the Secretary, in collaboration with industry partners and institutions of higher education, shall support an initiative for demonstration of enhanced geothermal systems for power production or direct use.

''(B) PROJECTS.—

''(i) IN GENERAL.—Under the initiative described in subparagraph (A), not less than 4 demonstration projects shall be carried out in locations that are potentially commercially viable for enhanced geothermal systems development, as determined by the Secretary.

''(ii) REQUIREMENTS.—Demonstration projects under clause (i) shall—

''(I) collectively demonstrate—

''(aa) different geologic settings, such as hot sedimentary aquifers, layered geologic systems, supercritical systems, and basement rock systems; and

''(bb) a variety of development techniques, including open hole and cased hole completions, differing well orientations, and stimulation mechanisms;

''(II) to the extent practicable, use existing sites where subsurface characterization or geothermal energy integration analysis has been conducted; and

''(III) each be carried out in accordance with section 988 of the Energy Policy Act of 2005 (42 U.S.C. 16352).

''(iii) EASTERN DEMONSTRATION.—Not less than 1 demonstration project under clause (i) shall be located in an area east of the Mississippi River that is suitable for enhanced geothermal demonstration for power, heat, or a combination of power and heat.

''(C) OPTIONAL PROGRAM STRUCTURE.—

''(i) IN GENERAL.—The Secretary may, pursuant to section 646(g) of the Department of Energy Organization Act (42 U.S.C. 7256(g)), structure the initiative described in subparagraph (A) as a public-private cost-shared demonstration initiative with specific design milestones required to be met by a participant before costs are reimbursed by the Secretary.

''(ii) REQUIREMENTS.—If the Secretary elects to carry out clause (i) for a demonstration project, the Secretary shall—

''(I) request proposals from eligible entities, as determined by the Secretary, that include—

''(aa) a business plan;

''(bb) technical details; and

''(cc) proposed milestones and associated payments; and

''(II) select projects—

''(aa) based on the demonstrated ability of the eligible entity to meet the milestones and associated payments described in the proposal of that eligible entity; and

''(bb) that have the greatest potential commercial applicability.

''(iii) AUTHORITY.—Notwithstanding section 646(g)(10) of the Department of Energy Organization Act (42 U.S.C. 7256(g)(10)), the Secretary shall have the authority to carry out clause (i) until the completion of the initiative described in subparagraph (A).''.

(d) GEOTHERMAL HEAT PUMPS AND DIRECT USE.—

(1) IN GENERAL.—Title VI of the Energy Independence and Security Act of 2007 is amended by inserting after section 616 (42 U.S.C. 17195) the following:

''SEC. 616A. GEOTHERMAL HEAT PUMPS AND DIRECT USE RESEARCH AND DEVELOPMENT.

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

''(1) to improve the components, processes, and systems used for geothermal heat pumps and the direct use of geothermal energy; and

''(2) to increase the energy efficiency, lower the cost, increase the use, and improve and demonstrate the applicability of geothermal heat pumps to, and the direct use of geothermal energy in, large buildings, commercial districts, residential communities, and large municipal, agricultural, or industrial projects.

''(b) DEFINITIONS.—In this section:

''(1) DIRECT USE OF GEOTHERMAL ENERGY.—The term 'direct use of geothermal energy' means geothermal systems that use water directly or through a heat exchanger to provide—

''(A) heating to buildings; or

''(B) heat required for industrial processes, agriculture, aquaculture, and other facilities.

''(2) ECONOMICALLY DISTRESSED AREA.—The term 'economically distressed area' means an area described in section 301(a) of the Public Works and Economic Development Act of 1965 (42 U.S.C. 3161(a)).

''(3) GEOTHERMAL HEAT PUMP.—The term 'geothermal heat pump' means a system that provides heating and cooling by exchanging heat from shallow ground or surface water using—

''(A) a closed loop system, which transfers heat by way of buried or immersed pipes that contain a mix of water and working fluid; or

''(B) an open loop system, which circulates ground or surface water directly into the building and returns the water to the same aquifer or surface water source.

''(c) PROGRAM.—

''(1) IN GENERAL.—The Secretary shall support within the Geothermal Technologies Office a program of research, development, and demonstration for geothermal heat pumps and the direct use of geothermal energy.

''(2) AREAS.—The program under paragraph (1) may include research, development, demonstration, and commercial application of—

''(A) geothermal ground loop efficiency improvements, cost reductions, and improved installation and operations methods;

''(B) the use of geothermal energy for building-scale energy storage;

''(C) the use of geothermal energy as a grid management resource or seasonal energy storage;

''(D) geothermal heat pump efficiency improvements;

''(E) the use of alternative fluids as a heat exchange medium, such as hot water found in mines and mine shafts, graywater, or other fluids that may improve the economics of geothermal heat pumps;

''(F) heating of districts, neighborhoods, communities, large commercial or public buildings, and industrial and manufacturing facilities;

''(G) the use of water sources at a temperature of less than 150 degrees Celsius for direct use; and

''(H) system integration of direct use with geothermal electricity production.

''(3) ENVIRONMENTAL IMPACTS.—In carrying out the program, the Secretary shall identify and mitigate potential environmental impacts in accordance with section 614(c).

''(d) FINANCIAL ASSISTANCE.—

''(1) IN GENERAL.—The Secretary shall make financial assistance available to State, local, and Tribal governments, institutions of higher education, nonprofit entities, National Laboratories, utilities, and for-profit companies to promote the development of geothermal heat pumps and the direct use of geothermal energy.

''(2) PRIORITY.—In providing financial assistance under this subsection, the Secretary shall give priority to proposals that apply to large buildings, commercial districts, and residential communities that are located in economically distressed areas.''.

(2) CLERICAL AMENDMENT.—The table of contents in section 1(b) of the Energy Independence and Security Act of 2007 (Public Law 110–140; 121 Stat. 1495) is amended by inserting after the item relating to section 616 the following:

''Sec. 616A. Geothermal heat pumps and direct use research and development.''.

(e) MODIFYING THE DEFINITION OF RENEWABLE ENERGY TO INCLUDE THERMAL ENERGY.—

(1) IN GENERAL.—Section 203 of the Energy Policy Act of 2005 (42 U.S.C. 15852) is amended—

(A) in subsection (b)(2), by striking ''generated'' and inserting ''produced''; and

(B) in subsection (c)—

(i) by redesignating paragraphs (1) through (3) as subparagraphs (A) through (C), respectively, and indenting appropriately;

(ii) in the matter preceding subparagraph (A) (as so redesignated), by striking ''For purposes'' and inserting the following:

''(1) IN GENERAL.—For purposes''; and

(iii) by adding at the end the following:

''(2) SEPARATE CALCULATION.—

''(A) IN GENERAL.—For purposes of determining compliance with the requirement of this section, any energy consumption that is avoided through the use of geothermal energy shall be considered to be renewable energy produced.

''(B) EFFICIENCY ACCOUNTING.—Energy consumption that is avoided through the use of geothermal energy that is considered to be renewable energy under this section shall not be considered energy efficiency for the purpose of compliance with Federal energy efficiency goals, targets, and incentives.''.

(2) CONFORMING AMENDMENT.—Section 2410q(a) of title 10, United States Code, is amended by striking ''section 203(b)(2) of the Energy Policy Act of 2005 (42 U.S.C. 15852(b)(2))'' and inserting ''section 203(b) of the Energy Policy Act of 2005 (42 U.S.C. 15852(b))''.

(f) AUTHORIZATION OF APPROPRIATIONS.—Section 623 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17202) is amended by striking ''$90,000,000'' in the first sentence and all that follows through the period at the end of the second sentence and inserting the following: ''$165,000,000 for each of fiscal years 2021 through 2025, of which—

''(1) $5,000,000 each fiscal year shall be for the prize competition under section 614(e); and

''(2) $1,000,000 each fiscal year shall be for the drilling data repository under section 614(f).''.

(g) REAUTHORIZATION OF HIGH COST REGION GEOTHERMAL ENERGY GRANT PROGRAM.—Section 625 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17204) is amended—

(1) in subsection (a)(2), by inserting ''or heat'' after ''electrical power''; and

(2) by striking subsection (e) and inserting the following:

''(e) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section $5,000,000 for each of fiscal years 2021 through 2025.''.

(h) NATIONAL GOALS FOR PRODUCTION ON FEDERAL LAND.—

(1) IN GENERAL.—Not later than September 1, 2022, the Secretary of the Interior shall, in consultation with the Secretary, the Secretary of Agriculture, and other heads of relevant Federal agencies, establish national goals for geothermal energy capacity on public land.

(2) GEOTHERMAL ENERGY DEVELOPMENT.—The Director of the Bureau of Land Management, in consultation with other appropriate Federal officials, shall take any actions that the Director of the Bureau of Land Management determines necessary to facilitate geothermal energy development, consistent with applicable laws.

(i) FACILITATION OF COPRODUCTION OF GEOTHERMAL ENERGY ON OIL AND GAS LEASES.—Section 4(b) of the Geothermal Steam Act of 1970 (30 U.S.C. 1003(b)) is amended by adding at the end the following:

''(4) LAND SUBJECT TO OIL AND GAS LEASE.—Land under an oil and gas lease issued pursuant to the Mineral Leasing Act (30 U.S.C. 181 et seq.) or the Mineral Leasing Act for Acquired Lands (30 U.S.C. 351 et seq.) that is subject to an approved application for permit to drill and from which oil and gas production is occurring may be available for noncompetitive leasing under this section to the holder of the oil and gas lease—

''(A) on a determination that—

''(i) geothermal energy will be produced from a well producing or capable of producing oil and gas; and

''(ii) national energy security will be improved by the issuance of such a lease; and

''(B) to provide for the coproduction of geothermal energy with oil and gas.''.

(j) GEOTHERMAL RESOURCE CONFIRMATION TEST PROJECTS.—

(1) IN GENERAL.—The Geothermal Steam Act of 1970 (30 U.S.C. 1001 et seq.) is amended by adding at the end the following:

''SEC. 30. GEOTHERMAL RESOURCE CONFIRMATION TEST PROJECTS.

''(a) DEFINITIONS.—In this section:

''(1) EXTRAORDINARY CIRCUMSTANCES.—The term 'extraordinary circumstances' has the same meaning given the term in the Department of the Interior Departmental Manual, 516 DM 2.3A(3) and 516 DM 2, Appendix 2 (or successor provisions).

''(2) GEOTHERMAL RESOURCE CONFIRMATION TEST PROJECT.—The term 'geothermal resource confirmation test project' means a project of drilling not more than 3 wells into a reservoir to test or explore for geothermal resources—

''(A) on land for which the Secretary has issued a lease under this Act; and

''(B) that—

''(i) is carried out by the holder of the lease;

''(ii) allows for well testing, such as to confirm temperature, pressure, chemistry, flow rate, and near-wellbore and overall reservoir permeability;

''(iii) causes—

''(I) less than 2.5 acres of soil or vegetation disruption at the location of each geothermal exploration well; and

''(II) not more than an additional 5 acres of soil or vegetation disruption during access to or egress from the test site;

''(iv) is less than 9 inches in bottom-hole diameter;

''(v) is developed—

''(I) in a manner that does not require off-road motorized access other than to and from the well site along an identified off-road route; and

''(II) without the use of high-pressure well stimulation;

''(vi) includes the removal of any surface infrastructure other than the wellhead from the site not later than 90 days after the project is completed; and

''(vii) requires, not later than 42 months after the date on which the first exploration drilling began, the restoration of the project site to approximately the condition that existed at the time the project begins, unless the site is subsequently used as part of an energy development under the lease.

''(b) CATEGORICAL EXCLUSION.—Unless extraordinary circumstances exist, a project that the Secretary determines under subsection (c) is a geothermal resource confirmation test project shall be categorically excluded from the requirements for an environmental assessment or an environmental impact statement under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) or section 1508.4 of title 40, Code of Federal Regulations (or a successor regulation).

''(c) PROCESS.—

''(1) REQUIREMENT TO PROVIDE NOTICE.—A leaseholder shall provide notice to the Secretary of the intent of the leaseholder to carry out a geothermal resource confirmation test project at least 30 days before the start of drilling under the project.

''(2) REVIEW AND DETERMINATION.—Not later than 30 days after receipt of a notice of intent under paragraph (1), the Secretary shall, with respect to the project described in the notice of intent—

''(A) determine if the project is a geothermal resource confirmation test project;

''(B) notify the leaseholder of such determination; and

''(C) provide public notice of the determination.

''(3) OPPORTUNITY TO REMEDY.—If the Secretary determines under paragraph (2)(A) that the project is not a geothermal resource confirmation test project, the Secretary shall—

''(A) include in such notice clear and detailed findings on any deficiencies in the project that resulted in such determination; and

''(B) allow the leaseholder to remedy any such deficiencies and resubmit the notice of intent under paragraph (1).''.

(2) REPEAL.—The Geothermal Energy Research, Development, and Demonstration Act of 1974 (30 U.S.C. 1101 et seq.) is repealed.

(k) PROGRAM TO IMPROVE FEDERAL GEOTHERMAL PERMIT COORDINATION.—

(1) DEFINITIONS.—In this subsection:

(A) PROGRAM.—The term ''Program'' means the Geothermal Energy Permitting Coordination Program established under paragraph (2).

(B) SECRETARY.—The term ''Secretary'' means the Secretary of the Interior.

(2) ESTABLISHMENT OF PROGRAM.—Not later than 90 days after the date of enactment of this Act, the Secretary shall establish a program, to be known as the ''Geothermal Energy Permitting Coordination Program'', to improve Federal permit coordination and reduce regulatory timelines with respect to geothermal energy projects on Federal land by increasing the expertise of officials administering and approving permits.

(3) ESTABLISHMENT OF PROGRAM OFFICES.—To carry out the Program, the Secretary shall establish 1 or more Program offices at State or district offices of the Department of the Interior.

(4) MEMORANDUM OF UNDERSTANDING.—

(A) IN GENERAL.—Not later than 90 days after the date of enactment of this Act, the Secretary shall enter into a memorandum of understanding for purposes of this subsection with—

(i) the Secretary of Agriculture;

(ii) the Administrator of the Environmental Protection Agency; and

(iii) the Secretary of Defense.

(B) STATE PARTICIPATION.—The Secretary may request that the Governor of any State be a signatory to the memorandum of understanding under subparagraph (A).

(5) DESIGNATION OF QUALIFIED STAFF.—

(A) IN GENERAL.—Not later than 30 days after the date on which the memorandum of understanding under paragraph (4) is executed, all Federal signatories, as appropriate, shall assign to each Program office established under paragraph (3) 1 or more employees who have expertise in the regulatory issues relating to the office or agency in which the employee is employed, including, as applicable, particular expertise in—

(i) consultation regarding, and preparation of, biological opinions under section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1536);

(ii) permits under section 404 of the Federal Water Pollution Control Act (33 U.S.C. 1344);

(iii) regulatory matters under the Clean Air Act (42 U.S.C. 7401 et seq.);

(iv) the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.);

(v) planning under section 14 of the National Forest Management Act of 1976 (16 U.S.C. 472a);

(vi) developing geothermal resources under the Geothermal Steam Act of 1970 (30 U.S.C. 1001 et seq.); and

(vii) the preparation of analyses under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

(B) DUTIES.—Each employee assigned under subparagraph (A) shall—

(i) not later than 90 days after the date on which the employee is assigned, report to the State Director of the Bureau of Land Management for the State in which the office to which the employee is assigned is located;

(ii) be responsible for all issues relating to the jurisdiction of the home office or agency of the employee; and

(iii) participate as part of the team of personnel working on proposed energy projects, planning, and environmental analyses.

(6) ADDITIONAL PERSONNEL.—The Secretary shall assign to each Program office any additional personnel that are necessary to ensure the effective implementation of—

(A) the Program; and

(B) any program administered by the Program office, including inspection and enforcement relating to energy development on Federal land, in accordance with the multiple use mandate of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.).

(7) TRANSFER OF FUNDS.—To facilitate the coordination and processing of geothermal permits on Federal land under the administration of a Program office, the Secretary may authorize the expenditure or transfer of any funds that are necessary to—

(A) the United States Fish and Wildlife Service;

(B) the Bureau of Indian Affairs;

(C) the Forest Service;

(D) the Environmental Protection Agency;

(E) the Corps of Engineers;

(F) the Department of Defense; or

(G) any State in which a geothermal project is located.

(8) REPORTS.—Not later than 3 years after the date of enactment of this Act, the Secretary shall submit to Congress a report that describes—

(A) the progress of the Program; and

(B) any problems relating to leasing, permitting, or siting with respect to geothermal energy development on Federal land.

(9) SAVINGS CLAUSE.—Nothing in this subsection affects—

(A) the operation of any Federal or State law; or

(B) any delegation of authority made by the head of a Federal agency any employee of which is participating in the Program.

SEC. 1204. WIND ENERGY RESEARCH AND DEVELOPMENT.

(a) DEFINITIONS.—In this section:

(1) ECONOMICALLY DISTRESSED AREA.—The term ''economically distressed area'' means an area described in section 301(a) of the Public Works and Economic Development Act of 1965 (42 U.S.C. 3161(a)).

(2) ELIGIBLE ENTITY.—The term ''eligible entity'' means—

(A) an institution of higher education;

(B) a National Laboratory;

(C) a Federal research agency;

(D) a State research agency;

(E) a research agency associated with a territory or freely associated state;

(F) a tribal energy development organization;

(G) an Indian tribe;

(H) a tribal organization;

(I) a Native Hawaiian community-based organization;

(J) a nonprofit research organization;

(K) an industrial entity;

(L) any other entity, as determined by the Secretary; and

(M) a consortium of 2 or more entities described in subparagraphs (A) through (L).

(3) INDIAN TRIBE.—The term ''Indian tribe'' has the meaning given the term in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5304).

(4) INSTITUTION OF HIGHER EDUCATION.—The term ''institution of higher education'' has the meaning given the term in section 101 of

the Higher Education Act of 1965 (20 U.S.C. 1001).

(5) NATIVE HAWAIIAN COMMUNITY-BASED ORGANIZATION.—The term ''Native Hawaiian community-based organization'' has the meaning given the term in section 6207 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7517).

(6) PROGRAM.—The term ''program'' means the program established under subsection (b)(1).

(7) TERRITORY OR FREELY ASSOCIATED STATE.—The term ''territory or freely associated state'' has the meaning given the term ''insular area'' in section 1404 of the Food and Agriculture Act of 1977 (7 U.S.C. 3103).

(8) TRIBAL ENERGY DEVELOPMENT ORGANIZATION.—The term ''tribal energy development organization'' has the meaning given the term in section 2601 of the Energy Policy Act of 1992 (25 U.S.C. 3501).

(9) TRIBAL ORGANIZATION.—The term ''tribal organization'' has the meaning given the term in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5304).

(b) WIND ENERGY TECHNOLOGY PROGRAM.—

(1) ESTABLISHMENT.—

(A) IN GENERAL.—The Secretary shall establish a program to conduct research, development, testing, evaluation, demonstration, and commercialization of wind energy technologies in accordance with this subsection.

(B) PURPOSES.—The purposes of the program are the following:

(i) To improve the energy efficiency, cost effectiveness, reliability, resilience, security, integration, manufacturability, and recyclability of wind energy technologies.

(ii) To optimize the performance and operation of wind energy components, turbines, and systems, including through the development of new materials, hardware, and software.

(iii) To optimize the design and adaptability of wind energy technologies to the broadest practical range of geographic, atmospheric, offshore, and other site conditions, including—

(I) at varying hub heights; and

(II) through the use of computer modeling.

(iv) To support the integration of wind energy technologies with—

(I) the electric grid, including transmission, distribution, microgrids, and distributed energy systems; and

(II) other energy technologies and systems, such as—

(aa) other generation sources;

(bb) demand response technologies;

(cc) energy storage technologies; and

(dd) hybrid systems.

(v) To reduce the cost and risk across the lifespan of wind energy technologies, including—

(I) manufacturing, permitting, construction, operations, maintenance, and recycling; and

(II) through the development of solutions to transportation barriers to wind components.

(vi) To reduce and mitigate any potential negative impacts of wind energy technologies on—

(I) human communities;

(II) military operations;

(III) aviation;

(IV) radar; and

(V) wildlife and wildlife habitats.

(vii) To address barriers to the commercialization and export of wind energy technologies.

(viii) To support the domestic wind industry, workforce, and supply chain.

(C) TARGETS.—Not later than 180 days after the date of enactment of this Act, the Secretary shall establish targets for the program relating to near-term (up to 2 years), mid-term (up to 7 years), and long-term (up to 15 years) challenges to the advancement of wind energy technologies, including onshore, offshore, distributed, and off-grid technologies.

(2) ACTIVITIES.—

(A) TYPES OF ACTIVITIES.—In carrying out the program, the Secretary shall carry out research, development, demonstration, and commercialization activities, including—

(i) awarding grants and awards, on a competitive, merit-reviewed basis;

(ii) performing precompetitive research and development;

(iii) establishing or maintaining demonstration facilities and projects, including through stewardship of existing facilities such as the National Wind Test Center;

(iv) providing technical assistance;

(v) entering into contracts and cooperative agreements;

(vi) providing small business vouchers;

(vii) conducting education and outreach activities;

(viii) conducting workforce development activities; and

(ix) conducting analyses, studies, and reports.

(B) SUBJECT AREAS.—The Secretary shall carry out research, development, testing, evaluation, demonstration, and commercialization activities in the following subject areas:

(i) Wind power plant performance, operations, and security.

(ii) New materials and designs relating to all hardware, software, and components of wind energy technologies, including alternatives to minerals and other commodities from foreign sources that are determined to be vulnerable to disruption.

(iii) Advanced wind energy manufacturing technologies and practices, including materials, processes, and design.

(iv) Offshore wind-specific projects and plants, including—

(I) the deep water floating systems, materials, components, and operation of offshore facilities; and

(II) the monitoring and analysis of site and environmental considerations unique to offshore sites.

(v) Integration of wind energy technologies with—

(I) the electric grid, including transmission, distribution, microgrids, and distributed energy systems; and

(II) other energy technologies, including—

(aa) other generation sources;

(bb) demand response technologies; and

(cc) energy storage technologies.

(vi) Methods to improve the lifetime, maintenance, recycling, and reuse of wind energy components and systems.

(vii) Wind power forecasting and atmospheric measurement systems, including for turbines and plant systems of varying height.

(viii) Hybrid wind energy systems, grid-connected and off-grid, that incorporate diverse—

(I) generation sources;

(II) loads; and

(III) storage technologies.

(ix) Reducing, including through education and outreach activities, market barriers to the adoption of wind energy technologies, such as impacts on, or challenges relating to—

(I) distributed wind technologies, including the development of best practices, models, and voluntary streamlined processes for local permitting of distributed wind energy systems to reduce costs;

(II) airspace;

(III) military uses;

(IV) radar;

(V) local communities;

(VI) wildlife and wildlife habitats; and

(VII) any other appropriate matter, as determined by the Secretary.

(x) Advanced physics-based and data analysis computational tools, in coordination with the high-performance computing programs of the Department.

(xi) Technologies for distributed wind, including micro, small, and medium turbines and the components of those turbines.

(xii) Transformational technologies for harnessing wind energy.

(xiii) Other research areas that advance the purposes of the program, as determined by the Secretary.

(C) PRIORITIZATION.—In carrying out activities under the program, the Secretary shall give priority to projects that—

(i) are located in geographically diverse regions of the United States;

(ii) support the development or demonstration of projects—

(I) in collaboration with tribal energy development organizations, Indian tribes, tribal organizations, Native Hawaiian community-based organizations, or territories or freely associated states; or

(II) in economically distressed areas;

(iii) can be replicated in a variety of regions and climates; and

(iv) include business commercialization plans that have the potential for—

(I) domestic manufacturing and production of wind energy technologies; or

(II) exports of wind energy technologies.

(D) COORDINATION.—To the maximum extent practicable, the Secretary shall coordinate activities under the program with other relevant programs and capabilities of the Department and other Federal research programs.

(3) WIND TECHNICIAN TRAINING GRANT PROGRAM.—The Secretary may award grants, on a competitive basis, to eligible entities to purchase large pieces of wind component equipment, such as nacelles, towers, and blades, for use in training wind technician students in onshore or offshore wind applications.

(4) WAGES.—Notwithstanding any other provision of law, all laborers and mechanics employed by contractors or subcontractors on projects funded by grants under this subsection shall be paid wages at rates not less than those prevailing on projects of a similar character in the locality, as determined by the Secretary of Labor, in accordance with subchapter IV of chapter 31 of title 40, United States Code.

(5) WIND ENERGY PROGRAM STRATEGIC VISION.—

(A) IN GENERAL.—Not later than September 1, 2022, and every 6 years thereafter, the Secretary shall submit to Congress a report on the strategic vision, progress, goals, and targets of the program, including assessments of wind energy markets and manufacturing.

(B) PREPARATION.—The Secretary shall coordinate the preparation of the report under subparagraph (A) with—

(i) existing peer review processes;

(ii) studies conducted by the National Laboratories; and

(iii) the multiyear program planning required under section 994 of the Energy Policy Act of 2005 (42 U.S.C. 16358).

(6) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out the program $120,000,000 for each of fiscal years 2021 through 2025.

(c) CONFORMING AMENDMENTS.—

(1) Section 4 of the Renewable Energy and Energy Efficiency Technology Competitiveness Act of 1989 (42 U.S.C. 12003) is amended—

(A) in the section heading by striking ''**WIND,**'';

(B) in subsection (a)—

(i) in the matter preceding paragraph (1), by striking ''wind,'';

(ii) by striking paragraph (1); and

(iii) by redesignating paragraphs (2) through (5) as paragraphs (1) through (4), respectively; and

(C) in subsection (c), in the matter preceding paragraph (1), by striking ''the Wind Energy Research Program,''.

(2) Section 931(a)(2) of the Energy Policy Act of 2005 (42 U.S.C. 16231(a)(2)) is amended—

(A) by striking subparagraph (B); and

(B) by redesignating subparagraphs (C) through (E) as subparagraphs (B) through (D), respectively.

(3) Section 636 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17215) is amended by striking ''section 931(a)(2)(E)(i)'' and all that follows through the period at the end and inserting ''subparagraph (D)(i) of section 931(a)(2) of the Energy Policy Act of 2005 (42 U.S.C. 16231(a)(2)).''.

SEC. 1205. SOLAR ENERGY RESEARCH AND DEVELOPMENT.

(a) DEFINITIONS.—In this section:

(1) ECONOMICALLY DISTRESSED AREA.—The term ''economically distressed area'' means an area described in section 301(a) of the Public Works and Economic Development Act of 1965 (42 U.S.C. 3161(a)).

(2) ELIGIBLE ENTITY.—The term ''eligible entity'' means—

(A) an institution of higher education;

(B) a National Laboratory;

(C) a Federal research agency;

(D) a State research agency;

(E) a research agency associated with a territory or freely associated state;

(F) a tribal energy development organization;

(G) an Indian tribe;

(H) a tribal organization;

(I) a Native Hawaiian community-based organization;

(J) a nonprofit research organization;

(K) an industrial entity;

(L) any other entity, as determined by the Secretary; and

(M) a consortium of 2 or more entities described in subparagraphs (A) through (L).

(3) INDIAN TRIBE.—The term ''Indian tribe'' has the meaning given the term in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5304).

(4) INSTITUTION OF HIGHER EDUCATION.—The term ''institution of higher education'' has the meaning given the term in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001).

(5) NATIVE HAWAIIAN COMMUNITY-BASED ORGANIZATION.—The term ''Native Hawaiian community-based organization'' has the meaning given the term in section 6207 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7517).

(6) PHOTOVOLTAIC DEVICE.—The term ''photovoltaic device'' means—

(A) a device that converts light directly into electricity through a solid-state, semiconductor process;

(B) the photovoltaic cells of a device described in subparagraph (A); and

(C) the electronic and electrical components of a device described in subparagraph (A).

(7) PROGRAM.—The term ''program'' means the program established under subsection (b)(1)(A).

(8) SOLAR ENERGY.—The term ''solar energy'' means—

(A) thermal or electric energy derived from radiation from the Sun; or

(B) energy resulting from a chemical reaction caused by radiation recently originated in the Sun.

(9) TERRITORY OR FREELY ASSOCIATED STATE.—The term ''territory or freely associated state'' has the meaning given the term ''insular area'' in section 1404 of the Food and Agriculture Act of 1977 (7 U.S.C. 3103).

(10) TRIBAL ENERGY DEVELOPMENT ORGANIZATION.—The term ''tribal energy development organization'' has the meaning given the term in section 2601 of the Energy Policy Act of 1992 (25 U.S.C. 3501).

(11) TRIBAL ORGANIZATION.—The term ''tribal organization'' has the meaning given the term in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5304).

(b) SOLAR ENERGY TECHNOLOGY PROGRAM.—

(1) ESTABLISHMENT.—

(A) IN GENERAL.—The Secretary shall establish a program to conduct research, development, testing, evaluation, demonstration, and commercialization of solar energy technologies in accordance with this subsection.

(B) PURPOSES.—The purposes of the program are the following:

(i) To improve the energy efficiency, cost effectiveness, reliability, resilience, security, integration, manufacturability, and recyclability of solar energy technologies.

(ii) To optimize the performance and operation of solar energy components, cells, and systems, and enabling technologies, including through the development of new materials, hardware, and software.

(iii) To optimize the design and adaptability of solar energy systems to the broadest practical range of geographic and atmospheric conditions.

(iv) To support the integration of solar energy technologies with the electric grid and complementary energy technologies.

(v) To create and improve the conversion of solar energy to other useful forms of energy or other products.

(vi) To reduce and mitigate any potential negative impacts of solar energy technologies on humans, wildlife, and wildlife habitats.

(vii) To address barriers to the commercialization and export of solar energy technologies.

(viii) To support the domestic solar industry, workforce, and supply chain.

(C) TARGETS.—Not later than 180 days after the date of enactment of this Act, the Secretary shall establish targets for the program to address near-term (up to 2 years), mid-term (up to 7 years), and long-term (up to 15 years) challenges to the advancement of solar energy systems.

(2) ACTIVITIES.—

(A) TYPES OF ACTIVITIES.—In carrying out the program, the Secretary shall carry out research, development, demonstration, and commercialization activities, including—

(i) awarding grants and awards, on a competitive, merit-reviewed basis;

(ii) performing precompetitive research and development;

(iii) establishing or maintaining demonstration facilities and projects, including through stewardship of existing facilities;

(iv) providing technical assistance;

(v) entering into contracts and cooperative agreements;

(vi) providing small business vouchers;

(vii) establishing prize competitions;

(viii) conducting education and outreach activities; and

(ix) conducting analyses, studies, and reports.

(B) SUBJECT AREAS.—The Secretary shall carry out research, development, testing, evaluation, demonstration, and commercialization activities in the following subject areas:

(i) Advanced solar energy technologies, including—

(I) new materials, components, designs, and systems, including perovskites;

(II) advanced photovoltaic and thin-film devices;

(III) concentrated solar power;

(IV) solar heating and cooling; and

(V) enabling technologies for solar energy systems, including hardware and software.

(ii) Solar energy technology performance, operations, and security.

(iii) Integration of solar energy technologies with—

(I) the electric grid, including transmission, distribution, microgrids, and distributed energy systems;

(II) other energy technologies, including—

(aa) other generation sources;

(bb) demand response technologies; and

(cc) energy storage technologies; and

(III) other nonelectric applications, such as in the agriculture, transportation, industrial, and fuels sectors.

(iv) Advanced solar energy manufacturing technologies and practices, including materials, processes, and design.

(v) Methods to improve the lifetime, maintenance, recycling, and reuse of solar energy components and systems.

(vi) Solar energy forecasting, modeling, and atmospheric measurement systems, including for small-scale, large-scale, and aggregated systems.

(vii) Hybrid solar energy systems that incorporate diverse—

(I) generation sources;

(II) loads; and

(III) storage technologies.

(viii) Reducing market barriers to the adoption of solar energy technologies, including impacts on, or challenges relating to—

(I) distributed solar technologies, including the development of best practices, models, and voluntary streamlined processes for local permitting of distributed solar energy systems to reduce costs;

(II) local communities;

(III) wildlife and wildlife habitats; and

(IV) any other appropriate matter, as determined by the Secretary.

(ix) Transformational technologies for harnessing solar energy.

(x) Other research areas that advance the purposes of the program, as determined by the Secretary.

(C) PRIORITIZATION.—In carrying out activities under the program, the Secretary shall give priority to projects that—

(i) are located in a geographically diverse range of eligible entities;

(ii) support the development or demonstration of projects—

(I) in collaboration with tribal energy development organizations, Indian tribes, tribal organizations, Native Hawaiian community-based organizations, or territories or freely associated states; or

(II) in economically distressed areas;

(iii) can be replicated in a variety of regions and climates; and

(iv) include business commercialization plans that have the potential for—

(I) domestic manufacturing and production of solar energy technologies; or

(II) exports of solar energy technologies.

(D) COORDINATION.—To the maximum extent practicable, the Secretary shall coordinate activities under the program with other relevant programs and capabilities of the Department and other Federal research programs.

(E) USE OF FUNDS.—To the extent that funding is not otherwise available through other Federal programs or power purchase agreements, funding awarded under this paragraph may be used for additional nontechnology costs, as determined to be appropriate by the Secretary, such as engineering or feasibility studies.

(3) ADVANCED SOLAR ENERGY MANUFACTURING INITIATIVE.—

(A) GRANTS.—In addition to the program activities described in paragraph (2), in carrying out the program, the Secretary shall award multiyear grants to eligible entities for research, development, and demonstration projects to advance new solar energy manufacturing technologies and techniques.

(B) PRIORITY.—In awarding grants under subparagraph (A), to the extent practicable, the Secretary shall give priority to solar energy manufacturing projects that—

(i) increase efficiency and cost effectiveness in—

(I) the manufacturing process; and

(II) the use of resources.

(ii) support domestic supply chains for materials and components;

(iii) identify and incorporate nonhazardous alternative materials for components and devices;

(iv) operate in partnership with tribal energy development organizations, Indian tribes, tribal organizations, Native Hawaiian community-based organizations, or territories or freely associated states; or

(v) are located in economically distressed areas.

(C) EVALUATION.—Not later than 3 years after the date of enactment of this Act, and every 4 years thereafter, the Secretary shall conduct, and make available to the public and the relevant committees of Congress, an independent review of the progress of the grants awarded under subparagraph (A).

(4) SOLAR ENERGY TECHNOLOGY RECYCLING RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM.—

(A) IN GENERAL.—In addition to the program activities described in paragraph (2), in carrying out the program, the Secretary shall award multiyear grants to eligible entities for research, development, and demonstration projects to create innovative and practical approaches to increase the reuse and recycling of solar energy technologies, including—

(i) by increasing the efficiency and cost effectiveness of the recovery of raw materials from solar energy technology components and systems, including enabling technologies such as inverters;

(ii) by minimizing environmental impacts from the recovery and disposal processes;

(iii) by addressing any barriers to the research, development, demonstration, and commercialization of technologies and processes for the disassembly and recycling of solar energy devices;

(iv) by developing alternative materials, designs, manufacturing processes, and other aspects of solar energy technologies and the disassembly and resource recovery process that enable efficient, cost effective, and environmentally responsible disassembly of, and resource recovery from, solar energy technologies; and

(v) strategies to increase consumer acceptance of, and participation in, the recycling of photovoltaic devices.

(B) DISSEMINATION OF RESULTS.—The Secretary shall make available to the public and the relevant committees of Congress the results of the projects carried out through grants awarded under subparagraph (A), including any educational and outreach materials.

(5) SOLAR ENERGY TECHNOLOGY MATERIALS PHYSICAL PROPERTY DATABASE.—

(A) IN GENERAL.—Not later than September 1, 2022, the Secretary shall establish a comprehensive physical property database of materials for use in solar energy technologies, which shall identify the type, quantity, country of origin, source, significant uses, and physical properties of materials used in solar energy technologies.

(B) COORDINATION.—In establishing the database described in subparagraph (A), the Secretary shall coordinate with—

(i) the Director of the National Institute of Standards and Technology;

(ii) the Administrator of the Environmental Protection Agency;

(iii) the Secretary of the Interior; and

(iv) relevant industry stakeholders, as determined by the Secretary.

(6) SOLAR ENERGY TECHNOLOGY PROGRAM STRATEGIC VISION.—

(A) IN GENERAL.—Not later than September 1, 2022, and every 6 years thereafter, the Secretary shall submit to Congress a report on the strategic vision, progress, goals, and targets of the program, including assessments of solar energy markets and manufacturing.

(B) PREPARATION.—The Secretary shall coordinate the preparation of the report under subparagraph (A) with—

(i) existing peer review processes;

(ii) studies conducted by the National Laboratories; and

(iii) the multiyear program planning required under section 994 of the Energy Policy Act of 2005 (42 U.S.C. 16358).

(7) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out the program $270,000,000 for each of fiscal years 2021 through 2025.

(c) CONFORMING AMENDMENTS.—

(1) The Solar Energy Research, Development, and Demonstration Act of 1974 (42 U.S.C. 5551 et seq.) is repealed.

(2) Section 6(b)(3) of the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5905(b)(3)) is amended—

(A) by striking subparagraph (L); and

(B) by redesignating subparagraphs (M) through (S) as subparagraphs (L) through (R), respectively.

(3) The Solar Photovoltaic Energy Research, Development, and Demonstration Act of 1978 (42 U.S.C. 5581 et seq.) is repealed.

(4) Section 4 of the Renewable Energy and Energy Efficiency Technology Competitiveness Act of 1989 (42 U.S.C. 12003) is amended—

(A) in the section heading, by striking ''**PHOTOVOLTAICS, AND SOLAR THERMAL**'' and inserting ''**ALCOHOL FROM BIOMASS AND OTHER TECHNOLOGY**'';

(B) in subsection (a)—

(i) in the matter preceding paragraph (1) (as redesignated by section 1204(c)(1)(B)(iii)), by striking ''photovoltaics, and solar thermal energy'' and inserting ''alcohol from biomass and other energy technology'';

(ii) by striking paragraphs (1) and (2) (as redesignated by section 1204(c)(1)(B)(iii)); and

(iii) by redesignating paragraphs (3) and (4) (as redesignated by section 1204(c)(1)(B)(iii)) as paragraphs (1) and (2), respectively; and

(C) in subsection (c)—

(i) in the matter preceding paragraph (1), by striking ''the Photovoltaic Energy Systems Program, the Solar Thermal Energy Systems Program,'';

(ii) in paragraph (1)—

(I) by striking subparagraph (A); and

(II) by redesignating subparagraphs (B) and (C) as subparagraphs (A) and (B), respectively; and

(iii) in paragraph (2)—

(I) by striking subparagraph (A); and

(II) by redesignating subparagraphs (B) and (C) as subparagraphs (A) and (B), respectively.

(5) Section 931 of the Energy Policy Act of 2005 (42 U.S.C. 16231) is amended—

(A) in subsection (a)(2)—

(i) by striking subparagraph (A); and

(ii) by redesignating subparagraphs (B) through (D) (as redesignated by section 1204(c)(2)(B)) as subparagraphs (A) through (C), respectively;

(B) by striking subsection (d); and

(C) by redesignating subsections (e) through (g) as subsections (d) through (f), respectively.

(6)(A) Sections 606 and 607 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17174, 17175) are repealed.

(B) The table of contents in section 1(b) of the Energy Independence and Security Act of 2007 (Public Law 110–140; 121 Stat. 1495) is amended by striking the items relating to sections 606 and 607.

(d) SAVINGS PROVISION.—The repeal of the Solar Energy Research, Development, and Demonstration Act of 1974 (42 U.S.C. 5551 et seq.) under subsection (c)(1) shall not affect the authority of the Secretary to conduct research and development on solar energy.

Subtitle C—Energy Storage

SEC. 1301. BETTER ENERGY STORAGE TECHNOLOGY.

(a) DEFINITIONS.—In this section:

(1) ENERGY STORAGE SYSTEM.—The term ''energy storage system'' means any system, equipment, facility, or technology that—

(A) is capable of absorbing or converting energy, storing the energy for a period of time, and dispatching the energy; and

(B)(i) uses mechanical, electrochemical, thermal, electrolysis, or other processes to convert and store electric energy that was generated at an earlier time for use at a later time; or

(ii) stores energy in an electric, thermal, or gaseous state for direct use for heating or cooling at a later time in a manner that avoids the need to use electricity or other fuel sources at that later time, such as a grid-enabled water heater.

(2) PROGRAM.—The term ''program'' means the Energy Storage System Research, Development, and Deployment Program established under subsection (b)(1).

(b) ENERGY STORAGE SYSTEM RESEARCH, DEVELOPMENT, AND DEPLOYMENT PROGRAM.—

(1) ESTABLISHMENT.—Not later than 180 days after the date of enactment of this Act, the Secretary shall establish a program, to be known as the ''Energy Storage System Research, Development, and Deployment Program''.

(2) INITIAL PROGRAM OBJECTIVES.—The program shall focus on research, development, and deployment of—

(A) energy storage systems designed to further the development of technologies—

(i) for large-scale commercial deployment;

(ii) for deployment at cost targets established by the Secretary;

(iii) for hourly and subhourly durations required to provide reliability services to the grid;

(iv) for daily durations, which have—

(I) the capacity to discharge energy for a minimum of 6 hours; and

(II) a system lifetime of at least 20 years under regular operation;

(v) for weekly or monthly durations, which have—

(I) the capacity to discharge energy for 10 to 100 hours, at a minimum; and

(II) a system lifetime of at least 20 years under regular operation; and

(vi) for seasonal durations, which have—

(I) the capability to address seasonal variations in supply and demand; and

(II) a system lifetime of at least 20 years under regular operation;

(B) distributed energy storage technologies and applications, including building-grid integration;

(C) transportation energy storage technologies and applications, including vehicle-grid integration;

(D) cost-effective systems and methods for—

(i) the reclamation, recycling, and disposal of energy storage materials, including lithium, cobalt, nickel, and graphite; and

(ii) the reuse and repurposing of energy storage system technologies;

(E) advanced control methods for energy storage systems;

(F) pumped hydroelectric energy storage systems to advance—

(i) adoption of innovative technologies, including—

(I) adjustable-speed, ternary, and other new pumping and generating equipment designs;

(II) modular systems;

(III) closed-loop systems, including mines and quarries; and

(IV) other critical equipment and materials for pumped hydroelectric energy storage, as determined by the Secretary; and

(ii) reductions of equipment costs, civil works costs, and construction times for pumped hydroelectric energy storage projects, with the goal of reducing those costs by 50 percent;

(G) models and tools to demonstrate the benefits of energy storage to—

(i) power and water supply systems;

(ii) electric generation portfolio optimization; and

(iii) expanded deployment of other renewable energy technologies, including in hybrid energy storage systems; and

(H) energy storage use cases from individual and combination technology applications, including value from various-use cases and energy storage services.

(3) TESTING AND VALIDATION.—In coordination with 1 or more National Laboratories, the Secretary shall accelerate the development, standardized testing, and validation of energy storage systems under the program by developing testing and evaluation methodologies for—

(A) storage technologies, controls, and power electronics for energy storage systems under a variety of operating conditions;

(B) standardized and grid performance testing for energy storage systems, materials, and technologies during each stage of development, beginning with the research stage and ending with the deployment stage;

(C) reliability, safety, and durability testing under standard and evolving duty cycles; and

(D) accelerated life testing protocols to predict estimated lifetime metrics with accuracy.

(4) PERIODIC EVALUATION OF PROGRAM OBJECTIVES.—Not less frequently than once every calendar year, the Secretary shall evaluate and, if necessary, update the program objectives to ensure that the program continues to advance energy storage systems toward widespread commercial deployment by lowering the costs and increasing the duration of energy storage resources.

(5) ENERGY STORAGE STRATEGIC PLAN.—

(A) IN GENERAL.—The Secretary shall develop a 10-year strategic plan for the program, and update the plan, in accordance with this paragraph.

(B) CONTENTS.—The strategic plan developed under subparagraph (A) shall—

(i) be coordinated with and integrated across other relevant offices in the Department;

(ii) to the extent practicable, include metrics that can be used to evaluate storage technologies;

(iii) identify Department programs that—

(I) support the research and development activities described in paragraph (2) and the demonstration projects under subsection (c); and

(II)(aa) do not support the activities or projects described in subclause (I); but

(bb) are important to the development of energy storage systems and the mission of the Department, as determined by the Secretary;

(iv) include expected timelines for—

(I) the accomplishment of relevant objectives under current programs of the Department relating to energy storage systems; and

(II) the commencement of any new initiatives within the Department relating to energy storage systems to accomplish those objectives; and

(v) incorporate relevant activities described in the Grid Modernization Initiative Multi-Year Program Plan.

(C) SUBMISSION TO CONGRESS.—Not later than 180 days after the date of enactment of this Act, the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committees on Energy and Commerce and Science, Space, and Technology of the House of Representatives the strategic plan developed under subparagraph (A).

(D) UPDATES TO PLAN.—The Secretary—

(i) shall annually review the strategic plan developed under subparagraph (A); and

(ii) may periodically revise the strategic plan as appropriate.

(6) LEVERAGING OF RESOURCES.—The program may be led by a specific office of the Department, but shall be cross-cutting in nature, so that in carrying out activities under the program, the Secretary (or a designee of the Secretary charged with leading the program) shall leverage existing Federal resources, including, at a minimum, the expertise and resources of—

(A) the Office of Electricity Delivery and Energy Reliability;

(B) the Office of Energy Efficiency and Renewable Energy, including the Water Power Technologies Office; and

(C) the Office of Science, including—

(i) the Basic Energy Sciences Program;

(ii) the Advanced Scientific Computing Research Program;

(iii) the Biological and Environmental Research Program; and

(D) the Electricity Storage Research Initiative established under section 975 of the Energy Policy Act of 2005 (42 U.S.C. 16315).

(7) PROTECTING PRIVACY AND SECURITY.—In carrying out this subsection, the Secretary shall identify, incorporate, and follow best practices for protecting the privacy of individuals and businesses and the respective sensitive data of the individuals and businesses, including by managing privacy risk and implementing the Fair Information Practice Principles of the Federal Trade Commission for the collection, use, disclosure, and retention of individual electric consumer information in accordance with the Office of Management and Budget Circular A–130 (or successor circulars).

(c) ENERGY STORAGE DEMONSTRATION PROJECTS; PILOT GRANT PROGRAM.—

(1) DEMONSTRATION PROJECTS.—Not later than September 30, 2023, the Secretary shall, to the maximum extent practicable, enter into agreements to carry out not fewer than 5 energy storage system demonstration projects, including at least 1 energy storage system demonstration project designed to further the development of technologies described in clause (v) or (vi) of subsection (b)(2)(A).

(2) ENERGY STORAGE PILOT GRANT PROGRAM.—

(A) DEFINITION OF ELIGIBLE ENTITY.—In this paragraph, the term ''eligible entity'' means—

(i) a State energy office (as defined in section 124(a) of the Energy Policy Act of 2005 (42 U.S.C. 15821(a)));

(ii) an Indian tribe (as defined in section 4 of the Native American Housing Assistance and Self-Determination Act of 1996 (25 U.S.C. 4103);

(iii) a tribal organization (as defined in section 3765 of title 38, United States Code);

(iv) an institution of higher education (as defined in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001));

(v) an electric utility, including—

(I) an electric cooperative;

(II) a political subdivision of a State, such as a municipally owned electric utility, or any agency, authority, corporation, or instrumentality of a State political subdivision; and

(III) an investor-owned utility; and

(vi) a private energy storage company.

(B) ESTABLISHMENT.—The Secretary shall establish a competitive grant program under which the Secretary shall award grants to eligible entities to carry out demonstration projects for pilot energy storage systems.

(C) SELECTION REQUIREMENTS.—In selecting eligible entities to receive a grant under subparagraph (B), the Secretary shall, to the maximum extent practicable—

(i) ensure regional diversity among eligible entities awarded grants, including ensuring participation of eligible entities that are rural States and States with high energy costs;

(ii) ensure that grants are awarded for demonstration projects that—

(I) expand on the existing technology demonstration programs of the Department;

(II) are designed to achieve 1 or more of the objectives described in subparagraph (D); and

(III) inject or withdraw energy from the bulk power system, electric distribution system, building energy system, or microgrid (grid-connected or islanded mode) where the project is located; and

(iii) give consideration to proposals from eligible entities for securing energy storage through competitive procurement or contract for service.

(D) OBJECTIVES.—Each demonstration project carried out by a grant awarded under subparagraph (B) shall have 1 or more of the following objectives:

(i) To improve the security of critical infrastructure and emergency response systems.

(ii) To improve the reliability of transmission and distribution systems, particularly in rural areas, including high-energy-cost rural areas.

(iii) To optimize transmission or distribution system operation and power quality to defer or avoid costs of replacing or upgrading electric grid infrastructure, including transformers and substations.

(iv) To supply energy at peak periods of demand on the electric grid or during periods of significant variation of electric grid supply.

(v) To reduce peak loads of homes and businesses.

(vi) To improve and advance power conversion systems.

(vii) To provide ancillary services for grid stability and management.

(viii) To integrate renewable energy resource production.

(ix) To increase the feasibility of microgrids (grid-connected or islanded mode).

(x) To enable the use of stored energy in forms other than electricity to support the natural gas system and other industrial processes.

(xi) To integrate fast charging of electric vehicles.

(xii) To improve energy efficiency.

(3) REPORTS.—Not less frequently than once every 2 years for the duration of the programs under paragraphs (1) and (2), the Secretary shall submit to Congress and make publicly available a report describing the performance of those programs.

(4) NO PROJECT OWNERSHIP INTEREST.—The Federal Government shall not hold any equity or other ownership interest in any energy storage system that is part of a project under this subsection unless the holding is agreed to by each participant of the project.

(d) LONG-DURATION DEMONSTRATION INITIATIVE AND JOINT PROGRAM.—

(1) DEFINITIONS.—In this subsection:

(A) DIRECTOR OF ARPA–E.—The term ''Director of ARPA–E'' has the meaning given the term in section 5012(a) of the America COMPETES Act (42 U.S.C. 16538(a)).

(B) DIRECTOR OF ESTCP.—The term ''Director of ESTCP'' means the Secretary of Defense, acting through the Director of the Environmental Security Technology Certification Program of the Department of Defense.

(C) INITIATIVE.—The term ''Initiative'' means the demonstration initiative established under paragraph (2).

(D) JOINT PROGRAM.—The term ''Joint Program'' means the joint program established under paragraph (4).

(E) SECRETARY.—The term ''Secretary'' means the Secretary, acting through the Director of ARPA–E.

(2) ESTABLISHMENT OF INITIATIVE.—Not later than 180 days after the date of enactment of this Act, the Secretary shall establish a demonstration initiative composed of demonstration projects focused on the development of long-duration energy storage technologies.

(3) SELECTION OF PROJECTS.—To the maximum extent practicable, in selecting demonstration projects to participate in the Initiative, the Secretary shall—

(A) ensure a range of technology types;

(B) ensure regional diversity among projects; and

(C) consider bulk power level, distribution power level, behind-the-meter, microgrid (grid-connected or islanded mode), and off-grid applications.

(4) JOINT PROGRAM.—

(A) ESTABLISHMENT.—As part of the Initiative, the Secretary, in consultation with the Director of ESTCP, shall establish within the Department a joint program to carry out projects—

(i) to demonstrate promising long-duration energy storage technologies at different scales; and

(ii) to help new, innovative long-duration energy storage technologies become commercially viable.

(B) MEMORANDUM OF UNDERSTANDING.—Not later than 200 days after the date of enactment of this Act, the Secretary shall enter into a memorandum of understanding with the Director of ESTCP to administer the Joint Program.

(C) INFRASTRUCTURE.—In carrying out the Joint Program, the Secretary and the Director of ESTCP shall—

(i) use existing test-bed infrastructure at—

(I) Department facilities; and

(II) Department of Defense installations; and

(ii) develop new infrastructure for identified projects, if appropriate.

(D) GOALS AND METRICS.—The Secretary and the Director of ESTCP shall develop goals and metrics for technological progress under the Joint Program consistent with energy resilience and energy security policies.

(E) SELECTION OF PROJECTS.—

(i) IN GENERAL.—To the maximum extent practicable, in selecting projects to participate in the Joint Program, the Secretary and the Director of ESTCP shall—

(I) ensure that projects are carried out under conditions that represent a variety of environments with different physical conditions and market constraints; and

(II) ensure an appropriate balance of—

(aa) larger, higher-cost projects; and

(bb) smaller, lower-cost projects.

(ii) PRIORITY.—In carrying out the Joint Program, the Secretary and the Director of ESTCP shall give priority to demonstration projects that—

(I) make available to the public project information that will accelerate deployment of long-duration energy storage technologies; and

(II) will be carried out in the field.

(e) TECHNICAL AND PLANNING ASSISTANCE PROGRAM.—

(1) DEFINITIONS.—In this subsection:

(A) ELIGIBLE ENTITY.—The term ''eligible entity'' means—

(i) an electric cooperative;

(ii) a political subdivision of a State, such as a municipally owned electric utility, or any agency, authority, corporation, or instrumentality of a State political subdivision;

(iii) a not-for-profit entity that is in a partnership with not less than 6 entities described in clause (i) or (ii); and

(iv) an investor-owned utility.

(B) PROGRAM.—The term ''program'' means the technical and planning assistance program established under paragraph (2)(A).

(2) ESTABLISHMENT.—

(A) IN GENERAL.—The Secretary shall establish a technical and planning assistance program to assist eligible entities in identifying, evaluating, planning, designing, and developing processes to procure energy storage systems.

(B) ASSISTANCE AND GRANTS.—Under the program, the Secretary shall—

(i) provide technical and planning assistance, including disseminating information, directly to eligible entities; and

(ii) award grants to eligible entities to contract to obtain technical and planning assistance from outside experts.

(C) FOCUS.—In carrying out the program, the Secretary shall focus on energy storage system projects that have the greatest potential for—

(i) strengthening the reliability and resiliency of energy infrastructure;

(ii) reducing the cost of energy storage systems;

(iii) improving the feasibility of microgrids (grid-connected or islanded mode), particularly in rural areas, including high energy cost rural areas;

(iv) reducing consumer electricity costs; or

(v) maximizing local job creation.

(3) TECHNICAL AND PLANNING ASSISTANCE.—

(A) IN GENERAL.—Technical and planning assistance provided under the program shall include assistance with 1 or more of the following activities relating to energy storage systems:

(i) Identification of opportunities to use energy storage systems.

(ii) Feasibility studies to assess the potential for development of new energy storage systems or improvement of existing energy storage systems.

(iii) Assessment of technical and economic characteristics, including a cost-benefit analysis.

(iv) Utility interconnection.

(v) Permitting and siting issues.

(vi) Business planning and financial analysis.

(vii) Engineering design.

(viii) Resource adequacy planning.

(ix) Resilience planning and valuation.

(B) EXCLUSION.—Technical and planning assistance provided under the program shall not be used to pay any person for influencing or attempting to influence an officer or employee of any Federal, State, or local agency, a Member of Congress, an employee of a Member of Congress, a State or local legislative body, or an employee of a State or local legislative body.

(4) INFORMATION DISSEMINATION.—The information disseminated under paragraph (2)(B)(i) shall include—

(A) information relating to the topics described in paragraph (3)(A), including case studies of successful examples;

(B) computational tools or software for assessment, design, and operation and maintenance of energy storage systems;

(C) public databases that track existing and planned energy storage systems;

(D) best practices for the utility and grid operator business processes associated with the topics described in paragraph (3)(A); and

(E) relevant State policies or regulations associated with the topics described in paragraph (3)(A).

(5) APPLICATIONS.—

(A) IN GENERAL.—The Secretary shall seek applications for the program—

(i) on a competitive, merit-reviewed basis; and

(ii) on a periodic basis, but not less frequently than once every 12 months.

(B) APPLICATION.—An eligible entity desiring to apply for the program shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary may require, including whether the eligible entity is applying for—

(i) direct technical or planning assistance under paragraph (2)(B)(i); or

(ii) a grant under paragraph (2)(B)(ii).

(C) PRIORITIES.—In selecting eligible entities for technical and planning assistance under the program, the Secretary shall give priority to eligible entities described in clauses (i) and (ii) of paragraph (1)(A).

(6) REPORTS.—The Secretary shall submit to Congress and make available to the public—

(A) not less frequently than once every 2 years, a report describing the performance of the program, including a synthesis and analysis of any information the Secretary requires grant recipients to provide to the Secretary as a condition of receiving a grant; and

(B) on termination of the program, an assessment of the success of, and education provided by, the measures carried out by eligible entities under the program.

(7) COST-SHARING.—Activities under this subsection shall be subject to the cost-sharing requirements under section 988 of the Energy Policy Act of 2005 (42 U.S.C. 16352).

(f) ENERGY STORAGE MATERIALS RECYCLING PRIZE COMPETITION.—Section 1008 of the Energy Policy Act of 2005 (42 U.S.C. 16396) is amended by adding at the end the following:

''(g) ENERGY STORAGE MATERIALS RECYCLING PRIZE COMPETITION.—

''(1) DEFINITION OF CRITICAL ENERGY STORAGE MATERIALS.—In this subsection, the term 'critical energy storage materials' includes—

''(A) lithium;

''(B) cobalt;

''(C) nickel;

''(D) graphite; and

''(E) any other material determined by the Secretary to be critical to the continued growing supply of energy storage resources.

''(2) PRIZE AUTHORITY.—

''(A) IN GENERAL.—As part of the program established under subsection (a), the Secretary shall establish an award program, to be known as the 'Energy Storage Materials Recycling Prize Competition' (referred to in this subsection as the 'program'), under which the Secretary shall carry out prize competitions and make awards to advance the recycling of critical energy storage materials.

''(B) FREQUENCY.—To the maximum extent practicable, the Secretary shall carry out a

competition under the program not less frequently than once every calendar year.

''(3) ELIGIBILITY.—

''(A) IN GENERAL.—To be eligible to win a prize under the program, an individual or entity—

''(i) shall have complied with the requirements of the competition as described in the announcement for that competition published in the Federal Register by the Secretary under paragraph (6);

''(ii) in the case of a private entity, shall be incorporated in the United States and maintain a primary place of business in the United States;

''(iii) in the case of an individual, whether participating singly or in a group, shall be a citizen of, or an alien lawfully admitted for permanent residence in, the United States.

''(B) EXCLUSIONS.—The following entities and individuals shall not be eligible to win a prize under the program:

''(i) A Federal entity.

''(ii) A Federal employee (including an employee of a National Laboratory) acting within the scope of employment.

''(4) AWARDS.—In carrying out the program, the Secretary shall award cash prizes, in amounts to be determined by the Secretary, to each individual or entity selected through a competitive process to develop advanced methods or technologies to recycle critical energy storage materials from energy storage systems.

''(5) CRITERIA.—

''(A) IN GENERAL.—The Secretary shall establish objective, merit-based criteria for awarding the prizes in each competition carried out under the program.

''(B) REQUIREMENTS.—The criteria established under subparagraph (A) shall prioritize advancements in methods or technologies that present the greatest potential for large-scale commercial deployment.

''(C) CONSULTATION.—In establishing criteria under subparagraph (A), the Secretary shall consult with appropriate members of private industry involved in the commercial deployment of energy storage systems.

''(6) ADVERTISING AND SOLICITATION OF COMPETITORS.—

''(A) IN GENERAL.—The Secretary shall announce each prize competition under the program by publishing a notice in the Federal Register.

''(B) REQUIREMENTS.—Each notice published under subparagraph (A) shall describe the essential elements of the competition, such as—

''(i) the subject of the competition;

''(ii) the duration of the competition;

''(iii) the eligibility requirements for participation in the competition;

''(iv) the process for participants to register for the competition;

''(v) the amount of the prize; and

''(vi) the criteria for awarding the prize.

''(7) JUDGES.—

''(A) IN GENERAL.—For each prize competition under the program, the Secretary shall assemble a panel of qualified judges to select the winner or winners of the competition on the basis of the criteria established under paragraph (5).

''(B) SELECTION.—The judges for each competition shall include appropriate members of private industry involved in the commercial deployment of energy storage systems.

''(C) CONFLICTS.—An individual may not serve as a judge in a prize competition under the program if the individual, the spouse of the individual, any child of the individual, or any other member of the household of the individual—

''(i) has a personal or financial interest in, or is an employee, officer, director, or agent of, any entity that is a registered participant in the prize competition for which the individual will serve as a judge; or

''(ii) has a familial or financial relationship with a registered participant in the prize competition for which the individual will serve as a judge.

''(8) REPORT TO CONGRESS.—Not later than 60 days after the date on which the first prize is awarded under the program, and annually thereafter, the Secretary shall submit to Congress a report that—

''(A) identifies each award recipient;

''(B) describes the advanced methods or technologies developed by each award recipient; and

''(C) specifies actions being taken by the Department toward commercial application of all methods or technologies with respect to which a prize has been awarded under the program.

''(9) ANTI-DEFICIENCY ACT.—The Secretary shall carry out the program in accordance with section 1341 of title 31, United States Code (commonly referred to as the 'Anti-Deficiency Act').

''(10) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this subsection $10,000,000 for each of fiscal years 2020 through 2024, to remain available until expended.''.

(g) REGULATORY ACTIONS TO ENCOURAGE ENERGY STORAGE DEPLOYMENT.—

(1) DEFINITIONS.—In this subsection:

(A) COMMISSION.—The term ''Commission'' means the Federal Energy Regulatory Commission.

(B) ELECTRIC STORAGE RESOURCE.—The term ''electric storage resource'' means a resource capable of receiving electric energy from the grid and storing that electric energy for later injection back into the grid.

(2) REGULATORY ACTION.—

(A) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Commission shall issue a regulation to identify the eligibility of, and process for, electric storage resources—

(i) to receive cost recovery through Commission-regulated rates for the transmission of electric energy in interstate commerce; and

(ii) that receive cost recovery under clause (i) to receive compensation for other services (such as the sale of energy, capacity, or ancillary services) without regard to whether those services are provided concurrently with the transmission service described in clause (i).

(B) PROHIBITION OF DUPLICATE RECOVERY.—Any regulation issued under subparagraph (A) shall preclude the receipt of unjust and unreasonable double recovery for electric storage resources providing services described in clauses (i) and (ii) of that subparagraph.

(3) ELECTRIC STORAGE RESOURCES TECHNICAL CONFERENCE.—

(A) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Commission shall convene a technical conference on the potential for electric storage resources to improve the operation of electric systems.

(B) REQUIREMENTS.—The technical conference under subparagraph (A) shall—

(i) identify opportunities for further consideration of electric storage resources in regional and interregional transmission planning processes within the jurisdiction of the Commission;

(ii) identify all energy, capacity, and ancillary service products, market designs, or rules that—

(I) are within the jurisdiction of the Commission; and

(II) enable and compensate for the use of electric storage resources that improve the operation of electric systems;

(iii) examine additional products, market designs, or rules that would enable and compensate for the use of electric storage resources for improving the operation of electric systems; and

(iv) examine the functional value of electric storage resources at the transmission and distribution system interface for purposes of providing electric system reliability.

(h) COORDINATION.—To the maximum extent practicable, the Secretary shall coordinate the activities under this section (including activities conducted pursuant to the amendments made by this section) among the offices and employees of the Department, other Federal agencies, and other relevant entities—

(1) to ensure appropriate collaboration; and

(2) to avoid unnecessary duplication of those activities.

(i) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated—

(1) to carry out subsection (b), $100,000,000 for each of fiscal years 2021 through 2025, to remain available until expended;

(2) to carry out subsection (c), $100,000,000 for each of fiscal years 2021 through 2025, to remain available until expended;

(3) to carry out subsection (d), $50,000,000 for each of fiscal years 2021 through 2025, to remain available until expended; and

(4) to carry out subsection (e), $20,000,000 for each of fiscal years 2021 through 2025, to remain available until expended.

SEC. 1302. BUREAU OF RECLAMATION PUMPED STORAGE HYDROPOWER DEVELOPMENT.

(a) AUTHORITY FOR PUMPED STORAGE HYDROPOWER DEVELOPMENT USING MULTIPLE BUREAU OF RECLAMATION RESERVOIRS.—Section 9(c) of the Reclamation Project Act of 1939 (43 U.S.C. 485h(c)) is amended—

(1) in paragraph (1), in the fourth sentence, by striking '', including small conduit hydropower development'' and inserting ''and reserve to the Secretary the exclusive authority to develop small conduit hydropower using Bureau of Reclamation facilities and pumped storage hydropower exclusively using Bureau of Reclamation reservoirs''; and

(2) in paragraph (8), by striking ''has been filed with the Federal Energy Regulatory Commission as of the date of the enactment of the Bureau of Reclamation Small Conduit Hydropower Development and Rural Jobs Act'' and inserting ''was filed with the Federal Energy Regulatory Commission before August 9, 2013, and is still pending''.

(b) LIMITATIONS ON ISSUANCE OF CERTAIN LEASES OF POWER PRIVILEGE.—

(1) DEFINITIONS.—In this subsection:

(A) COMMISSION.—The term ''Commission'' means the Federal Energy Regulatory Commission.

(B) DIRECTOR.—The term ''Director'' means the Director of the Office of Hearings and Appeals.

(C) OFFICE OF HEARINGS AND APPEALS.—The term ''Office of Hearings and Appeals'' means the Office of Hearings and Appeals of the Department of the Interior.

(D) PARTY.—The term ''party'', with respect to a study plan agreement, means each of the following parties to the study plan agreement:

(i) The proposed lessee.

(ii) The Tribes.

(E) PROJECT.—The term ''project'' means a proposed pumped storage facility that—

(i) would use multiple Bureau of Reclamation reservoirs; and

(ii) as of June 1, 2017, was subject to a preliminary permit issued by the Commission pursuant to section 4(f) of the Federal Power Act (16 U.S.C. 797(f)).

(F) PROPOSED LESSEE.—The term ''proposed lessee'' means the proposed lessee of a project.

(G) SECRETARY.—The term ''Secretary'' means the Secretary of the Interior.

(H) STUDY PLAN.—The term ''study plan'' means the plan described in paragraph (4)(A).

(I) STUDY PLAN AGREEMENT.—The term ''study plan agreement'' means an agreement entered into under paragraph (2)(A) and described in paragraph (3).

(J) TRIBES.—The term ''Tribes'' means—

(i) the Confederated Tribes of the Colville Reservation; and

(ii) the Spokane Tribe of Indians of the Spokane Reservation.

(2) REQUIREMENT FOR ISSUANCE OF LEASES OF POWER PRIVILEGE.—The Secretary shall not issue a lease of power privilege pursuant to section 9(c)(1) of the Reclamation Project Act of 1939 (43 U.S.C. 485h(c)(1)) (as amended by subsection (a)) for a project unless—

(A) the proposed lessee and the Tribes have entered into a study plan agreement; or

(B) the Secretary or the Director, as applicable, makes a final determination for—

(i) a study plan agreement under paragraph (3)(B); or

(ii) a study plan under paragraph (4).

(3) STUDY PLAN AGREEMENT REQUIREMENTS.—

(A) IN GENERAL.—A study plan agreement shall—

(i) establish the deadlines for the proposed lessee to formally respond in writing to comments and study requests about the project previously submitted to the Commission;

(ii) allow for the parties to submit additional comments and study requests if any aspect of the project, as proposed, differs from an aspect of the project, as described in a preapplication document provided to the Commission;

(iii) except as expressly agreed to by the parties or as provided in subparagraph (B) or paragraph (4), require that the proposed lessee conduct each study described in—

(I) a study request about the project previously submitted to the Commission; or

(II) any additional study request submitted in accordance with the study plan agreement;

(iv) require that the proposed lessee study any potential adverse economic effects of the project on the Tribes, including effects on—

(I) annual payments to the Confederated Tribes of the Colville Reservation under section 5(b) of the Confederated Tribes of the Colville Reservation Grand Coulee Dam Settlement Act (Public Law 103–436; 108 Stat. 4579); and

(II) annual payments to the Spokane Tribe of Indians of the Spokane Reservation authorized after the date of enactment of this Act, the amount of which derives from the annual payments described in subclause (I);

(v) establish a protocol for communication and consultation between the parties;

(vi) provide mechanisms for resolving disputes between the parties regarding implementation and enforcement of the study plan agreement; and

(vii) contain other provisions determined to be appropriate by the parties.

(B) DISPUTES.—

(i) IN GENERAL.—If the parties cannot agree to the terms of a study plan agreement or implementation of those terms, the parties shall submit to the Director, for final determination on the terms or implementation of the study plan agreement, notice of the dispute, consistent with subparagraph (A)(vi), to the extent the parties have agreed to a study plan agreement.

(ii) INCLUSION.—A dispute covered by clause (i) may include the view of a proposed lessee that an additional study request submitted in accordance with subparagraph (A)(ii) is not reasonably calculated to assist the Secretary in evaluating the potential impacts of the project.

(iii) TIMING.—The Director shall issue a determination regarding a dispute under clause (i) not later than 120 days after the date on which the Director receives notice of the dispute under that clause.

(4) STUDY PLAN.—

(A) IN GENERAL.—The proposed lessee shall submit to the Secretary for approval a study plan that details the proposed methodology for performing each of the studies—

(i) identified in the study plan agreement of the proposed lessee; or

(ii) determined by the Director in a final determination regarding a dispute under paragraph (3)(B).

(B) INITIAL DETERMINATION.—Not later than 60 days after the date on which the Secretary receives the study plan under subparagraph (A), the Secretary shall make an initial determination that—

(i) approves the study plan;

(ii) rejects the study plan on the grounds that the study plan—

(I) lacks sufficient detail on a proposed methodology for a study identified in the study plan agreement; or

(II) is inconsistent with the study plan agreement; or

(iii) imposes additional study plan requirements that the Secretary determines are necessary to adequately define the potential effects of the project on—

(I) the exercise of the paramount hunting, fishing, and boating rights of the Tribes reserved pursuant to the Act of June 29, 1940 (54 Stat. 703, chapter 460; 16 U.S.C. 835d et seq.);

(II) the annual payments described in subclauses (I) and (II) of paragraph (3)(A)(iv);

(III) the Columbia Basin project (as defined in section 1 of the Act of May 27, 1937 (50 Stat. 208, chapter 269; 57 Stat. 14, chapter 14; 16 U.S.C. 835));

(IV) historic properties and cultural or spiritually significant resources; and

(V) the environment.

(C) OBJECTIONS.—

(i) IN GENERAL.—Not later than 30 days after the date on which the Secretary makes an initial determination under subparagraph (B), the Tribes or the proposed lessee may submit to the Director an objection to the initial determination.

(ii) FINAL DETERMINATION.—Not later than 120 days after the date on which the Director receives an objection under clause (i), the Director shall—

(I) hold a hearing on the record regarding the objection; and

(II) make a final determination that establishes the study plan, including a description of studies the proposed lessee is required to perform.

(D) NO OBJECTIONS.—If no objections are submitted by the deadline described in subparagraph (C)(i), the initial determination of the Secretary under subparagraph (B) shall be final.

(5) CONDITIONS OF LEASE.—

(A) CONSISTENCY WITH RIGHTS OF TRIBES; PROTECTION, MITIGATION, AND ENHANCEMENT OF FISH AND WILDLIFE.—

(i) IN GENERAL.—Any lease of power privilege issued by the Secretary for a project under paragraph (2) shall contain conditions—

(I) to ensure that the project is consistent with, and will not interfere with, the exercise of the paramount hunting, fishing, and boating rights of the Tribes reserved pursuant to the Act of June 29, 1940 (54 Stat. 703, chapter 460; 16 U.S.C. 835d et seq.); and

(II) to adequately and equitably protect, mitigate damages to, and enhance fish and wildlife, including related spawning grounds and habitat, affected by the development, operation, and management of the project.

(ii) RECOMMENDATIONS OF THE TRIBES.—The conditions required under clause (i) shall be based on joint recommendations of the Tribes.

(iii) RESOLVING INCONSISTENCIES.—

(I) IN GENERAL.—If the Secretary determines that any recommendation of the Tribes under clause (ii) is not reasonably calculated to ensure the project is consistent with clause (i) or is inconsistent with the requirements of the Reclamation Project Act of 1939 (43 U.S.C. 485 et seq.), the Secretary shall attempt to resolve any such inconsistency with the Tribes, giving due weight to the recommendations and expertise of the Tribes.

(II) PUBLICATION OF FINDINGS.—If, after an attempt to resolve an inconsistency under subclause (I), the Secretary does not adopt in whole or in part a recommendation of the Tribes under clause (ii), the Secretary shall issue each of the following findings, including a statement of the basis for each of the findings:

(aa) A finding that adoption of the recommendation is inconsistent with the requirements of the Reclamation Project Act of 1939 (43 U.S.C. 485 et seq.).

(bb) A finding that the conditions selected by the Secretary to be contained in the lease of power privilege under clause (i) comply with the requirements of subclauses (I) and (II) of that clause.

(B) ANNUAL CHARGES PAYABLE BY LICENSEE.—

(i) IN GENERAL.—Subject to clause (ii), any lease of power privilege issued by the Secretary for a project under paragraph (2) shall contain conditions that require the lessee of the project to make direct payments to the Tribes through reasonable annual charges in an amount that recompenses the Tribes for any adverse economic effect of the project identified in a study performed pursuant to the study plan agreement for the project.

(ii) AGREEMENT.—

(I) IN GENERAL.—The amount of the annual charges described in clause (i) shall be established through agreement between the proposed lessee and the Tribes.

(II) CONDITION.—The agreement under subclause (I), including any modification of the agreement, shall be deemed to be a condition to the lease of power privilege issued by the Secretary for a project under paragraph (2).

(iii) DISPUTE RESOLUTION.—

(I) IN GENERAL.—If the proposed lessee and the Tribes cannot agree to the terms of an agreement under clause (ii)(I), the proposed lessee and the Tribes shall submit notice of the dispute to the Director.

(II) RESOLUTION.—The Director shall resolve the dispute described in subclause (I) not later than 180 days after the date on which the Director receives notice of the dispute under that subclause.

(C) ADDITIONAL CONDITIONS.—The Secretary may include in any lease of power privilege issued by the Secretary for a project under paragraph (2) other conditions determined appropriate by the Secretary, on the condition that the conditions shall be consistent with the Reclamation Project Act of 1939 (43 U.S.C. 485 et seq.).

(D) CONSULTATION.—In establishing conditions under this paragraph, the Secretary shall consult with the Tribes.

(6) DEADLINES.—The Secretary or any officer of the Office of Hearing and Appeals before whom a proceeding is pending under this subsection may extend any deadline or enlarge any timeframe described in this subsection—

(A) at the discretion of the Secretary or the officer; or

(B) on a showing of good cause by any party.

(7) JUDICIAL REVIEW.—Any final action of the Secretary or the Director made pursuant to this subsection shall be subject to judicial review in accordance with chapter 7 of title 5, United States Code.

(8) EFFECT ON OTHER PROJECTS.—Nothing in this subsection establishes any precedent or is binding on any Bureau of Reclamation lease of power privilege, other than for a project.

Subtitle D—Carbon Capture, Utilization, and Storage

SEC. 1401. FOSSIL ENERGY.

Section 961(a) of the Energy Policy Act of 2005 (42 U.S.C. 16291(a)) is amended—

(1) in paragraph (6), by inserting '', including technology development to reduce emissions of carbon dioxide and associated emissions of heavy metals within coal combustion residues and gas streams resulting from fossil fuel use and production'' before the period at the end; and

(2) by striking paragraph (7) and inserting the following:

''(7) Increasing the export of fossil energy-related equipment, technology, including emissions control technologies, and services from the United States.

''(8) Developing carbon removal and utilization technologies, products, and methods that result in net reductions in greenhouse gas emissions, including direct air capture and storage, and carbon use and reuse for commercial application.

''(9) Improving the conversion, use, and storage of carbon dioxide produced from fossil fuels.''.

SEC. 1402. ESTABLISHMENT OF COAL AND NATURAL GAS TECHNOLOGY PROGRAM.

(a) IN GENERAL.—The Energy Policy Act of 2005 is amended by striking section 962 (42 U.S.C. 16292) and inserting the following:

''SEC. 962. COAL AND NATURAL GAS TECHNOLOGY PROGRAM.

''(a) DEFINITIONS.—In this section:

''(1) LARGE-SCALE PILOT PROJECT.—The term 'large-scale pilot project' means a pilot project that—

''(A) represents the scale of technology development beyond laboratory development and bench scale testing, but not yet advanced to the point of being tested under real operational conditions at commercial scale;

''(B) represents the scale of technology necessary to gain the operational data needed to understand the technical and performance risks of the technology before the application of that technology at commercial scale or in commercial-scale demonstration; and

''(C) is large enough—

''(i) to validate scaling factors; and

''(ii) to demonstrate the interaction between major components so that control philosophies for a new process can be developed and enable the technology to advance from large-scale pilot plant application to commercial-scale demonstration or application.

''(2) NATURAL GAS.—The term 'natural gas' means any fuel consisting in whole or in part of—

''(A) natural gas;

''(B) liquid petroleum gas;

''(C) synthetic gas derived from petroleum or natural gas liquids;

''(D) any mixture of natural gas and synthetic gas; or

''(E) biomethane.

''(3) NATURAL GAS ELECTRIC GENERATION FACILITY.—

''(A) IN GENERAL.—The term 'natural gas electric generation facility' means a facility that generates electric energy using natural gas as the fuel.

''(B) INCLUSIONS.—The term 'natural gas electric generation facility' includes a new or existing—

''(i) simple cycle plant;

''(ii) combined cycle plant;

''(iii) combined heat and power plant; or

''(iv) steam methane reformer that produces hydrogen from natural gas for use in the production of electric energy.

''(4) PROGRAM.—The term 'program' means the program established under subsection (b)(1).

''(5) TRANSFORMATIONAL TECHNOLOGY.—

''(A) IN GENERAL.—The term 'transformational technology' means a power generation technology that represents a significant change in the methods used to convert energy that will enable a step change in performance, efficiency, and cost of electricity as compared to the technology in existence on the date of enactment of the American Energy Innovation Act of 2020.

''(B) INCLUSIONS.—The term 'transformational technology' includes a broad range of technology improvements, including—

''(i) thermodynamic improvements in energy conversion and heat transfer, including—

''(I) advanced combustion systems, including oxygen combustion systems and chemical looping; and

''(II) the replacement of steam cycles with supercritical carbon dioxide cycles;

''(ii) improvements in steam or carbon dioxide turbine technology;

''(iii) improvements in carbon capture, utilization, and storage systems technology;

''(iv) improvements in small-scale and modular coal-fired technologies with reduced carbon output or carbon capture that can support incremental power generation capacity additions;

''(v) fuel cell technologies for low-cost, high-efficiency modular power systems;

''(vi) advanced gasification systems;

''(vii) thermal cycling technologies; and

''(viii) any other technology the Secretary recognizes as transformational technology.

''(b) COAL AND NATURAL GAS TECHNOLOGY PROGRAM.—

''(1) IN GENERAL.—The Secretary shall establish a coal and natural gas technology program to ensure the continued use of the abundant domestic coal and natural gas resources of the United States through the development of transformational technologies that will significantly improve the efficiency, effectiveness, costs, and environmental performance of coal and natural gas use.

''(2) REQUIREMENTS.—The program shall include—

''(A) a research and development program;

''(B) large-scale pilot projects;

''(C) demonstration projects, in accordance with paragraph (4); and

''(D) a front-end engineering and design program.

''(3) PROGRAM GOALS AND OBJECTIVES.—In consultation with the interested entities described in paragraph (6)(C), the Secretary shall develop goals and objectives for the program to be applied to the transformational technologies developed within the program, taking into consideration the following:

''(A) Increasing the performance of coal and natural gas electric generation facilities, including by—

''(i) ensuring reliable, low-cost power from new and existing coal and natural gas electric generation facilities;

''(ii) achieving high conversion efficiencies;

''(iii) addressing emissions of carbon dioxide through high-efficiency platforms;

''(iv) developing small-scale and modular technologies to support incremental capacity additions and load following generation, in addition to large-scale generation technologies;

''(v) supporting dispatchable operations for new and existing applications of coal and natural gas generation; and

''(vi) accelerating the development of technologies that have transformational energy conversion characteristics.

''(B) Using carbon capture, utilization, and sequestration technologies to decrease the carbon dioxide emissions, and the environmental impact from carbon dioxide emissions, from new and existing coal and natural gas electric generation facilities, including by—

''(i) accelerating the development, deployment, and commercialization of technologies to capture and sequester carbon dioxide emissions from new and existing coal and natural gas electric generation facilities;

''(ii) supporting sites for safe geological storage of large volumes of anthropogenic sources of carbon dioxide and the development of the infrastructure needed to support a carbon dioxide utilization and storage industry;

''(iii) improving the conversion, utilization, and storage of carbon dioxide produced from fossil fuels and other anthropogenic sources of carbon dioxide;

''(iv) lowering greenhouse gas emissions for all fossil fuel production, generation, delivery, and use, to the maximum extent practicable;

''(v) developing carbon utilization technologies, products, and methods, including carbon use and reuse for commercial application;

''(vi) developing net-negative carbon dioxide emissions technologies; and

''(vii) developing technologies for the capture of carbon dioxide produced during the production of hydrogen from natural gas.

''(C) Decreasing the non-carbon dioxide relevant environmental impacts of coal and natural gas production, including by—

''(i) further reducing non-carbon dioxide air emissions; and

''(ii) reducing the use, and managing the discharge, of water in power plant operations.

''(D) Accelerating the development of technologies to capture carbon dioxide emissions from industrial facilities, including—

''(i) nontraditional fuel manufacturing facilities, including ethanol or other biofuel production plants or hydrogen production plants; and

''(ii) energy-intensive manufacturing facilities that produce carbon dioxide as a by-product of operations.

''(E) Examining methods of converting coal and natural gas to other valuable products and commodities in addition to electricity, including hydrogen.

''(F) Entering into cooperative agreements to carry out and expedite demonstration projects (including pilot projects) to demonstrate the technical and commercial viability of technologies to reduce carbon dioxide emissions released from coal and natural gas electric generation facilities for commercial deployment; and

''(G) Identifying any barriers to the commercial deployment of any technologies under development for the capture of carbon dioxide produced by coal and natural gas electric generation facilities.

''(4) DEMONSTRATION PROJECTS.—

''(A) IN GENERAL.—In carrying out the program, the Secretary shall establish a demonstration program under which the Secretary shall enter into agreements by not

later than September 30, 2025, for demonstration projects to demonstrate the construction and operation of not fewer than 5 facilities to capture carbon dioxide from coal and natural gas electric generation facilities.

''(B) REQUIREMENT.—Of the demonstration projects carried out under subparagraph (A)—

''(i) not fewer than 2 shall be designed to capture carbon dioxide from a natural gas electric generation facility; and

''(ii) not fewer than 2 shall be designed to capture carbon dioxide from a coal electric generation facility.

''(C) GOALS.—Each demonstration project under the demonstration program shall be designed to further the development, deployment, and commercialization of technologies to capture and sequester carbon dioxide emissions from new and existing coal and natural gas electric generation facilities.

''(D) APPLICATIONS.—

''(i) IN GENERAL.—To be eligible to enter into an agreement with the Secretary for a demonstration project under subparagraph (A), an entity shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary may require.

''(ii) REVIEW OF APPLICATIONS.—In reviewing applications submitted under clause (i), the Secretary, to the maximum extent practicable, shall—

''(I) ensure a broad geographic distribution of project sites;

''(II) ensure that a broad selection of electric generation facilities are represented;

''(III) ensure that a broad selection of technologies are represented; and

''(IV) leverage existing public-private partnerships and Federal resources.

''(5) INTRAAGENCY COORDINATION FOR CARBON CAPTURE, UTILIZATION, AND SEQUESTRATION ACTIVITIES.—The carbon capture, utilization, and sequestration activities described in paragraph (3)(B) shall be carried out by the Assistant Secretary for Fossil Energy, in coordination with the heads of other relevant offices of the Department and the National Laboratories.

''(6) CONSULTATIONS REQUIRED.—In carrying out the program, the Secretary shall—

''(A) undertake international collaborations, taking into consideration the recommendations of the National Coal Council and the National Petroleum Council;

''(B) use existing authorities to encourage international cooperation; and

''(C) consult with interested entities, including—

''(i) coal and natural gas producers;

''(ii) industries that use coal and natural gas;

''(iii) organizations that promote coal, advanced coal, and natural gas technologies;

''(iv) environmental organizations;

''(v) organizations representing workers; and

''(vi) organizations representing consumers.

''(c) REPORT.—

''(1) IN GENERAL.—Not later than 18 months after the date of enactment of the American Energy Innovation Act of 2020, the Secretary shall submit to Congress a report describing the program goals and objectives adopted under subsection (b)(3).

''(2) UPDATE.—Not less frequently than once every 2 years after the initial report is submitted under paragraph (1), the Secretary shall submit to Congress a report describing the progress made towards achieving the program goals and objectives adopted under subsection (b)(3).

''(d) FUNDING.—

''(1) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary to carry out this section, to remain available until expended—

''(A) for activities under the research and development program component described in subsection (b)(2)(A)—

''(i) $230,000,000 for each of fiscal years 2021 and 2022; and

''(ii) $150,000,000 for each of fiscal years 2023 through 2025;

''(B) subject to paragraph (2), for activities under the large-scale pilot projects program component described in subsection (b)(2)(B)—

''(i) $347,000,000 for each of fiscal years 2021 and 2022;

''(ii) $272,000,000 for each of fiscal years 2023 and 2024; and

''(iii) $250,000,000 for fiscal year 2025;

''(C) for activities under the demonstration projects program component described in subsection (b)(2)(C)—

''(i) $100,000,000 for each of fiscal years 2021 and 2022; and

''(ii) $500,000,000 for each of fiscal years 2023 through 2025; and

''(D) for activities under the front-end engineering and design program described in subsection (b)(2)(D), $50,000,000 for each of fiscal years 2021 through 2024.

''(2) COST SHARING FOR LARGE-SCALE PILOT PROJECTS.—Activities under subsection (b)(2)(B) shall be subject to the cost-sharing requirements of section 988(b).''.

(b) TECHNICAL AMENDMENT.—The table of contents for the Energy Policy Act of 2005 (Public Law 109–58; 119 Stat. 600) is amended by striking the item relating to section 962 and inserting the following:

''Sec. 962. Coal and natural gas technology program.''.

SEC. 1403. CARBON STORAGE VALIDATION AND TESTING.

(a) IN GENERAL.—Section 963 of the Energy Policy Act of 2005 (42 U.S.C. 16293) is amended—

(1) by striking subsection (d) and inserting the following:

''(g) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary to carry out this section—

''(1) $105,000,000 for fiscal year 2021;

''(2) $110,250,000 for fiscal year 2022;

''(3) $115,763,000 for fiscal year 2023;

''(4) $121,551,000 for fiscal year 2024; and

''(5) $127,628,000 for fiscal year 2025.'';

(2) in subsection (c)—

(A) by striking paragraphs (5) and (6) and inserting the following:

''(f) COST SHARING.—Activities carried out under this section shall be subject to the cost-sharing requirements of section 988.''; and

(B) by redesignating paragraph (4) as subsection (e) and indenting appropriately;

(3) in subsection (e) (as so redesignated)—

(A) by redesignating subparagraphs (A) and (B) as paragraphs (1) and (2), respectively, and indenting appropriately; and

(B) by striking ''subsection'' each place it appears and inserting ''section''; and

(4) by striking the section designation and heading and all that follows through the end of subsection (c)(3) and inserting the following:

''SEC. 963. CARBON STORAGE VALIDATION AND TESTING.

''(a) DEFINITIONS.—In this section:

''(1) LARGE-SCALE CARBON SEQUESTRATION.—The term 'large-scale carbon sequestration' means a scale that—

''(A) demonstrates the ability to inject into geologic formations and sequester carbon dioxide; and

''(B) has a goal of sequestering not less than 50 million metric tons of carbon dioxide over a 10-year period.

''(2) PROGRAM.—The term 'program' means the program established under subsection (b)(1).

''(b) CARBON STORAGE PROGRAM.—

''(1) IN GENERAL.—The Secretary shall establish a program of research, development, and demonstration for carbon storage.

''(2) PROGRAM ACTIVITIES.—Activities under the program shall include—

''(A) in coordination with relevant Federal agencies, developing and maintaining mapping tools and resources that assess the capacity of geologic storage formation in the United States;

''(B) developing monitoring tools, modeling of geologic formations, and analyses—

''(i) to predict carbon dioxide containment; and

''(ii) to account for sequestered carbon dioxide in geologic storage sites;

''(C) researching—

''(i) potential environmental, safety, and health impacts in the event of a leak into the atmosphere or to an aquifer; and

''(ii) any corresponding mitigation actions or responses to limit harmful consequences of such a leak;

''(D) evaluating the interactions of carbon dioxide with formation solids and fluids, including the propensity of injections to induce seismic activity;

''(E) assessing and ensuring the safety of operations relating to geologic sequestration of carbon dioxide;

''(F) determining the fate of carbon dioxide concurrent with and following injection into geologic formations; and

''(G) supporting cost and business model assessments to examine the economic viability of technologies and systems developed under the program.

''(3) GEOLOGIC SETTINGS.—In carrying out research activities under this subsection, the Secretary shall consider a variety of candidate onshore and offshore geologic settings, including—

''(A) operating oil and gas fields;

''(B) depleted oil and gas fields;

''(C) residual oil zones;

''(D) unconventional reservoirs and rock types;

''(E) unmineable coal seams;

''(F) saline formations in both sedimentary and basaltic geologies;

''(G) geologic systems that may be used as engineered reservoirs to extract economical quantities of brine from geothermal resources of low permeability or porosity; and

''(H) geologic systems containing in situ carbon dioxide mineralization formations.

''(c) LARGE-SCALE CARBON SEQUESTRATION DEMONSTRATION PROGRAM.—

''(1) IN GENERAL.—The Secretary shall establish a demonstration program under which the Secretary shall provide funding for demonstration projects to collect and validate information on the cost and feasibility of commercial deployment of large-scale carbon sequestration technologies.

''(2) EXISTING REGIONAL CARBON SEQUESTRATION PARTNERSHIPS.—In carrying out paragraph (1), the Secretary may provide additional funding to regional carbon sequestration partnerships that are carrying out or have completed a large-scale carbon sequestration demonstration project under this section (as in effect on the day before the date of enactment of the American Energy Innovation Act of 2020) for additional work on that project.

''(3) DEMONSTRATION COMPONENTS.—Each demonstration project carried out under this subsection shall include longitudinal tests involving carbon dioxide injection and monitoring, mitigation, and verification operations.

''(4) CLEARINGHOUSE.—The National Energy Technology Laboratory shall act as a clearinghouse of shared information and resources for—

''(A) existing or completed demonstration projects receiving additional funding under paragraph (2); and

''(B) any new demonstration projects funded under this subsection.

''(5) REPORT.—Not later than 1 year after the date of enactment of the American Energy Innovation Act of 2020, the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report that—

''(A) assesses the progress of all regional carbon sequestration partnerships carrying out a demonstration project under this subsection;

''(B) identifies the remaining challenges in achieving large-scale carbon sequestration that is reliable and safe for the environment and public health; and

''(C) creates a roadmap for carbon storage research and development activities of the Department through 2025, with the goal of reducing economic and policy barriers to commercial carbon sequestration.

''(d) INTEGRATED STORAGE.—

''(1) IN GENERAL.—The Secretary may transition large-scale carbon sequestration demonstration projects under subsection (c) into integrated commercial storage complexes.

''(2) GOALS AND OBJECTIVES.—The goals and objectives of the Secretary in seeking to transition large-scale carbon sequestration demonstration projects into integrated commercial storage complexes under paragraph (1) shall be—

''(A) to identify geologic storage sites that are able to accept large volumes of carbon dioxide acceptable for commercial contracts;

''(B) to understand the technical and commercial viability of carbon dioxide geologic storage sites; and

''(C) to carry out any other activities necessary to transition the large-scale carbon sequestration demonstration projects under subsection (c) into integrated commercial storage complexes.''.

(b) TECHNICAL AMENDMENT.—The table of contents for the Energy Policy Act of 2005 (Public Law 109–58; 119 Stat. 600; 121 Stat. 1708) is amended by striking the item relating to section 963 and inserting the following:

''Sec. 963. Carbon storage validation and testing.''.

(c) CONFORMING AMENDMENTS.—

(1) Section 703(a)(3) of the Department of Energy Carbon Capture and Sequestration Research, Development, and Demonstration Act of 2007 (42 U.S.C. 17251(a)(3)) is amended, in the first sentence of the matter preceding subparagraph (A), by striking ''section 963(c)(3)'' and inserting ''section 963(c)''.

(2) Section 704 of the Department of Energy Carbon Capture and Sequestration Research, Development, and Demonstration Act of 2007 (42 U.S.C. 17252) is amended, in the first sentence, by striking ''section 963(c)(3)'' and inserting ''section 963(c)''.

SEC. 1404. CARBON UTILIZATION PROGRAM.

(a) CARBON UTILIZATION PROGRAM.—

(1) IN GENERAL.—Subtitle F of title IX of the Energy Policy Act of 2005 (42 U.S.C. 16291 et seq.) is amended by adding at the end the following:

''SEC. 969. CARBON UTILIZATION PROGRAM.

''(a) IN GENERAL.—The Secretary shall establish a program of research, development, and demonstration for carbon utilization—

''(1) to assess and monitor—

''(A) potential changes in lifecycle carbon dioxide and other greenhouse gas emissions; and

''(B) other environmental safety indicators of new technologies, practices, processes, or methods used in enhanced hydrocarbon recovery as part of the activities authorized under section 963;

''(2) to identify and assess novel uses for carbon, including the conversion of carbon and carbon oxides for commercial and industrial products and other products with potential market value;

''(3) to identify and assess carbon capture technologies for industrial systems; and

''(4) to identify and assess alternative uses for raw coal and processed coal products in all phases, including products derived from carbon engineering, carbon fiber, and coal conversion methods.

''(b) DEMONSTRATION PROGRAMS FOR THE PURPOSE OF COMMERCIALIZATION.—

''(1) IN GENERAL.—Not later than 180 days after the date of enactment of this section, the Secretary shall establish a 2-year demonstration program in each of the 2 major coal-producing regions of the United States for the purpose of partnering with private institutions in coal mining regions to accelerate the commercial deployment of coal-carbon products.

''(2) COST SHARING.—Activities under paragraph (1) shall be subject to the cost-sharing requirements of section 988.

''(c) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary to carry out this section—

''(1) $29,000,000 for fiscal year 2021;

''(2) $30,250,000 for fiscal year 2022;

''(3) $31,562,500 for fiscal year 2023;

''(4) $32,940,625 for fiscal year 2024; and

''(5) $34,387,656 for fiscal year 2025.''.

(2) TECHNICAL AMENDMENT.—The table of contents for the Energy Policy Act of 2005 (Public Law 109–58; 119 Stat. 600) is amended by adding at the end of the items relating to subtitle F of title IX the following:

''Sec. 969. Carbon utilization program.''.

(b) STUDY.—

(1) IN GENERAL.—The Secretary shall enter into an agreement with the National Academies of Sciences, Engineering, and Medicine under which the National Academies of Sciences, Engineering, and Medicine shall conduct a study to assess any barriers and opportunities relating to commercializing carbon, coal-derived carbon, and carbon dioxide in the United States.

(2) REQUIREMENTS.—The study under paragraph (1) shall—

(A) analyze challenges to commercializing carbon dioxide, including—

(i) expanding carbon dioxide pipeline capacity;

(ii) mitigating environmental impacts;

(iii) access to capital;

(iv) geographic barriers; and

(v) regional economic challenges and opportunities;

(B) identify potential markets, industries, or sectors that may benefit from greater access to commercial carbon dioxide;

(C) determine the feasibility of, and opportunities for, the commercialization of coal-derived carbon products, including for—

(i) commercial purposes;

(ii) industrial purposes;

(iii) defense and military purposes;

(iv) agricultural purposes, including soil amendments and fertilizers;

(v) medical and pharmaceutical applications;

(vi) construction and building applications;

(vii) energy applications; and

(viii) production of critical minerals;

(D) assess—

(i) the state of infrastructure as of the date of the study; and

(ii) any necessary updates to infrastructure to allow for the integration of safe and reliable carbon dioxide transportation, use, and storage;

(E) describe the economic, climate, and environmental impacts of any well-integrated national carbon dioxide pipeline system, including suggestions for policies that could—

(i) improve the economic impact of the system; and

(ii) mitigate impacts of the system;

(F) assess the global status and progress of chemical and biological carbon utilization technologies in practice as of the date of the study that utilize anthropogenic carbon, including carbon dioxide, carbon monoxide, methane, and biogas, from power generation, biofuels production, and other industrial processes;

(G) identify emerging technologies and approaches for carbon utilization that show promise for scale-up, demonstration, deployment, and commercialization;

(H) analyze the factors associated with making carbon utilization technologies viable at a commercial scale, including carbon waste stream availability, economics, market capacity, energy, and lifecycle requirements;

(I)(i) assess the major technical challenges associated with increasing the commercial viability of carbon reuse technologies; and

(ii) identify the research and development questions that will address the challenges described in clause (i);

(J)(i) assess research efforts being carried out as of the date of the study, including basic, applied, engineering, and computational research efforts, that are addressing the challenges described in subparagraph (I)(i); and

(ii) identify gaps in the research efforts under clause (i);

(K) develop a comprehensive research agenda that addresses long- and short-term research needs and opportunities; and

(L)(i) identify appropriate Federal agencies with capabilities to support small business entities; and

(ii) determine what assistance the Federal agencies identified under clause (i) could provide to small business entities to further the development and commercial deployment of carbon dioxide-based products.

(3) DEADLINE.—Not later than 180 days after the date of enactment of this Act, the National Academies of Sciences, Engineering, and Medicine shall submit to the Secretary a report describing the results of the study under paragraph (1).

SEC. 1405. CARBON REMOVAL.

(a) IN GENERAL.—Subtitle F of title IX of the Energy Policy Act of 2005 (42 U.S.C. 16291 et seq.) (as amended by section 1404(a)(1)) is amended by adding at the end the following:

''SEC. 969A. CARBON REMOVAL.

''(a) ESTABLISHMENT.—The Secretary, in coordination with the heads of appropriate Federal agencies, including the Secretary of Agriculture, shall establish a research, development, and demonstration program (referred to in this section as the 'program') to test, validate, or improve technologies and strategies to remove carbon dioxide from the atmosphere on a large scale.

''(b) INTRAAGENCY COORDINATION.—The Secretary shall ensure that the program includes the coordinated participation of the Office of Fossil Energy, the Office of Science, and the Office of Energy Efficiency and Renewable Energy.

''(c) PROGRAM ACTIVITIES.—The program may include research, development, and demonstration activities relating to—

''(1) direct air capture and storage technologies;

''(2) bioenergy with carbon capture and sequestration;

''(3) enhanced geological weathering;

''(4) agricultural practices;

''(5) forest management and afforestation; and

''(6) planned or managed carbon sinks, including natural and artificial.

''(d) REQUIREMENTS.—In developing and identifying carbon removal technologies and strategies under the program, the Secretary shall consider—

''(1) land use changes, including impacts on natural and managed ecosystems;

''(2) ocean acidification;

''(3) net greenhouse gas emissions;

''(4) commercial viability;

''(5) potential for near-term impact;

''(6) potential for carbon reductions on a gigaton scale; and

''(7) economic cobenefits.

''(e) AIR CAPTURE TECHNOLOGY PRIZE COMPETITION.—

''(1) DEFINITIONS.—In this subsection:

''(A) DILUTE MEDIA.—The term 'dilute media' means media in which the concentration of carbon dioxide is less than 1 percent by volume.

''(B) PRIZE COMPETITION.—The term 'prize competition' means the competitive technology prize competition established under paragraph (2).

''(2) ESTABLISHMENT.—Not later than 2 years after the date of enactment of this section, the Secretary, in consultation with the Administrator of the Environmental Protection Agency, shall establish as part of the program a competitive technology prize competition to award prizes for carbon dioxide capture from dilute media.

''(3) REQUIREMENTS.—In carrying out this subsection, the Secretary, in accordance with section 24 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3719), shall develop requirements for—

''(A) the prize competition process; and

''(B) monitoring and verification procedures for projects selected to receive a prize under the prize competition.

''(4) ELIGIBLE PROJECTS.—To be eligible to be awarded a prize under the prize competition, a project shall—

''(A) meet minimum performance standards set by the Secretary;

''(B) meet minimum levels set by the Secretary for the capture of carbon dioxide from dilute media; and

''(C) demonstrate in the application of the project for a prize—

''(i) a design for a promising carbon capture technology that will—

''(I) be operated on a demonstration scale; and

''(II) have the potential to achieve significant reduction in the level of carbon dioxide in the atmosphere;

''(ii) a successful bench-scale demonstration of a carbon capture technology; or

''(iii) an operational carbon capture technology on a commercial scale.

''(f) DIRECT AIR CAPTURE TEST CENTER.—

''(1) IN GENERAL.—Not later than 2 years after the date of enactment of this section, the Secretary shall award grants to 1 or more entities for the operation of 1 or more test centers (referred to in this subsection as a 'Center') to provide unique testing capabilities for innovative direct air capture and storage technologies.

''(2) PURPOSE.—Each Center shall—

''(A) advance research, development, demonstration, and commercial application of direct air capture and storage technologies;

''(B) support large-scale pilot and demonstration projects and test direct air capture and storage technologies;

''(C) develop front-end engineering design and economic analysis; and

''(D) maintain a public record of pilot and full-scale plant performance.

''(3) SELECTION.—

''(A) IN GENERAL.—The Secretary shall select entities to receive grants under this subsection according to such criteria as the Secretary may develop.

''(B) COMPETITIVE BASIS.—The Secretary shall select entities to receive grants under this subsection on a competitive basis.

''(C) PRIORITY CRITERIA.—In selecting entities to receive grants under this subsection, the Secretary shall prioritize applicants that—

''(i) have access to existing or planned research facilities for direct air capture and storage technologies;

''(ii) are institutions of higher education with established expertise in engineering for direct air capture and storage technologies, or partnerships with such institutions of higher education; or

''(iii) have access to existing research and test facilities for bulk materials design and testing, component design and testing, or professional engineering design.

''(4) FORMULA FOR AWARDING GRANTS.—The Secretary may develop a formula for awarding grants under this subsection.

''(5) SCHEDULE.—

''(A) IN GENERAL.—Each grant awarded under this subsection shall be for a term of not more than 5 years, subject to the availability of appropriations.

''(B) RENEWAL.—The Secretary may renew a grant for 1 or more additional 5-year terms, subject to a competitive merit review and the availability of appropriations.

''(6) TERMINATION.—To the extent otherwise authorized by law, the Secretary may eliminate, and terminate grant funding under this subsection for, a Center during any 5-year term described in paragraph (5) if the Secretary determines that the Center is underperforming.

''(g) PILOT AND DEMONSTRATION PROJECTS.—In supporting the technology development activities under this section, the Secretary is encouraged to support carbon removal pilot and demonstration projects, including—

''(1) pilot projects that test direct air capture systems capable of capturing 10 to 100 tonnes of carbon oxides per year to provide data for demonstration-scale projects; and

''(2) direct air capture demonstration projects capable of capturing greater than 1,000 tonnes of carbon oxides per year.

''(h) INTRAAGENCY COORDINATION.—The direct air capture activities carried out under subsections (c)(1) and (e) shall be carried out in coordination with, and leveraging lessons learned from, the coal and natural gas technology program established under section 962(b)(1).

''(i) ACCOUNTING.—The Secretary shall collaborate with the Administrator of the Environmental Protection Agency and the heads of other relevant Federal agencies to develop and improve accounting frameworks and tools to accurately measure carbon removal and sequestration methods and technologies across the Federal Government.

''(j) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary to carry out this section—

''(1) $75,000,000 for fiscal year 2021, of which $15,000,000 shall be used to carry out subsection (e);

''(2) $63,500,000 for fiscal year 2022;

''(3) $66,150,000 for fiscal year 2023;

''(4) $69,458,000 for fiscal year 2024; and

''(5) $72,930,000 for fiscal year 2025.''.

(b) TECHNICAL AMENDMENT.—The table of contents for the Energy Policy Act of 2005 (Public Law 109–58; 119 Stat. 600) (as amended by section 1404(a)(2)) is amended by adding at the end of the items relating to subtitle F of title IX the following:

''Sec. 969A. Carbon removal.''.

Subtitle E—Nuclear

SEC. 1501. LIGHT WATER REACTOR SUSTAINABILITY PROGRAM.

Section 952 of the Energy Policy Act of 2005 (42 U.S.C. 16272) is amended by striking subsection (b) and inserting the following:

''(b) LIGHT WATER REACTOR SUSTAINABILITY PROGRAM.—The Secretary shall carry out a light water reactor sustainability program—

''(1) to ensure the achievement of maximum benefits from existing nuclear generation;

''(2) to accommodate the increase in applications for nuclear power plant license renewals expected as of the date of enactment of this subsection;

''(3) to enable the continued operation of existing nuclear power plants through technology development;

''(4) to improve the performance and reduce the operation and maintenance costs of nuclear power plants;

''(5) to promote the use of high-performance computing to simulate nuclear reactor processes;

''(6) to coordinate with other research and development programs of the Office of Nuclear Energy to ensure that developed technologies and capabilities are part of an integrated investment strategy, the overall focus of which is improving the safety, security, reliability, and economics of operating nuclear power plants; and

''(7) to focus on—

''(A) new capabilities relating to nuclear energy research and development;

''(B) enabling technologies beyond individual programs;

''(C) coordinating capabilities among the research and development programs of the Office of Nuclear Energy;

''(D) examining new classes of materials not considered for nuclear applications;

''(E) high-risk research, which could potentially overcome technological limitations; and

''(F) the potential for industry partnerships to develop technologies relating to storage, hydrogen production, high-temperature process heat, and other relevant areas.''.

SEC. 1502. NUCLEAR ENERGY RESEARCH, DEVELOPMENT, AND DEMONSTRATION.

Section 952 of the Energy Policy Act of 2005 (42 U.S.C. 16272) is amended by adding at the end the following:

''(e) ADVANCED REACTOR TECHNOLOGIES DEVELOPMENT PROGRAM.—

''(1) IN GENERAL.—The Secretary shall carry out a program under which the Secretary shall conduct research relating to the development of innovative nuclear reactor technologies that may offer improved safety, functionality, and affordability.

''(2) REQUIREMENTS.—The program under this subsection shall—

''(A) support efforts to reduce long-term technical barriers for advanced nuclear energy systems; and

''(B) be carried out in consultation with the Nuclear Regulatory Commission to ensure identification of any relevant concerns.''.

SEC. 1503. ADVANCED FUELS DEVELOPMENT.

Section 953 of the Energy Policy Act of 2005 (42 U.S.C. 16273) is amended—

(1) by redesignating subsections (a) through (d) as paragraphs (1), (3), (4), and (5), respectively, and indenting appropriately;

(2) in paragraph (1) (as so redesignated)—

(A) by striking ''this section'' and inserting ''this subsection'';

(B) by striking ''minimize environmental'' and inserting ''improve fuel cycle performance while minimizing the cost and complexity of processing, environmental impacts,''; and

(C) by striking ''the Generation IV'';

(3) by inserting after paragraph (1) (as so redesignated) the following:

''(2) CONSIDERATIONS.—In carrying out activities under the program, the Secretary shall consider the potential benefits of those activities for civilian nuclear applications, environmental remediation, and national security.'';

(4) by inserting after paragraph (5) (as so redesignated) the following:

''(6) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out the program $40,000,000 for each of fiscal years 2021 through 2025.'';

(5) by inserting before paragraph (1) (as so redesignated) the following:

''(a) MATERIAL RECOVERY AND WASTE FORM DEVELOPMENT.—''; and

(6) by adding at the end the following:

''(b) ADVANCED FUELS.—

''(1) IN GENERAL.—The Secretary shall carry out a program to conduct research relating to—

''(A) next-generation light water reactor fuels that demonstrate improved—

''(i) performance; and

''(ii) accident tolerance; and

''(B) advanced reactor fuels that demonstrate improved—

''(i) proliferation resistance; and

''(ii) use of resources.

''(2) REQUIREMENTS.—In carrying out the program under this subsection, the Secretary shall—

''(A) focus on the development of accident-tolerant fuel and cladding concepts that are capable of achieving initial commercialization by December 31, 2025;

''(B) conduct studies regarding the means by which those concepts would impact reactor economics, the fuel cycle, operations, safety, and the environment;

''(C) subject to paragraph (3), publish the results of the studies conducted under subparagraph (B); and

''(D) cooperate with institutions of higher education through the Nuclear Energy University and Integrated Research Projects programs of the Department.

''(3) SENSITIVE INFORMATION.—The Secretary shall not publish any information under paragraph (2)(C) that is detrimental to national security, as determined by the Secretary.

''(4) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out the program under this subsection $120,000,000 for each of fiscal years 2021 through 2025.''.

SEC. 1504. NUCLEAR SCIENCE AND ENGINEERING SUPPORT.

(a) IN GENERAL.—Section 954 of the Energy Policy Act of 2005 (42 U.S.C. 16274) is amended—

(1) in the section heading, by striking ''**UNIVERSITY NUCLEAR**'' and inserting ''**NUCLEAR**'';

(2) in subsection (b)—

(A) in the matter preceding paragraph (1), by striking ''this section'' and inserting ''this subsection''; and

(B) by redesignating paragraphs (1) through (5) as subparagraphs (A) through (E), respectively, and indenting appropriately;

(3) in subsection (c), by redesignating paragraphs (1) and (2) as subparagraphs (A) and (B), respectively, and indenting appropriately;

(4) in subsection (d)—

(A) in the matter preceding paragraph (1), by striking ''this section'' and inserting ''this subsection''; and

(B) by redesignating paragraphs (1) through (4) as subparagraphs (A) through (D), respectively, and indenting appropriately;

(5) in subsection (e), by striking ''this section'' and inserting ''this subsection'';

(6) in subsection (f)—

(A) by striking ''this section'' and inserting ''this subsection''; and

(B) by striking ''subsection (b)(2)'' and inserting ''paragraph (2)(B)'';

(7) by redesignating subsections (a) through (f) as paragraphs (1), (2), (3), (4), (6), and (7), respectively, and indenting appropriately;

(8) by inserting after paragraph (4) (as so redesignated) the following:

''(5) RADIOLOGICAL FACILITIES MANAGEMENT.—

''(A) IN GENERAL.—The Secretary shall carry out a program under which the Secretary shall provide project management, technical support, quality engineering and inspection, and nuclear material support to research reactors located at universities.

''(B) AUTHORIZATION OF APPROPRIATIONS.—In addition to any amounts appropriated to carry out the program under this subsection, there is authorized to be appropriated to the Secretary to carry out the program under this paragraph $15,000,000 for each of fiscal years 2021 through 2025.'';

(9) by inserting before paragraph (1) (as so redesignated) the following:

''(a) UNIVERSITY NUCLEAR SCIENCE AND ENGINEERING SUPPORT.—''; and

(10) by adding at the end the following:

''(b) NUCLEAR ENERGY APPRENTICESHIP SUBPROGRAM.—

''(1) ESTABLISHMENT.—In carrying out the program under subsection (a), the Secretary shall establish a nuclear energy apprenticeship subprogram under which the Secretary shall establish competitively awarded traineeships and apprenticeships in industries that are represented by skilled labor unions and with universities to provide focused, graduate-level training to meet highly focused needs through a tailored academic graduate program that delivers a curriculum with a rigorous thesis or dissertation research requirement aligned with the critical needs of the Department with respect to mission-driven workforce.

''(2) REQUIREMENTS.—In carrying out the subprogram under this subsection, the Secretary shall—

''(A) encourage appropriate partnerships among National Laboratories, affected universities, and industry; and

''(B) on an annual basis, evaluate the needs of the nuclear energy community to implement traineeships for focused topical areas addressing mission-specific workforce needs.

''(3) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out the subprogram under this subsection $5,000,000 for each of fiscal years 2021 through 2025.''.

(b) CONFORMING AMENDMENT.—The table of contents of the Energy Policy Act of 2005 (Public Law 109–58; 119 Stat. 600) is amended by striking the item relating to section 954 and inserting the following:

''Sec. 954. Nuclear science and engineering support.''.

SEC. 1505. UNIVERSITY NUCLEAR LEADERSHIP PROGRAM.

Section 313 of the Energy and Water Development and Related Agencies Appropriations Act, 2009 (42 U.S.C. 16274a), is amended to read as follows:

''SEC. 313. UNIVERSITY NUCLEAR LEADERSHIP PROGRAM.

''(a) DEFINITIONS.—In this section:

''(1) ADVANCED NUCLEAR REACTOR.—The term 'advanced nuclear reactor' means—

''(A) a nuclear fission reactor, including a prototype plant (as defined in sections 50.2 and 52.1 of title 10, Code of Federal Regulations (or successor regulations)), with significant improvements compared to the most recent generation of fission reactors, including improvements such as—

''(i) additional inherent safety features;

''(ii) lower waste yields;

''(iii) improved fuel performance;

''(iv) increased tolerance to loss of fuel cooling;

''(v) enhanced reliability;

''(vi) increased proliferation resistance;

''(vii) increased thermal efficiency;

''(viii) reduced consumption of cooling water;

''(ix) the ability to integrate into electric applications and nonelectric applications;

''(x) modular sizes to allow for deployment that corresponds with the demand for electricity; or

''(xi) operational flexibility to respond to changes in demand for electricity and to complement integration with intermittent renewable energy; and

''(B) a fusion reactor.

''(2) INSTITUTION OF HIGHER EDUCATION.—The term 'institution of higher education' has the meaning given the term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

''(3) PROGRAM.—The term 'Program' means the University Nuclear Leadership Program established under subsection (b).

''(b) ESTABLISHMENT.—The Secretary of Energy, the Administrator of the National Nuclear Security Administration, and the Chairman of the Nuclear Regulatory Commission shall jointly establish a program, to be known as the 'University Nuclear Leadership Program'.

''(c) USE OF FUNDS.—

''(1) IN GENERAL.—Except as provided in paragraph (2), amounts made available to carry out the Program shall be used to provide financial assistance for scholarships, fellowships, and research and development projects at institutions of higher education in areas relevant to the programmatic mission of the applicable Federal agency providing the financial assistance with respect to research, development, demonstration, and deployment activities for technologies relevant to advanced nuclear reactors, including relevant fuel cycle technologies.

''(2) EXCEPTION.—Notwithstanding paragraph (1), amounts made available to carry out the Program may be used to provide financial assistance for a scholarship, fellowship, or multiyear research and development project that does not align directly with a programmatic mission of the applicable Federal agency providing the financial assistance, if the activity for which assistance is provided would facilitate the maintenance of the discipline of nuclear science or nuclear engineering.

''(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to carry out the Program for fiscal year 2021 and each fiscal year thereafter—

''(1) $30,000,000 to the Secretary of Energy, of which $15,000,000 shall be for use by the Administrator of the National Nuclear Security Administration; and

''(2) $15,000,000 to the Nuclear Regulatory Commission.''.

SEC. 1506. VERSATILE, REACTOR-BASED FAST NEUTRON SOURCE.

Section 955(c)(1) of the Energy Policy Act of 2005 (42 U.S.C. 16275(c)(1)) is amended—

(1) in the paragraph heading, by striking ''MISSION NEED'' and inserting ''AUTHORIZATION''; and

(2) in subparagraph (A), by striking ''determine the mission need'' and inserting ''provide''.

SEC. 1507. ADVANCED NUCLEAR REACTOR RESEARCH AND DEVELOPMENT GOALS.

(a) IN GENERAL.—Subtitle E of title IX of the Energy Policy Act of 2005 (42 U.S.C. 16271

et seq.) is amended by adding at the end the following:

"SEC. 959A. ADVANCED NUCLEAR REACTOR RESEARCH AND DEVELOPMENT GOALS.

''(a) DEFINITIONS.—In this section:

''(1) ADVANCED NUCLEAR REACTOR.—The term 'advanced nuclear reactor' means—

''(A) a nuclear fission reactor, including a prototype plant (as defined in sections 50.2 and 52.1 of title 10, Code of Federal Regulations (or successor regulations)), with significant improvements compared to the most recent generation of fission reactors, including improvements such as—

''(i) additional inherent safety features;

''(ii) lower waste yields;

''(iii) improved fuel performance;

''(iv) increased tolerance to loss of fuel cooling;

''(v) enhanced reliability;

''(vi) increased proliferation resistance;

''(vii) increased thermal efficiency;

''(viii) reduced consumption of cooling water;

''(ix) the ability to integrate into electric applications and nonelectric applications;

''(x) modular sizes to allow for deployment that corresponds with the demand for electricity; or

''(xi) operational flexibility to respond to changes in demand for electricity and to complement integration with intermittent renewable energy; and

''(B) a fusion reactor.

''(2) DEMONSTRATION PROJECT.—The term 'demonstration project' means an advanced nuclear reactor operated in any manner, including as part of the power generation facilities of an electric utility system, for the purpose of demonstrating the suitability for commercial application of the advanced nuclear reactor.

''(b) PURPOSE.—The purpose of this section is to direct the Secretary, as soon as practicable after the date of enactment of this section, to advance the research and development of domestic advanced, affordable, and clean nuclear energy by—

''(1) demonstrating different advanced nuclear reactor technologies that could be used by the private sector to produce—

''(A) emission-free power at a levelized cost of electricity of $60 per megawatt-hour or less;

''(B) heat for community heating, industrial purposes, or synthetic fuel production;

''(C) remote or off-grid energy supply; or

''(D) backup or mission-critical power supplies;

''(2) developing subgoals for nuclear energy research programs that would accomplish the goals of the demonstration projects carried out under subsection (c);

''(3) identifying research areas that the private sector is unable or unwilling to undertake due to the cost of, or risks associated with, the research; and

''(4) facilitating the access of the private sector—

''(A) to Federal research facilities and personnel; and

''(B) to the results of research relating to civil nuclear technology funded by the Federal Government.

''(c) DEMONSTRATION PROJECTS.—

''(1) IN GENERAL.—The Secretary shall, to the maximum extent practicable—

''(A) enter into agreements to complete not fewer than 2 demonstration projects by not later than December 31, 2025; and

''(B) establish a program to enter into agreements to complete 1 additional operational demonstration project by not later than December 31, 2035.

''(2) REQUIREMENTS.—In carrying out demonstration projects under paragraph (1), the Secretary shall—

''(A) include diversity in designs for the advanced nuclear reactors demonstrated under this section, including designs using various—

''(i) primary coolants;

''(ii) fuel types and compositions; and

''(iii) neutron spectra;

''(B) seek to ensure that—

''(i) the long-term cost of electricity or heat for each design to be demonstrated under this subsection is cost-competitive in the applicable market;

''(ii) the selected projects can meet the deadline established in paragraph (1) to demonstrate first-of-a-kind advanced nuclear reactor technologies, for which additional information shall be considered, including—

''(I) the technology readiness level of a proposed advanced nuclear reactor technology;

''(II) the technical abilities and qualifications of teams desiring to demonstrate a proposed advanced nuclear reactor technology; and

''(III) the capacity to meet cost-share requirements of the Department;

''(C) ensure that each evaluation of candidate technologies for the demonstration projects is completed through an external review of proposed designs, which review shall—

''(i) be conducted by a panel that includes not fewer than 1 representative of each of—

''(I) an electric utility; and

''(II) an entity that uses high-temperature process heat for manufacturing or industrial processing, such as a petrochemical company, a manufacturer of metals, or a manufacturer of concrete;

''(ii) include a review of cost-competitiveness and other value streams, together with the technology readiness level, of each design to be demonstrated under this subsection; and

''(iii) not be required for a demonstration project that receives no financial assistance from the Department for construction costs;

''(D) for federally funded demonstration projects, enter into cost-sharing agreements with private sector partners in accordance with section 988 for the conduct of activities relating to the research, development, and demonstration of private-sector advanced nuclear reactor designs under the program;

''(E) work with private sector partners to identify potential sites, including Department-owned sites, for demonstrations, as appropriate;

''(F) align specific activities carried out under demonstration projects carried out under this subsection with priorities identified through direct consultations between—

''(i) the Department;

''(ii) National Laboratories;

''(iii) institutions of higher education;

''(iv) traditional end-users (such as electric utilities);

''(v) potential end-users of new technologies (such as users of high-temperature process heat for manufacturing processing, including petrochemical companies, manufacturers of metals, or manufacturers of concrete); and

''(vi) developers of advanced nuclear reactor technology; and

''(G) seek to ensure that the demonstration projects carried out under paragraph (1) do not cause any delay in a deployment of an advanced reactor by private industry and the Department that is underway as of the date of enactment of this section.

''(3) ADDITIONAL REQUIREMENTS.—In carrying out demonstration projects under paragraph (1), the Secretary shall—

''(A) identify candidate technologies that—

''(i) are not developed sufficiently for demonstration within the initial required timeframe described in paragraph (1)(A); but

''(ii) could be demonstrated within the timeframe described in paragraph (1)(B);

''(B) identify technical challenges to the candidate technologies identified in subparagraph (A);

''(C) support near-term research and development to address the highest-risk technical challenges to the successful demonstration of a selected advanced reactor technology, in accordance with—

''(i) subparagraph (B); and

''(ii) the research and development activities under sections 952 and 958;

''(D) establish such technology advisory working groups as the Secretary determines to be appropriate to advise the Secretary regarding the technical challenges identified under subparagraph (B) and the scope of research and development programs to address the challenges, in accordance with subparagraph (C), to be comprised of—

''(i) private-sector advanced nuclear reactor technology developers;

''(ii) technical experts with respect to the relevant technologies at institutions of higher education; and

''(iii) technical experts at the National Laboratories.

''(d) GOALS.—

''(1) IN GENERAL.—The Secretary shall establish goals for research relating to advanced nuclear reactors facilitated by the Department that support the objectives of the program for demonstration projects established under subsection (c).

''(2) COORDINATION.—In developing the goals under paragraph (1), the Secretary shall coordinate, on an ongoing basis, with members of private industry to advance the demonstration of various designs of advanced nuclear reactors.

''(3) REQUIREMENTS.—In developing the goals under paragraph (1), the Secretary shall ensure that—

''(A) research activities facilitated by the Department to meet the goals developed under this subsection are focused on key areas of nuclear research and deployment ranging from basic science to full-design development, safety evaluation, and licensing;

''(B) research programs designed to meet the goals emphasize—

''(i) resolving materials challenges relating to extreme environments, including extremely high levels of—

''(I) radiation fluence;

''(II) temperature;

''(III) pressure; and

''(IV) corrosion; and

''(ii) qualification of advanced fuels;

''(C) activities are carried out that address near-term challenges in modeling and simulation to enable accelerated design and licensing;

''(D) related technologies, such as technologies to manage, reduce, or reuse nuclear waste, are developed;

''(E) nuclear research infrastructure is maintained or constructed, such as—

''(i) currently operational research reactors at the National Laboratories and institutions of higher education;

''(ii) hot cell research facilities;

''(iii) a versatile fast neutron source; and

''(iv) a molten salt testing facility;

''(F) basic knowledge of non-light water coolant physics and chemistry is improved;

''(G) advanced sensors and control systems are developed; and

''(H) advanced manufacturing and advanced construction techniques and materials are investigated to reduce the cost of advanced nuclear reactors.''.

(b) TABLE OF CONTENTS.—The table of contents of the Energy Policy Act of 2005 (Public Law 109–58; 119 Stat. 594; 132 Stat. 3160) is amended—

(1) in the item relating to section 917, by striking ''Efficiency'';

(2) in the items relating to each of sections 957, 958, and 959 by inserting ''Sec.'' before the item number; and

(3) by inserting after the item relating to section 959 the following:

''Sec. 959A. Advanced nuclear reactor research and development goals.''.

SEC. 1508. NUCLEAR ENERGY STRATEGIC PLAN.

(a) IN GENERAL.—Subtitle E of title IX of the Energy Policy Act of 2005 (42 U.S.C. 16271 et seq.) (as amended by section 1507(a)) is amended by adding at the end the following:

''SEC. 959B. NUCLEAR ENERGY STRATEGIC PLAN.

''(a) IN GENERAL.—Not later than 180 days after the date of enactment of this section, the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committees on Energy and Commerce and Science, Space, and Technology of the House of Representatives a 10-year strategic plan for the Office of Nuclear Energy of the Department, in accordance with this section.

''(b) REQUIREMENTS.—

''(1) COMPONENTS.—The strategic plan under this section shall designate—

''(A) programs that support the planned accomplishment of—

''(i) the goals established under section 959A; and

''(ii) the demonstration programs identified under subsection (c) of that section; and

''(B) programs that—

''(i) do not support the planned accomplishment of demonstration programs, or the goals, referred to in subparagraph (A); but

''(ii) are important to the mission of the Office of Nuclear Energy, as determined by the Secretary.

''(2) PROGRAM PLANNING.—In developing the strategic plan under this section, the Secretary shall specify expected timelines for, as applicable—

''(A) the accomplishment of relevant objectives under current programs of the Department; or

''(B) the commencement of new programs to accomplish those objectives.

''(c) UPDATES.—Not less frequently than once every 2 years, the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committees on Energy and Commerce and Science, Space, and Technology of the House of Representatives an updated 10-year strategic plan in accordance with subsection (b), which shall identify, and provide a justification for, any major deviation from a previous strategic plan submitted under this section.''.

(b) TABLE OF CONTENTS.—The table of contents of the Energy Policy Act of 2005 (Public Law 109–58; 119 Stat. 594; 132 Stat. 3160) (as amended by section 1507(b)(3)) is amended by inserting after the item relating to section 959A the following:

''Sec. 959B. Nuclear energy strategic plan.''.

SEC. 1509. ADVANCED NUCLEAR FUEL SECURITY PROGRAM.

(a) IN GENERAL.—Subtitle E of title IX of the Energy Policy Act of 2005 (42 U.S.C. 16271 et seq.) (as amended by section 1508(a)) is amended by adding at the end the following:

''SEC. 960. ADVANCED NUCLEAR FUEL SECURITY PROGRAM.

''(a) DEFINITIONS.—In this section:

''(1) HALEU TRANSPORTATION PACKAGE.—The term 'HALEU transportation package' means a transportation package that is suitable for transporting high-assay, low-enriched uranium.

''(2) HIGH-ASSAY, LOW-ENRICHED URANIUM.—The term 'high-assay, low-enriched uranium' means uranium with an assay greater than 5 weight percent, but less than 20 weight percent, of the uranium-235 isotope.

''(3) HIGH-ENRICHED URANIUM.—The term 'high-enriched uranium' means uranium with an assay of 20 weight percent or more of the uranium-235 isotope.

''(b) HIGH-ASSAY, LOW-ENRICHED URANIUM PROGRAM FOR ADVANCED REACTORS.—

''(1) ESTABLISHMENT.—Not later than 1 year after the date of enactment of this section, the Secretary shall establish a program to make available high-assay, low-enriched uranium, through contracts for sale, resale, transfer, or lease, for use in commercial or noncommercial advanced nuclear reactors.

''(2) NUCLEAR FUEL OWNERSHIP.—Each lease under this subsection shall include a provision establishing that the high-assay, low-enriched uranium that is the subject of the lease shall remain the property of the Department, including with respect to responsibility for the storage, use, or final disposition of all radioactive waste created by the irradiation, processing, or purification of any leased high-assay, low-enriched uranium.

''(3) QUANTITY.—In carrying out the program under this subsection, the Secretary shall make available—

''(A) by December 31, 2022, high-assay, low-enriched uranium containing not less than 2 metric tons of the uranium-235 isotope; and

''(B) by December 31, 2025, high-assay, low-enriched uranium containing not less than 10 metric tons of the uranium-235 isotope (as determined including the quantities of the uranium-235 isotope made available before December 31, 2022).

''(4) FACTORS FOR CONSIDERATION.—In carrying out the program under this subsection, the Secretary shall take into consideration—

''(A) options for providing the high-assay, low-enriched uranium under this subsection from a stockpile of uranium owned by the Department (including the National Nuclear Security Administration), including—

''(i) fuel that—

''(I) directly meets the needs of an end-user; but

''(II) has been previously used or fabricated for another purpose;

''(ii) fuel that can meet the needs of an end-user after removing radioactive or other contaminants that resulted from a previous use or fabrication of the fuel for research, development, demonstration, or deployment activities of the Department (including activities of the National Nuclear Security Administration); and

''(iii) fuel from a high-enriched uranium stockpile, which can be blended with lower-assay uranium to become high-assay, low-enriched uranium to meet the needs of an end-user; and

''(B) requirements to support molybdenum-99 production under the American Medical Isotopes Production Act of 2012 (Public Law 112–239; 126 Stat. 2211).

''(5) LIMITATION.—The Secretary shall not barter or otherwise sell or transfer uranium in any form in exchange for services relating to the final disposition of radioactive waste from uranium that is the subject of a lease under this subsection.

''(6) SUNSET.—The program under this subsection shall terminate on the earlier of—

''(A) January 1, 2035; and

''(B) the date on which uranium enriched up to, but not equal to, 20 weight percent can be obtained in the commercial market from domestic suppliers.

''(c) REPORT.—

''(1) IN GENERAL.—Not later than 180 days after the date of enactment of this section, the Secretary shall submit to the appropriate committees of Congress a report that describes actions proposed to be carried out by the Secretary—

''(A) under the program under subsection (b); or

''(B) otherwise to enable the commercial use of high-assay, low-enriched uranium.

''(2) COORDINATION AND STAKEHOLDER INPUT.—In developing the report under this subsection, the Secretary shall seek input from—

''(A) the Nuclear Regulatory Commission;

''(B) the National Laboratories;

''(C) institutions of higher education;

''(D) producers of medical isotopes;

''(E) a diverse group of entities operating in the nuclear energy industry; and

''(F) a diverse group of technology developers.

''(3) COST AND SCHEDULE ESTIMATES.—The report under this subsection shall include estimated costs, budgets, and timeframes for enabling the use of high-assay, low-enriched uranium.

''(4) REQUIRED EVALUATIONS.—The report under this subsection shall evaluate—

''(A) the costs and actions required to establish and carry out the program under subsection (b), including with respect to—

''(i) proposed preliminary terms for the sale, resale, transfer, and leasing of high-assay, low-enriched uranium (including guidelines defining the roles and responsibilities between the Department and the purchaser, transfer recipient, or lessee); and

''(ii) the potential to coordinate with purchasers, transfer recipients, and lessees regarding—

''(I) fuel fabrication; and

''(II) fuel transport;

''(B) the potential sources and fuel forms available to provide uranium for the program under subsection (b);

''(C) options to coordinate the program under subsection (b) with the operation of the versatile, reactor-based fast neutron source under section 959A;

''(D) the ability of the domestic uranium market to provide materials for advanced nuclear reactor fuel; and

''(E) any associated legal, regulatory, and policy issues that should be addressed to enable—

''(i) the program under subsection (b); and

''(ii) the establishment of a domestic industry capable of providing high-assay, low-enriched uranium for commercial and noncommercial purposes, including with respect to the needs of—

''(I) the Department;

''(II) the Department of Defense; and

''(III) the National Nuclear Security Administration.

''(d) HALEU TRANSPORTATION PACKAGE RESEARCH PROGRAM.—

''(1) IN GENERAL.—As soon as practicable after the date of enactment of this section, the Secretary shall establish a research, development, and demonstration program under which the Secretary shall provide financial assistance, on a competitive basis, to establish the capability to transport high-assay, low-enriched uranium.

''(2) REQUIREMENT.—The focus of the program under this subsection shall be to establish 1 or more HALEU transportation packages that can be certified by the Nuclear Regulatory Commission to transport high-assay, low-enriched uranium to the various facilities involved in producing or using nuclear fuel containing high-assay, low-enriched uranium, such as—

''(A) enrichment facilities;

''(B) fuel processing facilities;

''(C) fuel fabrication facilities; and

''(D) nuclear reactors.''.

(b) CLERICAL AMENDMENT.—The table of contents of the Energy Policy Act of 2005 (Public Law 109–58; 119 Stat. 594; 132 Stat.

3160) (as amended by section 1508(b)) is amended by inserting after the item relating to section 959B the following:

''Sec. 960. Advanced nuclear fuel security program.''.

SEC. 1510. INTERNATIONAL NUCLEAR ENERGY COOPERATION.

(a) IN GENERAL.—Subtitle H of Title IX of the Energy Policy Act of 2005 (42 U.S.C. 16341 et seq.) is amended by adding at the end the following:

''SEC. 986B. INTERNATIONAL NUCLEAR ENERGY COOPERATION.

''(a) IN GENERAL.—The Secretary shall carry out a program to develop bilateral collaboration initiatives with a variety of countries through—

''(1) research and development agreements;

''(2) other relevant arrangements and action plan updates; and

''(3) maintaining existing multilateral cooperation commitments of—

''(A) the International Framework for Nuclear Energy Cooperation;

''(B) the Generation IV International Forum;

''(C) the International Atomic Energy Agency; and

''(D) any other international collaborative effort with respect to advanced nuclear reactor operations and safety.

''(b) SUBPROGRAM.—

''(1) IN GENERAL.—In carrying out the program under subsection (a), the Secretary shall establish a subprogram that shall—

''(A) support diplomatic, nonproliferation, climate, and international economic objectives for the safe, secure, and peaceful use of nuclear technology in countries developing nuclear energy programs, with a focus on countries that have increased civil nuclear cooperation with Russia and China; and

''(B) be modeled after the International Military Education and Training program of the Department of State.

''(2) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out the subprogram under this subsection $5,500,000 for each of fiscal years 2021 through 2025.

''(c) REQUIREMENTS.—The program under subsection (a) shall be carried out—

''(1) to facilitate, to the maximum extent practicable, workshops and expert-based exchanges to engage industry, stakeholders, and foreign governments regarding international civil nuclear issues, such as training, financing, safety, and options for multinational cooperation on used nuclear fuel disposal; and

''(2) in coordination with—

''(A) the National Security Council;

''(B) the Secretary of State;

''(C) the Secretary of Commerce; and

''(D) the Nuclear Regulatory Commission.''.

(b) CONFORMING AMENDMENT.—The table of contents of the Energy Policy Act of 2005 (Public Law 109–58; 119 Stat. 600) is amended by inserting after the item relating to section 986A the following:

''Sec. 986B. International nuclear energy cooperation.''.

SEC. 1511. INTEGRATED ENERGY SYSTEMS PROGRAM.

(a) PROGRAM.—

(1) ESTABLISHMENT.—

(A) IN GENERAL.—The Secretary shall establish a program, to be known as the ''Integrated Energy Systems Program'' (referred to in this subsection as the ''program'')—

(i) to maximize energy production and efficiency;

(ii) to develop energy systems involving the integration of nuclear energy with renewable energy, fossil energy, and energy storage; and

(iii) to expand the use of emissions-reducing energy technologies into nonelectric sectors to achieve significant reductions in environmental emissions.

(B) PROGRAM ADMINISTRATION; PARTNERS.—The program shall be carried out by the Under Secretary of Energy, in partnership with—

(i) relevant offices within the Department;

(ii) National Laboratories;

(iii) institutions of higher education; and

(iv) the private sector.

(C) GOALS AND MILESTONES.—The Secretary shall establish quantitative goals and milestones for the program.

(2) RESEARCH AREAS.—Research areas under the program may include—

(A) technology innovation to further the expansion of emissions-reducing energy technologies to accommodate a modern, resilient grid system by—

(i) effectively leveraging multiple energy sources;

(ii) enhancing and streamlining engineering design;

(iii) carrying out process demonstrations to optimize performance; and

(iv) streamlining regulatory review;

(B) advanced power cycles, energy extraction, and processing of complex hydrocarbons to produce high-value chemicals;

(C) efficient use of emissions-reducing energy technologies for hydrogen production to support transportation and industrial needs;

(D) enhancement and acceleration of domestic manufacturing and desalinization technologies and processes by optimally using clean energy sources;

(E) more effective thermal energy use, transport, and storage;

(F) the demonstration of nuclear energy delivery for—

(i) the production of chemicals, metals, and fuels;

(ii) the capture, use, and storage of carbon;

(iii) renewable integration with an integrated energy system; and

(iv) conversion of carbon feedstock, such as coal, biomass, natural gas, and refuse waste, to higher value nonelectric commodities;

(G) the development of new analysis capabilities to identify the best ways—

(i) to leverage multiple energy sources in a given region; and

(ii) to quantify the benefits of integrated energy systems; and

(H) any other area that, as determined by the Secretary, meets the purpose and goals of the program.

(3) GRANTS.—The Secretary may award grants under the program to support the goals of the program.

(b) REPORT ON DUPLICATIVE PROGRAMS.—Not later than 1 year after the date of enactment of this Act, and annually thereafter, the Secretary shall submit to Congress a report identifying any program that is duplicative of the program established under subsection (a)(1)(A).

Subtitle F—Industrial Technologies

PART I—INNOVATION

SEC. 1601. PURPOSE.

The purpose of this part and the amendments made by this part is to encourage the development and evaluation of innovative technologies aimed at increasing—

(1) the technological and economic competitiveness of industry and manufacturing in the United States; and

(2) the emissions reduction of nonpower industrial sectors.

SEC. 1602. COORDINATION OF RESEARCH AND DEVELOPMENT OF ENERGY EFFICIENT TECHNOLOGIES FOR INDUSTRY.

Section 6(a) of the American Energy Manufacturing Technical Corrections Act (42 U.S.C. 6351(a)) is amended—

(1) by striking ''Industrial Technologies Program'' each place it appears and inserting ''Advanced Manufacturing Office''; and

(2) in the matter preceding paragraph (1), by striking ''Office of Energy'' and all that follows through ''Office of Science'' and inserting ''Department of Energy''.

SEC. 1603. INDUSTRIAL EMISSIONS REDUCTION TECHNOLOGY DEVELOPMENT PROGRAM.

(a) IN GENERAL.—The Energy Independence and Security Act of 2007 is amended by inserting after section 454 (as added by section 1022(b)) the following:

''SEC. 455. INDUSTRIAL EMISSIONS REDUCTION TECHNOLOGY DEVELOPMENT PROGRAM.

''(a) DEFINITIONS.—In this section:

''(1) DIRECTOR.—The term 'Director' means the Director of the Office of Science and Technology Policy.

''(2) ELIGIBLE ENTITY.—The term 'eligible entity' means—

''(A) a scientist or other individual with knowledge and expertise in emissions reduction;

''(B) an institution of higher education;

''(C) a nongovernmental organization;

''(D) a National Laboratory;

''(E) a private entity; and

''(F) a partnership or consortium of 2 or more entities described in subparagraphs (B) through (E).

''(3) EMISSIONS REDUCTION.—

''(A) IN GENERAL.—The term 'emissions reduction' means the reduction, to the maximum extent practicable, of net nonwater greenhouse gas emissions to the atmosphere by energy services and industrial processes.

''(B) EXCLUSION.—The term 'emissions reduction' does not include the elimination of carbon embodied in the principal products of industrial manufacturing.

''(4) INSTITUTION OF HIGHER EDUCATION.—The term 'institution of higher education' has the meaning given the term in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001).

''(5) PROGRAM.—The term 'program' means the program established under subsection (b)(1).

''(b) INDUSTRIAL EMISSIONS REDUCTION TECHNOLOGY DEVELOPMENT PROGRAM.—

''(1) IN GENERAL.—Not later than 1 year after the date of enactment of the American Energy Innovation Act of 2020, the Secretary, in consultation with the Director, the heads of relevant Federal agencies, National Laboratories, industry, and institutions of higher education, shall establish a crosscutting industrial emissions reduction technology development program of research, development, demonstration, and commercial application to further the development and commercialization of innovative technologies that—

''(A) increase the technological and economic competitiveness of industry and manufacturing in the United States;

''(B) increase the viability and competitiveness of United States industrial technology exports; and

''(C) achieve emissions reduction in nonpower industrial sectors.

''(2) COORDINATION.—In carrying out the program, the Secretary shall—

''(A) coordinate with each relevant office in the Department and any other Federal agency;

''(B) coordinate and collaborate with the Industrial Technology Innovation Advisory Committee established under section 456; and

''(C) coordinate and seek to avoid duplication with the energy-intensive industries program established under section 452.

''(3) LEVERAGE OF EXISTING RESOURCES.—In carrying out the program, the Secretary

shall leverage, to the maximum extent practicable—

''(A) existing resources and programs of the Department and other relevant Federal agencies; and

''(B) public-private partnerships.

''(c) FOCUS AREAS.—The program shall focus on—

''(1) industrial production processes, including technologies and processes that—

''(A) achieve emissions reduction in high-emissions industrial materials production processes, including production processes for iron, steel, steel mill products, aluminum, cement, glass, pulp, paper, and industrial ceramics;

''(B) achieve emissions reduction in medium- and high-temperature heat generation, including—

''(i) through electrification of heating processes;

''(ii) through renewable heat generation technology;

''(iii) through combined heat and power; and

''(iv) by switching to alternative fuels, including hydrogen and nuclear energy;

''(C) achieve emissions reduction in chemical production processes, including by incorporating, if appropriate and practicable, principles, practices, and methodologies of sustainable, green chemistry and engineering;

''(D) leverage smart manufacturing technologies and principles, digital manufacturing technologies, and advanced data analytics to develop advanced technologies and practices in information, automation, monitoring, computation, sensing, modeling, and networking to—

''(i) model and simulate manufacturing production lines;

''(ii) monitor and communicate production line status;

''(iii) manage and optimize energy productivity and cost throughout production; and

''(iv) model, simulate, and optimize the energy efficiency of manufacturing processes;

''(E) minimize the negative environmental impacts of manufacturing and sustainable chemistry while conserving energy and resources, including—

''(i) by designing products that enable reuse, refurbishment, remanufacturing, and recycling;

''(ii) by minimizing waste from industrial processes, including through the reuse of waste as other resources in other industrial processes for mutual benefit; and

''(iii) by increasing resource efficiency; and

''(F) increase the energy efficiency of industrial processes;

''(2) alternative materials that produce fewer emissions during production and result in fewer emissions during use;

''(3) development of net-zero emissions liquid and gaseous fuels;

''(4) emissions reduction in shipping, aviation, and long distance transportation;

''(5) carbon capture technologies for industrial processes;

''(6) other technologies that achieve net-zero emissions in nonpower industrial sectors, as determined by the Secretary, in consultation with the Director; and

''(7) high-performance computing to develop advanced materials and manufacturing processes contributing to the focus areas described in paragraphs (1) through (6), including—

''(A) modeling, simulation, and optimization of the design of energy efficient and sustainable products; and

''(B) the use of digital prototyping and additive manufacturing to enhance product design.

''(d) GRANTS, CONTRACTS, COOPERATIVE AGREEMENTS, AND DEMONSTRATION PROJECTS.—

''(1) GRANTS.—In carrying out the program, the Secretary shall award grants on a competitive basis to eligible entities for projects that the Secretary determines would best achieve the goals of the program.

''(2) CONTRACTS AND COOPERATIVE AGREEMENTS.—In carrying out the program, the Secretary may enter into contracts and cooperative agreements with eligible entities and Federal agencies for projects that the Secretary determines would further the purposes of the program.

''(3) DEMONSTRATION PROJECTS.—In supporting technologies developed under this section, the Secretary shall fund demonstration projects that test and validate technologies described in subsection (c).

''(4) APPLICATION.—An entity seeking funding or a contract or agreement under this subsection shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary may require.

''(5) COST SHARING.—In awarding funds under this section, the Secretary shall require cost sharing in accordance with section 988 of the Energy Policy Act of 2005 (42 U.S.C. 16352).''.

(b) TECHNICAL AMENDMENT.—The table of contents of the Energy Independence and Security Act of 2007 (Public Law 110–140; 121 Stat. 1494) (as amended by section 1022(c)) is amended by inserting after the item relating to section 454 the following:

''Sec. 455. Industrial emissions reduction technology development program.''.

SEC. 1604. INDUSTRIAL TECHNOLOGY INNOVATION ADVISORY COMMITTEE.

(a) IN GENERAL.—The Energy Independence and Security Act of 2007 is amended by inserting after section 455 (as added by section 1603(a)) the following:

''SEC. 456. INDUSTRIAL TECHNOLOGY INNOVATION ADVISORY COMMITTEE.

''(a) DEFINITIONS.—In this section:

''(1) COMMITTEE.—The term 'Committee' means the Industrial Technology Innovation Advisory Committee established under subsection (b).

''(2) DIRECTOR.—The term 'Director' means the Director of the Office of Science and Technology Policy.

''(3) EMISSIONS REDUCTION.—The term 'emissions reduction' has the meaning given the term in section 455(a).

''(4) PROGRAM.—The term 'program' means the industrial emissions reduction technology development program established under section 455(b)(1).

''(b) ESTABLISHMENT.—Not later than 180 days after the date of enactment of the American Energy Innovation Act of 2020, the Secretary, in consultation with the Director, shall establish an advisory committee, to be known as the 'Industrial Technology Innovation Advisory Committee'.

''(c) MEMBERSHIP.—

''(1) APPOINTMENT.—The Committee shall be comprised of not fewer than 14 members and not more than 18 members, who shall be appointed by the Secretary, in consultation with the Director.

''(2) REPRESENTATION.—Members appointed pursuant to paragraph (1) shall include—

''(A) not less than 1 representative of each relevant Federal agency, as determined by the Secretary;

''(B) the Chair of the Secretary of Energy Advisory Board, if that position is filled;

''(C) not less than 2 representatives of labor groups;

''(D) not less than 3 representatives of the research community, which shall include academia and National Laboratories;

''(E) not less than 2 representatives of nongovernmental organizations;

''(F) not less than 6 representatives of small- and large-scale industry, the collective expertise of which shall cover every focus area described in section 455(c); and

''(G) any other individuals the Secretary, in coordination with the Director, determines to be necessary to ensure that the Committee is comprised of a diverse group of representatives of industry, academia, independent researchers, and public and private entities.

''(3) CHAIR.—The Secretary shall designate a member of the Committee to serve as Chair.

''(d) DUTIES.—

''(1) IN GENERAL.—The Committee shall—

''(A) in consultation with the Secretary and the Director, propose missions and goals for the program, which shall be consistent with the purposes of the program described in section 455(b)(1); and

''(B) advise the Secretary with respect to the program—

''(i) by identifying and evaluating any technologies being developed by the private sector relating to the focus areas described in section 455(c);

''(ii) by identifying technology gaps in the private sector in those focus areas, and making recommendations to address those gaps;

''(iii) by surveying and analyzing factors that prevent the adoption of emissions reduction technologies by the private sector; and

''(iv) by recommending technology screening criteria for technology developed under the program to encourage adoption of the technology by the private sector; and

''(C) develop the strategic plan described in paragraph (2).

''(2) STRATEGIC PLAN.—

''(A) PURPOSE.—The purpose of the strategic plan developed under paragraph (1)(C) is to achieve the goals of the program in the focus areas described in section 455(c).

''(B) CONTENTS.—The strategic plan developed under paragraph (1)(C) shall—

''(i) specify near-term and long-term qualitative and quantitative objectives relating to each focus area described in section 455(c), including research, development, demonstration, and commercial application objectives;

''(ii) specify the anticipated timeframe for achieving the objectives specified under clause (i);

''(iii) include plans for developing emissions reduction technologies that are globally cost-competitive;

''(iv) identify the public and private costs of achieving the objectives specified under clause (i); and

''(v) estimate the economic and employment impact in the United States of achieving those objectives.

''(e) MEETINGS.—

''(1) FREQUENCY.—The Committee shall meet not less frequently than 2 times per year, at the call of the Chair.

''(2) INITIAL MEETING.—Not later than 30 days after the date on which the members are appointed under subsection (b), the Committee shall hold its first meeting.

''(f) COMMITTEE REPORT.—

''(1) IN GENERAL.—Not later than 2 years after the date of enactment of the American Energy Innovation Act of 2020, and not less frequently than once every 3 years thereafter, the Committee shall submit to the Secretary a report on the progress of achieving the purposes of the program.

''(2) CONTENTS.—The report under paragraph (1) shall include—

''(A) a description of any technology innovation opportunities identified by the Committee;

''(B) a description of any technology gaps identified by the Committee under subsection (d)(1)(B)(ii);

''(C) recommendations for improving technology screening criteria and management of the program;

''(D) an evaluation of the progress of the program and the research and development funded under the program;

''(E) any recommended changes to the focus areas of the program described in section 455(c);

''(F) a description of the manner in which the Committee has carried out the duties described in subsection (d)(1) and any relevant findings as a result of carrying out those duties;

''(G) if necessary, an update to the strategic plan developed by the Committee under subsection (d)(1)(C);

''(H) the progress made in achieving the goals set out in that strategic plan;

''(I) a review of the management, coordination, and industry utility of the program;

''(J) an assessment of the extent to which progress has been made under the program in developing commercial, cost-competitive technologies in each focus area described in section 455(c); and

''(K) an assessment of the effectiveness of the program in coordinating efforts within the Department and with other Federal agencies to achieve the purposes of the program.

''(g) REPORT TO CONGRESS.—Not later than 60 days after receiving a report from the Committee under subsection (f), the Secretary shall submit a copy of that report to the Committees on Appropriations and Science, Space, and Technology of the House of Representatives, the Committees on Appropriations and Energy and Natural Resources of the Senate, and any other relevant Committee of Congress.

''(h) APPLICABILITY OF FEDERAL ADVISORY COMMITTEE ACT.—Except as otherwise provided in this section, the Federal Advisory Committee Act (5 U.S.C. App.) shall apply to the Committee.''.

(b) TECHNICAL AMENDMENT.—The table of contents of the Energy Independence and Security Act of 2007 (Public Law 110–140; 121 Stat. 1494) (as amended by section 1603(b)) is amended by inserting after the item relating to section 455 the following:

''Sec. 456. Industrial Technology Innovation Advisory Committee.''.

SEC. 1605. TECHNICAL ASSISTANCE PROGRAM TO IMPLEMENT INDUSTRIAL EMISSIONS REDUCTION.

(a) IN GENERAL.—The Energy Independence and Security Act of 2007 is amended by inserting after section 456 (as added by section 1604(a)) the following:

''SEC. 457. TECHNICAL ASSISTANCE PROGRAM TO IMPLEMENT INDUSTRIAL EMISSIONS REDUCTION.

''(a) DEFINITIONS.—In this section:

''(1) ELIGIBLE ENTITY.—The term 'eligible entity' means—

''(A) a State;

''(B) a unit of local government;

''(C) a territory or possession of the United States;

''(D) a relevant State or local office, including an energy office;

''(E) a tribal organization (as defined in section 3765 of title 38, United States Code);

''(F) an institution of higher education; and

''(G) a private entity.

''(2) EMISSIONS REDUCTION.—The term 'emissions reduction' has the meaning given the term in section 455(a).

''(3) INSTITUTION OF HIGHER EDUCATION.—The term 'institution of higher education' has the meaning given the term in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001).

''(4) PROGRAM.—The term 'program' means the program established under subsection (b).

''(b) ESTABLISHMENT.—Not later than 180 days after the date of enactment of the American Energy Innovation Act of 2020, the Secretary shall establish a program to provide technical assistance to eligible entities to carry out an activity described in subsection (c).

''(c) ACTIVITIES DESCRIBED.—An activity referred to in subsection (b) is any of the following activities carried out for the purpose of achieving emissions reduction in nonpower industrial sectors:

''(1) Adopting emissions reduction technologies.

''(2) Establishing goals and priorities to accelerate the development and evaluation of relevant technologies.

''(3) Developing collaborations across States, local governments, and territories and possessions of the United States.

''(4) Reviewing the appropriate emissions reduction technologies available for a particular eligible entity.

''(5) Developing a roadmap for implementing emissions reduction technologies for a particular eligible entity.

''(6) Any other activity determined appropriate by the Secretary.

''(d) APPLICATIONS.—

''(1) IN GENERAL.—An eligible entity desiring technical assistance under the program shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary may require.

''(2) APPLICATION PROCESS.—The Secretary shall seek applications for technical assistance under the program on a periodic basis, but not less frequently than once every 12 months.

''(3) FACTORS FOR CONSIDERATION.—In selecting eligible entities for technical assistance under the program, the Secretary shall—

''(A) give priority to—

''(i) activities carried out with technical assistance under the program that have the greatest potential for achieving emissions reduction in nonpower industrial sectors;

''(ii) activities carried out in a State in which there are active or inactive industrial facilities that may be used or retrofitted to carry out activities under the focus areas described in section 455(c); and

''(iii) activities carried out in an economically distressed area (as described in section 301(a) of the Public Works and Economic Development Act of 1965 (42 U.S.C. 3161(a))); and

''(B) ensure that—

''(i) there is geographic diversity among the eligible entities selected; and

''(ii) the activities carried out with technical assistance under the program reflect a majority of the focus areas described in section 455(c).''.

(b) TECHNICAL AMENDMENT.—The table of contents of the Energy Independence and Security Act of 2007 (Public Law 110–140; 121 Stat. 1494) (as amended by section 1604(b)) is amended by inserting after the item relating to section 456 the following:

''Sec. 457. Technical assistance program to implement industrial emissions reduction.''.

PART II—SMART MANUFACTURING

SEC. 1611. DEFINITIONS.

In this part:

(1) ENERGY MANAGEMENT SYSTEM.—The term ''energy management system'' means a business management process based on standards of the American National Standards Institute that enables an organization to follow a systematic approach in achieving continual improvement of energy performance, including energy efficiency, security, use, and consumption.

(2) INDUSTRIAL ASSESSMENT CENTER.—The term ''industrial assessment center'' means a center located at an institution of higher education that—

(A) receives funding from the Department;

(B) provides an in-depth assessment of small- and medium-size manufacturer plant sites to evaluate the facilities, services, and manufacturing operations of the plant site; and

(C) identifies opportunities for potential savings for small- and medium-size manufacturer plant sites from energy efficiency improvements, waste minimization, pollution prevention, and productivity improvement.

(3) INFORMATION AND COMMUNICATION TECHNOLOGY.—The term ''information and communication technology'' means any electronic system or equipment (including the content contained in the system or equipment) used to create, convert, communicate, or duplicate data or information, including computer hardware, firmware, software, communication protocols, networks, and data interfaces.

(4) INSTITUTION OF HIGHER EDUCATION.—The term ''institution of higher education'' has the meaning given the term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

(5) NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM.—The term ''North American Industry Classification System'' means the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data relating to the business economy of the United States.

(6) SMALL AND MEDIUM MANUFACTURERS.—The term ''small and medium manufacturers'' means manufacturing firms—

(A) classified in the North American Industry Classification System as any of sectors 31 through 33;

(B) with gross annual sales of less than $100,000,000;

(C) with fewer than 500 employees at the plant site; and

(D) with annual energy bills totaling more than $100,000 and less than $2,500,000.

(7) SMART MANUFACTURING.—The term ''smart manufacturing'' means advanced technologies in information, automation, monitoring, computation, sensing, modeling, artificial intelligence, analytics, and networking that—

(A) digitally—

(i) simulate manufacturing production lines;

(ii) operate computer-controlled manufacturing equipment;

(iii) monitor and communicate production line status; and

(iv) manage and optimize energy productivity and cost throughout production;

(B) model, simulate, and optimize the energy efficiency of a factory building;

(C) monitor and optimize building energy performance;

(D) model, simulate, and optimize the design of energy efficient and sustainable products, including the use of digital prototyping and additive manufacturing to enhance product design;

(E) connect manufactured products in networks to monitor and optimize the performance of the networks, including automated network operations; and

(F) digitally connect the supply chain network.

SEC. 1612. DEVELOPMENT OF NATIONAL SMART MANUFACTURING PLAN.

(a) IN GENERAL.—Not later than 3 years after the date of enactment of this Act, the

Secretary, in consultation with the National Academies, shall develop and complete a national plan for smart manufacturing technology development and deployment to improve the productivity and energy efficiency of the manufacturing sector of the United States.

(b) CONTENT.—

(1) IN GENERAL.—The plan developed under subsection (a) shall identify areas in which agency actions by the Secretary and other heads of relevant Federal agencies would—

(A) facilitate quicker development, deployment, and adoption of smart manufacturing technologies and processes;

(B) result in greater energy efficiency and lower environmental impacts for all American manufacturers; and

(C) enhance competitiveness and strengthen the manufacturing sectors of the United States.

(2) INCLUSIONS.—Agency actions identified under paragraph (1) shall include—

(A) an assessment of previous and current actions of the Department relating to smart manufacturing;

(B) the establishment of voluntary interconnection protocols and performance standards;

(C) the use of smart manufacturing to improve energy efficiency and reduce emissions in supply chains across multiple companies;

(D) actions to increase cybersecurity in smart manufacturing infrastructure;

(E) deployment of existing research results;

(F) the leveraging of existing high-performance computing infrastructure; and

(G) consideration of the impact of smart manufacturing on existing manufacturing jobs and future manufacturing jobs.

(c) BIENNIAL REVISIONS.—Not later than 2 years after the date on which the Secretary completes the plan under subsection (a), and not less frequently than once every 2 years thereafter, the Secretary shall revise the plan to account for advancements in information and communication technology and manufacturing needs.

(d) REPORT.—Annually until the completion of the plan under subsection (a), the Secretary shall submit to Congress a report on the progress made in developing the plan.

(e) FUNDING.—The Secretary shall use unobligated funds of the Department to carry out this section.

SEC. 1613. LEVERAGING EXISTING AGENCY PROGRAMS TO ASSIST SMALL AND MEDIUM MANUFACTURERS.

(a) EXPANSION OF TECHNICAL ASSISTANCE PROGRAMS.—The Secretary shall expand the scope of technologies covered by the Industrial Assessment Centers of the Department—

(1) to include smart manufacturing technologies and practices; and

(2) to equip the directors of the Industrial Assessment Centers with the training and tools necessary to provide technical assistance in smart manufacturing technologies and practices, including energy management systems, to manufacturers.

(b) FUNDING.—The Secretary shall use unobligated funds of the Department to carry out this section.

SEC. 1614. LEVERAGING SMART MANUFACTURING INFRASTRUCTURE AT NATIONAL LABORATORIES.

(a) STUDY.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Secretary shall conduct a study on how the Department can increase access to existing high-performance computing resources in the National Laboratories, particularly for small and medium manufacturers.

(2) INCLUSIONS.—In identifying ways to increase access to National Laboratories under paragraph (1), the Secretary shall—

(A) focus on increasing access to the computing facilities of the National Laboratories; and

(B) ensure that—

(i) the information from the manufacturer is protected; and

(ii) the security of the National Laboratory facility is maintained.

(3) REPORT.—Not later than 1 year after the date of enactment of this Act, the Secretary shall submit to Congress a report describing the results of the study.

(b) ACTIONS FOR INCREASED ACCESS.—The Secretary shall facilitate access to the National Laboratories studied under subsection (a) for small and medium manufacturers so that small and medium manufacturers can fully use the high-performance computing resources of the National Laboratories to enhance the manufacturing competitiveness of the United States.

SEC. 1615. STATE MANUFACTURING LEADERSHIP.

(a) FINANCIAL ASSISTANCE AUTHORIZED.—The Secretary may provide financial assistance on a competitive basis to States for the establishment of programs to be used as models for supporting the implementation of smart manufacturing technologies.

(b) APPLICATIONS.—

(1) IN GENERAL.—To be eligible to receive financial assistance under this section, a State shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary may require.

(2) CRITERIA.—The Secretary shall evaluate an application for financial assistance under this section on the basis of merit using criteria identified by the Secretary, including—

(A) technical merit, innovation, and impact;

(B) research approach, workplan, and deliverables;

(C) academic and private sector partners; and

(D) alternate sources of funding.

(c) REQUIREMENTS.—

(1) TERM.—The term of an award of financial assistance under this section shall not exceed 3 years.

(2) MAXIMUM AMOUNT.—The amount of an award of financial assistance under this section shall be not more than $2,000,000.

(3) MATCHING REQUIREMENT.—Each State that receives financial assistance under this section shall contribute matching funds in an amount equal to not less than 30 percent of the amount of the financial assistance.

(d) USE OF FUNDS.—

(1) IN GENERAL.—A State may use financial assistance provided under this section—

(A) to facilitate access to high-performance computing resources for small and medium manufacturers; and

(B) to provide assistance to small and medium manufacturers to implement smart manufacturing technologies and practices.

(e) EVALUATION.—The Secretary shall conduct semiannual evaluations of each award of financial assistance under this section—

(1) to determine the impact and effectiveness of programs funded with the financial assistance; and

(2) to provide guidance to States on ways to better execute the program of the State.

(f) AUTHORIZATION.—There is authorized to be appropriated to the Secretary to carry out this section $10,000,000 for each of fiscal years 2021 through 2024.

SEC. 1616. REPORT.

The Secretary annually shall submit to Congress and make publicly available a report on the progress made in advancing smart manufacturing in the United States.

Subtitle G—Vehicles

SEC. 1701. OBJECTIVES.

The objectives of this subtitle are—

(1) to establish a consistent and consolidated authority for the vehicle technology program at the Department;

(2) to develop United States technologies and practices that—

(A) improve the fuel efficiency and emissions of all vehicles produced in the United States; and

(B) reduce vehicle reliance on petroleum-based fuels;

(3) to support domestic research, development, engineering, demonstration, and commercial application and manufacturing of advanced vehicles, engines, and components;

(4) to enable vehicles to move larger volumes of goods and more passengers with less energy and emissions;

(5) to develop cost-effective advanced technologies for wide-scale utilization throughout the passenger, commercial, government, and transit vehicle sectors;

(6) to allow for greater consumer choice of vehicle technologies and fuels;

(7) shorten technology development and integration cycles in the vehicle industry;

(8) to ensure a proper balance and diversity of Federal investment in vehicle technologies; and

(9) to strengthen partnerships between Federal and State governmental agencies and the private and academic sectors.

SEC. 1702. COORDINATION AND NONDUPLICATION.

The Secretary shall ensure, to the maximum extent practicable, that the activities authorized by this subtitle do not duplicate those of other programs within the Department or other relevant research agencies.

SEC. 1703. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary for research, development, engineering, demonstration, and commercial application of vehicles and related technologies in the United States, including activities authorized under this subtitle—

(1) for fiscal year 2021, $313,567,000;

(2) for fiscal year 2022, $326,109,000;

(3) for fiscal year 2023, $339,154,000;

(4) for fiscal year 2024, $352,720,000; and

(5) for fiscal year 2025, $366,829,000.

SEC. 1704. REPORTING.

(a) TECHNOLOGIES DEVELOPED.—Not later than 18 months after the date of enactment of this Act and annually thereafter through 2025, the Secretary shall submit to Congress a report regarding the technologies developed as a result of the activities authorized by this subtitle, with a particular emphasis on whether the technologies were successfully adopted for commercial applications, and if so, whether products relying on those technologies are manufactured in the United States.

(b) ADDITIONAL MATTERS.—At the end of each fiscal year through 2025, the Secretary shall submit to the relevant Congressional committees of jurisdiction an annual report describing activities undertaken in the previous year under this subtitle, active industry participants, the status of public-private partnerships, progress of the program in meeting goals and timelines, and a strategic plan for funding of activities across agencies.

SEC. 1705. VEHICLE RESEARCH AND DEVELOPMENT.

(a) PROGRAM.—

(1) ACTIVITIES.—The Secretary shall conduct a program of basic and applied research, development, engineering, demonstration, and commercial application activities on materials, technologies, and processes with the potential to substantially reduce or eliminate petroleum use and the emissions of the passenger and commercial vehicles of the United States, including activities in the areas of—

(A) electrification of vehicle systems;

(B) batteries, ultracapacitors, and other energy storage devices;
(C) power electronics;
(D) vehicle, component, and subsystem manufacturing technologies and processes;
(E) engine efficiency and combustion optimization;
(F) waste heat recovery;
(G) transmission and drivetrains;
(H) hydrogen vehicle technologies, including fuel cells and internal combustion engines, and hydrogen infrastructure, including hydrogen energy storage to enable renewables and provide hydrogen for fuel and power;
(I) natural gas vehicle technologies;
(J) aerodynamics, rolling resistance (including tires and wheel assemblies), and accessory power loads of vehicles and associated equipment;
(K) vehicle weight reduction, including lightweighting materials and the development of manufacturing processes to fabricate, assemble, and use dissimilar materials;
(L) friction and wear reduction;
(M) engine and component durability;
(N) innovative propulsion systems;
(O) advanced boosting systems;
(P) hydraulic hybrid technologies;
(Q) engine compatibility with and optimization for a variety of transportation fuels including natural gas and other liquid and gaseous fuels;
(R) predictive engineering, modeling, and simulation of vehicle and transportation systems;
(S) refueling and charging infrastructure for alternative fueled and electric or plug-in electric hybrid vehicles, including the unique challenges facing rural areas;
(T) gaseous fuels storage systems and system integration and optimization;
(U) sensing, communications, and actuation technologies for vehicle, electrical grid, and infrastructure;
(V) efficient use, substitution, and recycling of potentially critical materials in vehicles, including rare earth elements and precious metals, at risk of supply disruption;
(W) aftertreatment technologies;
(X) thermal management of battery systems;
(Y) retrofitting advanced vehicle technologies to existing vehicles;
(Z) development of common standards, specifications, and architectures for both transportation and stationary battery applications;
(AA) advanced internal combustion engines;
(BB) mild hybrid;
(CC) engine down speeding;
(DD) vehicle-to-vehicle, vehicle-to-pedestrian, and vehicle-to-infrastructure technologies; and
(EE) other research areas as determined by the Secretary.

(2) TRANSFORMATIONAL TECHNOLOGY.—The Secretary shall ensure that the Department continues to support research, development, engineering, demonstration, and commercial application activities and maintains competency in mid- to long-term transformational vehicle technologies with potential to achieve reductions in emissions, including activities in the areas of—

(A) hydrogen vehicle technologies, including fuel cells, hydrogen storage, infrastructure, and activities in hydrogen technology validation and safety codes and standards;

(B) multiple battery chemistries and novel energy storage devices, including nonchemical batteries and electromechanical storage technologies such as hydraulics, flywheels, and compressed air storage;

(C) communication and connectivity among vehicles, infrastructure, and the electrical grid; and

(D) other innovative technologies research and development, as determined by the Secretary.

(3) INDUSTRY PARTICIPATION.—

(A) IN GENERAL.—To the maximum extent practicable, activities under this subtitle shall be carried out in partnership or collaboration with automotive manufacturers, heavy commercial, vocational, and transit vehicle manufacturers, qualified plug-in electric vehicle manufacturers, compressed natural gas vehicle manufacturers, vehicle and engine equipment and component manufacturers, manufacturing equipment manufacturers, advanced vehicle service providers, fuel producers and energy suppliers, electric utilities, universities, National Laboratories, and independent research laboratories.

(B) REQUIREMENTS.—In carrying out this subtitle, the Secretary shall—

(i) determine whether a wide range of companies that manufacture or assemble vehicles or components in the United States are represented in ongoing public-private partnership activities, including firms that have not traditionally participated in federally sponsored research and development activities, and where possible, partner with such firms that conduct significant and relevant research and development activities in the United States;

(ii) leverage the capabilities and resources of, and formalize partnerships with, industry-led stakeholder organizations, nonprofit organizations, industry consortia, and trade associations with expertise in the research and development of, and education and outreach activities in, advanced automotive and commercial vehicle technologies;

(iii) develop more effective processes for transferring research findings and technologies to industry;

(iv) support public-private partnerships, dedicated to overcoming barriers in commercial application of transformational vehicle technologies, that use such industry-led technology development facilities of entities with demonstrated expertise in successfully designing and engineering pre-commercial generations of such transformational technology; and

(v) promote efforts to ensure that technology research, development, engineering, and commercial application activities funded under this subtitle are carried out in the United States.

(4) INTERAGENCY AND INTRAAGENCY COORDINATION.—To the maximum extent practicable, the Secretary shall coordinate research, development, demonstration, and commercial application activities among—

(A) relevant programs within the Department, including—

(i) the Office of Energy Efficiency and Renewable Energy;

(ii) the Office of Science;

(iii) the Office of Electricity Delivery and Energy Reliability;

(iv) the Office of Fossil Energy;

(v) the Advanced Research Projects Agency—Energy; and

(vi) other offices as determined by the Secretary; and

(B) relevant technology research and development programs within other Federal agencies, as determined by the Secretary.

(5) FEDERAL DEMONSTRATION OF TECHNOLOGIES.—The Secretary shall make information available to procurement programs of Federal agencies regarding the potential to demonstrate technologies resulting from activities funded through programs under this subtitle.

(6) INTERGOVERNMENTAL COORDINATION.—The Secretary shall seek opportunities to leverage resources and support initiatives of State and local governments in developing and promoting advanced vehicle technologies, manufacturing, and infrastructure.

(7) CRITERIA.—In awarding grants under the program under this subsection, the Secretary shall give priority to those technologies (either individually or as part of a system) that—

(A) provide the greatest aggregate fuel savings based on the reasonable projected sales volumes of the technology; and

(B) provide the greatest increase in United States employment.

(8) SECONDARY USE APPLICATIONS.—

(A) IN GENERAL.—The Secretary shall carry out a research, development, and demonstration program that—

(i) builds on any work carried out under section 915 of the Energy Policy Act of 2005 (42 U.S.C. 16195);

(ii) identifies possible uses of a vehicle battery after the useful life of the battery in a vehicle has been exhausted;

(iii) conducts long-term testing to verify performance and degradation predictions and lifetime valuations for secondary uses;

(iv) evaluates innovative approaches to recycling materials from plug-in electric drive vehicles and the batteries used in plug-in electric drive vehicles;

(v)(I) assesses the potential for markets for uses described in clause (ii) to develop; and

(II) identifies any barriers to the development of those markets; and

(vi) identifies the potential uses of a vehicle battery—

(I) with the most promise for market development; and

(II) for which market development would be aided by a demonstration project.

(B) REPORT.—Not later than 1 year after the date of enactment of this Act, the Secretary shall submit to the appropriate committees of Congress an initial report on the findings of the program described in subparagraph (A), including recommendations for stationary energy storage and other potential applications for batteries used in plug-in electric drive vehicles.

(C) SECONDARY USE DEMONSTRATION.—

(i) IN GENERAL.—Based on the results of the program described in subparagraph (A), the Secretary shall develop guidelines for projects that demonstrate the secondary uses and innovative recycling of vehicle batteries.

(ii) PUBLICATION OF GUIDELINES.—Not later than 18 months after the date of enactment of this Act, the Secretary shall—

(I) publish the guidelines described in clause (i); and

(II) solicit applications for funding for demonstration projects.

(iii) PILOT DEMONSTRATION PROGRAM.—Not later than 21 months after the date of enactment of this Act, the Secretary shall select proposals for grant funding under this subsection, based on an assessment of which proposals are mostly likely to contribute to the development of a secondary market for batteries.

(b) MANUFACTURING.—The Secretary shall carry out a research, development, engineering, demonstration, and commercial application program of advanced vehicle manufacturing technologies and practices, including innovative processes—

(1) to increase the production rate and decrease the cost of advanced battery and fuel cell manufacturing;

(2) to vary the capability of individual manufacturing facilities to accommodate different battery chemistries and configurations;

(3) to reduce waste streams, emissions, and energy intensity of vehicle, engine, advanced battery, and component manufacturing processes;

(4) to recycle and remanufacture used batteries and other vehicle components for reuse in vehicles or stationary applications;

(5) to develop manufacturing processes to effectively fabricate, assemble, and produce cost-effective lightweight materials such as advanced aluminum and other metal alloys, polymeric composites, and carbon fiber for use in vehicles;

(6) to produce lightweight high pressure storage systems for gaseous fuels;

(7) to design and manufacture purpose-built hydrogen fuel cell vehicles and components;

(8) to improve the calendar life and cycle life of advanced batteries; and

(9) to produce permanent magnets for advanced vehicles.

SEC. 1706. MEDIUM- AND HEAVY-DUTY COMMERCIAL AND TRANSIT VEHICLES PROGRAM.

The Secretary, in partnership with relevant research and development programs in other Federal agencies, and a range of appropriate industry stakeholders, shall carry out a program of cooperative research, development, demonstration, and commercial application activities on advanced technologies for medium- to heavy-duty commercial, vocational, recreational, and transit vehicles, including activities in the areas of—

(1) engine efficiency and combustion research;

(2) onboard storage technologies for compressed and liquefied natural gas;

(3) development and integration of engine technologies designed for natural gas operation of a variety of vehicle platforms;

(4) waste heat recovery and conversion;

(5) improved aerodynamics and tire rolling resistance;

(6) energy and space-efficient emissions control systems;

(7) mild hybrid, heavy hybrid, hybrid hydraulic, plug-in hybrid, and electric platforms, and energy storage technologies;

(8) drivetrain optimization;

(9) friction and wear reduction;

(10) engine idle and parasitic energy loss reduction;

(11) electrification of accessory loads;

(12) onboard sensing and communications technologies;

(13) advanced lightweighting materials and vehicle designs;

(14) increasing load capacity per vehicle;

(15) thermal management of battery systems;

(16) recharging infrastructure;

(17) compressed natural gas infrastructure;

(18) advanced internal combustion engines;

(19) complete vehicle and power pack modeling, simulation, and testing;

(20) hydrogen vehicle technologies, including fuel cells and internal combustion engines, and hydrogen infrastructure, including hydrogen energy storage to enable renewables and provide hydrogen for fuel and power;

(21) retrofitting advanced technologies onto existing truck fleets;

(22) advanced boosting systems;

(23) engine down speeding; and

(24) integration of these and other advanced systems onto a single truck and trailer platform.

SEC. 1707. CLASS 8 TRUCK AND TRAILER SYSTEMS DEMONSTRATION.

(a) IN GENERAL.—The Secretary shall conduct a competitive grant program to demonstrate the integration of multiple advanced technologies on Class 8 truck and trailer platforms, including a combination of technologies listed in section 1706.

(b) APPLICANT TEAMS.—Applicant teams may be comprised of truck and trailer manufacturers, engine and component manufacturers, fleet customers, university researchers, and other applicants as appropriate for the development and demonstration of integrated Class 8 truck and trailer systems.

SEC. 1708. TECHNOLOGY TESTING AND METRICS.

The Secretary, in coordination with the partners of the interagency research program described in section 1706—

(1) shall develop standard testing procedures and technologies for evaluating the performance of advanced heavy vehicle technologies under a range of representative duty cycles and operating conditions, including for heavy hybrid propulsion systems;

(2) shall evaluate heavy vehicle performance using work performance-based metrics other than those based on miles per gallon, including those based on units of volume and weight transported for freight applications, and appropriate metrics based on the work performed by nonroad systems; and

(3) may construct heavy duty truck and bus testing facilities.

SEC. 1709. NONROAD SYSTEMS PILOT PROGRAM.

The Secretary shall undertake a pilot program of research, development, demonstration, and commercial applications of technologies to improve total machine or system efficiency for nonroad mobile equipment including agricultural, construction, air, and sea port equipment, and shall seek opportunities to transfer relevant research findings and technologies between the nonroad and on-highway equipment and vehicle sectors.

SEC. 1710. REPEAL OF EXISTING AUTHORITIES.

(a) IN GENERAL.—Sections 706, 711, 712, and 933 of the Energy Policy Act of 2005 (42 U.S.C. 16051, 16061, 16062, 16233) are repealed.

(b) ENERGY EFFICIENCY.—Section 911 of the Energy Policy Act of 2005 (42 U.S.C. 16191) is amended—

(1) in subsection (a)—

(A) in paragraph (1)(A), by striking ''vehicles, buildings,'' and inserting ''buildings''; and

(B) in paragraph (2)—

(i) by striking subparagraph (A); and

(ii) by redesignating subparagraphs (B) through (E) as subparagraphs (A) through (D), respectively; and

(2) in subsection (c)—

(A) by striking paragraph (3);

(B) by redesignating paragraph (4) as paragraph (3); and

(C) in paragraph (3) (as so redesignated), by striking ''(a)(2)(D)'' and inserting ''(a)(2)(C)''.

Subtitle H—Department of Energy

SEC. 1801. VETERANS' HEALTH INITIATIVE.

(a) PURPOSES.—The purposes of this section are to advance Department expertise in artificial intelligence and high-performance computing in order to improve health outcomes for veteran populations by—

(1) supporting basic research through the application of artificial intelligence, high-performance computing, modeling and simulation, machine learning, and large-scale data analytics to identify and solve outcome-defined challenges in the health sciences;

(2) maximizing the impact of the Department of Veterans Affairs' health and genomics data housed at the National Laboratories, as well as data from other sources, on science, innovation, and health care outcomes through the use and advancement of artificial intelligence and high-performance computing capabilities of the Department;

(3) promoting collaborative research through the establishment of partnerships to improve data sharing between Federal agencies, National Laboratories, institutions of higher education, and nonprofit institutions;

(4) establishing multiple scientific computing user facilities to house and provision available data to foster transformational outcomes; and

(5) driving the development of technology to improve artificial intelligence, high-performance computing, and networking relevant to mission applications of the Department, including modeling, simulation, machine learning, and advanced data analytics.

(b) VETERANS HEALTH RESEARCH AND DEVELOPMENT.—

(1) IN GENERAL.—The Secretary shall establish and carry out a research program in artificial intelligence and high-performance computing, focused on the development of tools to solve large-scale data analytics and management challenges associated with veteran's healthcare, and to support the efforts of the Department of Veterans Affairs to identify potential health risks and challenges utilizing data on long-term healthcare, health risks, and genomic data collected from veteran populations. The Secretary shall carry out this program through a competitive, merit-reviewed process, and consider applications from National Laboratories, institutions of higher education, multi-institutional collaborations, and other appropriate entities.

(2) PROGRAM COMPONENTS.—In carrying out the program established under paragraph (1), the Secretary may—

(A) conduct basic research in modeling and simulation, machine learning, large-scale data analytics, and predictive analysis in order to develop novel or optimized algorithms for prediction of disease treatment and recovery;

(B) develop methods to accommodate large data sets with variable quality and scale, and to provide insight and models for complex systems;

(C) develop new approaches and maximize the use of algorithms developed through artificial intelligence, machine learning, data analytics, natural language processing, modeling and simulation, and develop new algorithms suitable for high-performance computing systems and large biomedical data sets;

(D) advance existing and construct new data enclaves capable of securely storing data sets provided by the Department of Veterans Affairs, Department of Defense, and other sources; and

(E) promote collaboration and data sharing between National Laboratories, research entities, and user facilities of the Department by providing the necessary access and secure data transfer capabilities.

(3) COORDINATION.—In carrying out the program established under paragraph (1), the Secretary is authorized—

(A) to enter into memoranda of understanding in order to carry out reimbursable agreements with the Department of Veterans Affairs and other entities in order to maximize the effectiveness of Department research and development to improve veterans' healthcare;

(B) to consult with the Department of Veterans Affairs and other Federal agencies as appropriate; and

(C) to ensure that data storage meets all privacy and security requirements established by the Department of Veterans Affairs, and that access to data is provided in accordance with relevant Department of Veterans Affairs data access policies, including informed consent.

(4) REPORT.—Not later than 2 years after the date of enactment of this Act, the Secretary shall submit to the Committee on Energy and Natural Resources and the Committee on Veterans' Affairs of the Senate, and the Committee on Science, Space, and Technology and the Committee on Veterans'

Affairs of the House of Representatives, a report detailing the effectiveness of—

(A) the interagency coordination between each Federal agency involved in the research program carried out under this subsection;

(B) collaborative research achievements of the program; and

(C) potential opportunities to expand the technical capabilities of the Department.

(5) FUNDING.—There is authorized to be appropriated to the Secretary of Veterans Affairs to carry out this subsection $27,000,000 during the period of fiscal years 2021 through 2025.

(c) INTERAGENCY COLLABORATION.—

(1) IN GENERAL.—The Secretary is authorized to carry out research, development, and demonstration activities to develop tools to apply to big data that enable Federal agencies, institutions of higher education, nonprofit research organizations, and industry to better leverage the capabilities of the Department to solve complex, big data challenges. The Secretary shall carry out these activities through a competitive, merit-reviewed process, and consider applications from National Laboratories, institutions of higher education, multi-institutional collaborations, and other appropriate entities.

(2) ACTIVITIES.—In carrying out the research, development, and demonstration activities authorized under paragraph (1), the Secretary may—

(A) utilize all available mechanisms to prevent duplication and coordinate research efforts across the Department;

(B) establish multiple user facilities to serve as data enclaves capable of securely storing data sets created by Federal agencies, institutions of higher education, nonprofit organizations, or industry at National Laboratories; and

(C) promote collaboration and data sharing between National Laboratories, research entities, and user facilities of the Department by providing the necessary access and secure data transfer capabilities.

(3) REPORT.—Not later than 2 years after the date of enactment of this Act, the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report evaluating the effectiveness of the activities authorized under paragraph (1).

(4) FUNDING.—There are authorized to be appropriated to the Secretary to carry out this subsection $15,000,000 for each of fiscal years 2021 through 2025.

SEC. 1802. SMALL SCALE LNG ACCESS.

Section 3 of the Natural Gas Act (15 U.S.C. 717b) is amended by striking subsection (c) and inserting the following:

''(c) EXPEDITED APPLICATION AND APPROVAL PROCESS.—

''(1) IN GENERAL.—For purposes of subsection (a), the following shall be deemed to be consistent with the public interest, and applications for such importation or exportation shall be granted without modification or delay:

''(A) The importation of the natural gas referred to in subsection (b).

''(B) Subject to the last sentence of subsection (a), the exportation of natural gas in a volume up to and including 51,750,000,000 cubic feet per year.

''(C) The exportation of natural gas to a nation with which there is in effect a free trade agreement requiring national treatment for trade in natural gas.

''(2) EXCLUSION.—Subparagraphs (B) and (C) of paragraph (1) shall not apply to any nation subject to sanctions imposed by the United States.''.

SEC. 1803. APPALACHIAN ENERGY FOR NATIONAL SECURITY.

(a) STUDY ON BUILDING ETHANE AND OTHER NATURAL-GAS-LIQUIDS-RELATED PETROCHEMICAL INFRASTRUCTURE.—

(1) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Secretary, in consultation with the Secretary of Defense, the Secretary of the Treasury, and the heads of other relevant Federal departments and agencies and stakeholders, shall conduct a study assessing the potential national and economic security impacts of building ethane and other natural-gas-liquids-related petrochemical infrastructure in the geographical vicinity of the Marcellus, Utica, and Rogersville shale plays in the United States.

(2) CONTENTS.—The study conducted under paragraph (1) shall include—

(A) the identification of potential benefits of the proposed infrastructure to national and economic security, including the identification of potential risks to national and economic security of significant foreign ownership and control of United States domestic petrochemical resources; and

(B) an examination of, with respect to the proposed infrastructure—

(i) types of additional infrastructure needed to fully optimize the potential national security benefits;

(ii) whether geopolitical diversity in areas to which the ethane and other natural gas liquids will be exported from the producing region would undermine or bolster national security;

(iii) the necessity of evaluating the public interest with respect to exports of ethane, propane, butane, and other natural gas liquids, to ensure the potential strategic national and economic security benefits are preserved within the United States; and

(iv) the potential benefits, with respect to significant weather impacts, compared to other regions, of locating the proposed infrastructure in the geographical vicinity of the Marcellus, Utica, and Rogersville shale plays.

(b) REPORTS.—

(1) STATUS REPORTS.—Prior to completion of the study under subsection (a), the Committees on Energy and Natural Resources and Armed Services of the Senate and the Committees on Energy and Commerce and Armed Services of the House of Representatives, from time to time, may request and receive from the Secretary status reports with respect to the study, including any findings.

(2) SUBMISSION AND PUBLICATION OF REPORT.—On completion of the study under subsection (a), the Secretary shall—

(A) submit to the Committees on Energy and Natural Resources and Armed Services of the Senate and the Committees on Energy and Commerce and Armed Services of the House of Representatives a report describing the results of the study; and

(B) publish the report on the website of the Department.

SEC. 1804. ENERGY AND WATER FOR SUSTAINABILITY.

(a) NEXUS OF ENERGY AND WATER FOR SUSTAINABILITY.—

(1) DEFINITIONS.—In this subsection:

(A) ENERGY-WATER NEXUS.—The term ''energy-water nexus'' means the links between—

(i) the water needed to produce fuels, electricity, and other forms of energy; and

(ii) the energy needed to transport, reclaim, and treat water and wastewater.

(B) INTERAGENCY COORDINATION COMMITTEE.—The term ''Interagency Coordination Committee'' means the Committee on the Nexus of Energy and Water for Sustainability (or the ''NEWS Committee'') established under paragraph (2)(A).

(C) NEXUS OF ENERGY AND WATER SUSTAINABILITY OFFICE; NEWS OFFICE.—The term ''Nexus of Energy and Water Sustainability Office'' or the ''NEWS Office'' means an office located at the Department and managed in cooperation with the Department of the Interior pursuant to an agreement between the 2 agencies to carry out leadership and administrative functions for the Interagency Coordination Committee.

(D) RD&D.—The term ''RD&D'' means research, development, and demonstration.

(2) INTERAGENCY COORDINATION COMMITTEE.—

(A) ESTABLISHMENT.—Not later than 180 days after the date of enactment of this Act, the Secretary and the Secretary of the Interior shall establish the joint NEWS Office and Interagency Coordination Committee on the Nexus of Energy and Water for Sustainability (or the ''NEWS Committee'') to carry out the duties described in subparagraph (C).

(B) ADMINISTRATION.—

(i) CHAIRS.—The Secretary and the Secretary of the Interior shall jointly manage the NEWS Office and serve as co-chairs of the Interagency Coordination Committee.

(ii) MEMBERSHIP; STAFFING.—Membership and staffing shall be determined by the co-chairs.

(C) DUTIES.—The Interagency Coordination Committee shall—

(i) serve as a forum for developing common Federal goals and plans on energy-water nexus RD&D activities in coordination with the National Science and Technology Council;

(ii) not later than 1 year after the date of enactment of this Act, and biennially thereafter, issue a strategic plan on energy-water nexus RD&D activities priorities and objectives;

(iii) convene and promote coordination of the activities of Federal departments and agencies on energy-water nexus RD&D activities, including the activities of—

(I) the Department;

(II) the Department of the Interior;

(III) the Corps of Engineers;

(IV) the Department of Agriculture;

(V) the Department of Defense;

(VI) the Department of State;

(VII) the Environmental Protection Agency;

(VIII) the Council on Environmental Quality;

(IX) the National Institute of Standards and Technology;

(X) the National Oceanic and Atmospheric Administration;

(XI) the National Science Foundation;

(XII) the Office of Management and Budget;

(XIII) the Office of Science and Technology Policy;

(XIV) the National Aeronautics and Space Administration; and

(XV) such other Federal departments and agencies as the Interagency Coordination Committee considers appropriate;

(iv)(I) coordinate and develop capabilities and methodologies for data collection, management, and dissemination of information related to energy-water nexus RD&D activities from and to other Federal departments and agencies; and

(II) promote information exchange between Federal departments and agencies—

(aa) to identify and document Federal and non-Federal programs and funding opportunities that support basic and applied RD&D proposals to advance energy-water nexus related science and technologies;

(bb) to leverage existing programs by encouraging joint solicitations, block grants, and matching programs with non-Federal entities; and

(cc) to identify opportunities for domestic and international public-private partnerships, innovative financing mechanisms, and information and data exchange;

(v) promote the integration of energy-water nexus considerations into existing Federal water, energy, and other natural resource, infrastructure, and science programs at the national and regional levels and with programs administered in partnership with non-Federal entities; and

(vi) not later than 1 year after the date of enactment of this Act, issue a report on the potential benefits and feasibility of establishing an energy-water center of excellence within the National Laboratories.

(D) NO REGULATION.—Nothing in this paragraph grants to the Interagency Coordination Committee the authority to promulgate regulations or set standards.

(E) ADDITIONAL PARTICIPATION.—In developing the strategic plan described in subparagraph (C)(ii), the Secretary shall consult and coordinate with a diverse group of representatives from research and academic institutions, industry, public utility commissions, and State and local governments that have expertise in technologies and practices relating to the energy-water nexus.

(F) REVIEW; REPORT.—At the end of the 5-year period beginning on the date on which the Interagency Coordination Committee and NEWS Office are established, the NEWS Office shall—

(i) review the activities, relevance, and effectiveness of the Interagency Coordination Committee; and

(ii) submit to the Committee on Energy and Natural Resources of the Senate and the Committees on Science, Space, and Technology, Energy and Commerce, and Natural Resources of the House of Representatives a report that—

(I) describes the results of the review conducted under clause (i); and

(II) includes a recommendation on whether the Interagency Coordination Committee should continue.

(3) CROSSCUT BUDGET.—Not later than 30 days after the President submits the budget of the United States Government under section 1105 of title 31, United States Code, the co-chairs of the Interagency Coordination Committee (acting through the NEWS Office) shall submit to the Committee on Energy and Natural Resources of the Senate and the Committees on Science, Space, and Technology, Energy and Commerce, and Natural Resources of the House of Representatives, an interagency budget crosscut report that displays at the program-, project-, and activity-level for each of the Federal agencies that carry out or support (including through grants, contracts, interagency and intraagency transfers, and multiyear and no-year funds) basic and applied RD&D activities to advance the energy-water nexus related science and technologies—

(A) the budget proposed in the budget request of the President for the upcoming fiscal year;

(B) expenditures and obligations for the prior fiscal year; and

(C) estimated expenditures and obligations for the current fiscal year.

(4) TERMINATION.—

(A) IN GENERAL.—The authority provided to the NEWS Office and NEWS Committee under this subsection shall terminate on the date that is 7 years after the date of enactment of this Act.

(B) EFFECT.—The termination of authority under subparagraph (A) shall not affect ongoing interagency planning, coordination, or other activities relating to the energy-water nexus.

(b) INTEGRATING ENERGY AND WATER RESEARCH.—The Secretary shall integrate water considerations into energy research, development, and demonstration programs and projects of the Department by—

(1) advancing energy and energy efficiency technologies and practices that meet the objectives of—

(A) minimizing freshwater withdrawal and consumption;

(B) increasing water use efficiency; and

(C) utilizing nontraditional water sources;

(2) considering the effects climate variability may have on water supplies and quality for energy generation and fuel production; and

(3) improving understanding of the energy-water nexus (as defined in subsection (a)(1)).

(c) SMART ENERGY AND WATER EFFICIENCY PILOT PROGRAM.—

(1) IN GENERAL.—Subtitle A of title IX of the Energy Policy Act of 2005 (42 U.S.C. 16191 et seq.) is amended by adding at the end the following:

"SEC. 918. SMART ENERGY AND WATER EFFICIENCY PILOT PROGRAM.

''(a) DEFINITIONS.—In this section:

''(1) ELIGIBLE ENTITY.—The term 'eligible entity' means—

''(A) a utility;

''(B) a municipality;

''(C) a water district;

''(D) an Indian tribe or Alaska Native village; and

''(E) any other authority that provides water, wastewater, or water reuse services.

''(2) SMART ENERGY AND WATER EFFICIENCY PILOT PROGRAM.—The term 'smart energy and water efficiency pilot program' or 'pilot program' means the pilot program established under subsection (b).

''(b) SMART ENERGY AND WATER EFFICIENCY PILOT PROGRAM.—

''(1) IN GENERAL.—The Secretary shall establish and carry out a smart energy and water efficiency pilot program in accordance with this section.

''(2) PURPOSE.—The purpose of the smart energy and water efficiency pilot program is to award grants to eligible entities to demonstrate unique, advanced, or innovative technology-based solutions that will—

''(A) improve the net energy balance of water, wastewater, and water reuse systems;

''(B) improve the net energy balance of water, wastewater, and water reuse systems to help communities across the United States make measurable progress in conserving water, saving energy, and reducing costs;

''(C) support the implementation of innovative and unique processes and the installation of established advanced automated systems that provide real-time data on energy and water; and

''(D) improve energy-water conservation and quality and predictive maintenance through technologies that utilize internet connected technologies, including sensors, intelligent gateways, and security embedded in hardware.

''(3) PROJECT SELECTION.—

''(A) IN GENERAL.—The Secretary shall make competitive, merit-reviewed grants under the pilot program to not less than 3, but not more than 5, eligible entities.

''(B) SELECTION CRITERIA.—In selecting an eligible entity to receive a grant under the pilot program, the Secretary shall consider—

''(i) energy and cost savings;

''(ii) the uniqueness, commercial viability, and reliability of the technology to be used;

''(iii) the degree to which the project integrates next-generation sensors software, analytics, and management tools;

''(iv) the anticipated cost-effectiveness of the pilot project through measurable energy savings, water savings or reuse, and infrastructure costs averted;

''(v) whether the technology can be deployed in a variety of geographic regions and the degree to which the technology can be implemented in a wide range of applications ranging in scale from small towns to large cities, including tribal communities;

''(vi) whether the technology has been successfully deployed elsewhere;

''(vii) whether the technology was sourced from a manufacturer based in the United States; and

''(viii) whether the project will be completed in 5 years or less.

''(C) APPLICATIONS.—

''(i) IN GENERAL.—Subject to clause (ii), an eligible entity seeking a grant under the pilot program shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary determines to be necessary.

''(ii) CONTENTS.—An application under clause (i) shall, at a minimum, include—

''(I) a description of the project;

''(II) a description of the technology to be used in the project;

''(III) the anticipated results, including energy and water savings, of the project;

''(IV) a comprehensive budget for the project;

''(V) the names of the project lead organization and any partners;

''(VI) the number of users to be served by the project;

''(VII) a description of the ways in which the proposal would meet performance measures established by the Secretary; and

''(VIII) any other information that the Secretary determines to be necessary to complete the review and selection of a grant recipient.

''(4) ADMINISTRATION.—

''(A) IN GENERAL.—Not later than 1 year after the date of enactment of this section, the Secretary shall select grant recipients under this section.

''(B) EVALUATIONS.—

''(i) ANNUAL EVALUATIONS.—The Secretary shall annually carry out an evaluation of each project for which a grant is provided under this section that meets performance measures and benchmarks developed by the Secretary, consistent with the purposes of this section.

''(ii) REQUIREMENTS.—Consistent with the performance measures and benchmarks developed under clause (i), in carrying out an evaluation under that clause, the Secretary shall—

''(I) evaluate the progress and impact of the project; and

''(II) assesses the degree to which the project is meeting the goals of the pilot program.

''(C) TECHNICAL AND POLICY ASSISTANCE.—On the request of a grant recipient, the Secretary shall provide technical and policy assistance.

''(D) BEST PRACTICES.—The Secretary shall make available to the public through the Internet and other means the Secretary considers to be appropriate—

''(i) a copy of each evaluation carried out under subparagraph (B); and

''(ii) a description of any best practices identified by the Secretary as a result of those evaluations.

''(E) REPORT TO CONGRESS.—The Secretary shall submit to Congress a report containing the results of each evaluation carried out under subparagraph (B).

''(c) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out this section $15,000,000, to remain available until expended.''.

(2) CONFORMING AMENDMENT.—The table of contents of the Energy Policy Act of 2005 (Public Law 109–58; 119 Stat. 594) is amended

by inserting after the item relating to section 917 the following:

''Sec. 918. Smart energy and water efficiency pilot program.''.

SEC. 1805. TECHNOLOGY TRANSITIONS.

(a) OFFICE OF TECHNOLOGY TRANSITIONS.—Section 1001 of the Energy Policy Act of 2005 (42 U.S.C. 16391) is amended—

(1) by striking subsection (a) and all that follows through ''The Coordinator'' in subsection (b) and inserting the following:

''(a) OFFICE OF TECHNOLOGY TRANSITIONS.—

''(1) ESTABLISHMENT.—There is established within the Department an Office of Technology Transitions (referred to in this section as the 'Office').

''(2) MISSION.—The mission of the Office shall be—

''(A) to expand the commercial impact of the research investments of the Department; and

''(B) to focus on commercializing technologies that reduce greenhouse gas emissions and technologies that support other missions of the Department.

''(3) GOALS.—

''(A) IN GENERAL.—In carrying out the mission and activities of the Office, the Chief Commercialization Officer appointed under paragraph (4) shall, with respect to commercialization activities, meet not less than two of the goals described in subparagraph (B) and, to the maximum extent practicable, meet all of the goals described in that subparagraph.

''(B) GOALS DESCRIBED.—The goals referred to in subparagraph (A) are the following:

''(i) Reduction of greenhouse gas emissions.

''(ii) Ensuring economic competitiveness.

''(iii) Enhancement of domestic energy security and national security.

''(iv) Enhancement of domestic jobs.

''(v) Any other missions of the Department, as determined by the Secretary.

''(4) CHIEF COMMERCIALIZATION OFFICER.—

''(A) IN GENERAL.—The Office shall be headed by an officer, who shall be known as the 'Chief Commercialization Officer', and who shall report directly to, and be appointed by, the Secretary.

''(B) PRINCIPAL ADVISOR.—The Chief Commercialization Officer shall be the principal advisor to the Secretary on all matters relating to technology transfer and commercialization.

''(C) QUALIFICATIONS.—The Chief Commercialization Officer'';

(2) in subsection (c)—

(A) in paragraph (1), by striking ''subsection (d)'' and inserting ''subsection (b)'';

(B) by redesignating paragraphs (1) through (4) as clauses (i) through (iv), respectively, and indenting appropriately; and

(C) by striking the subsection designation and heading and all that follows through ''The Coordinator'' in the matter preceding clause (i) (as so redesignated) and inserting the following:

''(D) DUTIES.—The Chief Commercialization Officer'';

(3) by adding at the end of subsection (a) (as amended by paragraph (2)(C)) the following:

''(5) COORDINATION.—In carrying out the mission and activities of the Office, the Chief Commercialization Officer shall coordinate with the senior leadership of the Department, other relevant program offices of the Department, National Laboratories, the Technology Transfer Working Group established under subsection (b), the Technology Transfer Policy Board, and other stakeholders (including private industry).'';

(4) by redesignating subsections (d) through (h) as subsections (b) through (f), respectively; and

(5) in subsection (f) (as so redesignated), by striking ''subsection (e)'' and inserting ''subsection (c)''.

(b) REVIEW OF APPLIED ENERGY PROGRAMS.—

(1) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Secretary shall conduct a review of all applied energy research and development programs under the Department that focus on researching and developing technologies that reduce emissions.

(2) REQUIREMENTS.—In conducting the review under paragraph (1), the Secretary shall—

(A) identify each program described in that paragraph the mission of which is to research and develop technologies that reduce emissions;

(B) determine the type of services provided by each program identified under subparagraph (A), such as grants and technical assistance;

(C) determine whether there are written program goals for each program identified under subparagraph (A);

(D) examine the extent to which the programs identified under subparagraph (A) overlap or are duplicative; and

(E) develop recommendations—

(i) as to how any overlapping or duplicative programs identified under subparagraph (D) should be restructured or consolidated, including by any necessary legislation;

(ii) as to how to identify technologies described in subparagraph (A) that—

(I) are not served by a single program office at the Department; or

(II) the research and development of which may require collaboration with other Federal agencies; and

(iii) for methods to improve the programs identified under subparagraph (A), including by establishing program goals, assessing workforce considerations and technical skills, or increasing collaboration with other Federal agencies and stakeholders (including private industry).

(3) REPORT.—Not later than 60 days after the Secretary completes the review under paragraph (1), the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committees on Science, Space, and Technology and Energy and Commerce of the House of Representatives a report describing the results of and the recommendations developed under the review.

SEC. 1806. ENERGY TECHNOLOGY COMMERCIALIZATION FUND COST-SHARING.

Section 1001 of the Energy Policy Act of 2005 (42 U.S.C. 16391) is amended in subsection (c) (as redesignated by section 1805(a)(4))—

(1) in the subsection heading, by inserting ''ENERGY'' before ''TECHNOLOGY''; and

(2) by striking ''matching funds with private partners'' and inserting '', in accordance with the cost-sharing requirements under section 988, funds to private partners, including National Laboratories,''.

SEC. 1807. STATE LOAN ELIGIBILITY.

(a) DEFINITIONS.—Section 1701 of the Energy Policy Act of 2005 (42 U.S.C. 16511) is amended by adding at the end the following:

''(6) STATE.—The term 'State' has the meaning given the term in section 202 of the Energy Conservation and Production Act (42 U.S.C. 6802).

''(7) STATE ENERGY FINANCING INSTITUTION.—

''(A) IN GENERAL.—The term 'State energy financing institution' means a quasi-independent entity or an entity within a State agency or financing authority established by a State—

''(i) to provide financing support or credit enhancements, including loan guarantees and loan loss reserves, for eligible projects; and

''(ii) to create liquid markets for eligible projects, including warehousing and securitization, or take other steps to reduce financial barriers to the deployment of existing and new eligible projects.

''(B) INCLUSION.—The term 'State energy financing institution' includes an entity or organization established to achieve the purposes described in clauses (i) and (ii) of subparagraph (A) by an Indian Tribal entity or an Alaska Native Corporation.''.

(b) TERMS AND CONDITIONS.—Section 1702 of the Energy Policy Act of 2005 (42 U.S.C. 16512) is amended—

(1) in subsection (a), by inserting '', including projects receiving financial support or credit enhancements from a State energy financing institution,'' after ''for projects'';

(2) in subsection (d)(1), by inserting '', including a guarantee for a project receiving financial support or credit enhancements from a State energy financing institution,'' after ''No guarantee''; and

(3) by adding at the end the following:

''(1) STATE ENERGY FINANCING INSTITUTIONS.—

''(1) ELIGIBILITY.—To be eligible for a guarantee under this title, a project receiving financial support or credit enhancements from a State energy financing institution—

''(A) shall meet the requirements of section 1703(a)(1); and

''(B) shall not be required to meet the requirements of section 1703(a)(2).

''(2) PARTNERSHIPS AUTHORIZED.—In carrying out a project receiving a loan guarantee under this title, State energy financing institutions may enter into partnerships with private entities, Tribal entities, and Alaska Native corporations.

''(3) PROHIBITION ON USE OF APPROPRIATED FUNDS.—Amounts appropriated to the Department before the date of enactment of this subsection shall not be available to be used for the cost of loan guarantees made to State energy financing institutions under this subsection.''.

SEC. 1808. ARPA–E REAUTHORIZATION.

(a) GOALS.—Section 5012(c) of the America COMPETES Act (42 U.S.C. 16538(c)) is amended—

(1) in paragraph (1), by striking subparagraph (A) and inserting the following:

''(A) to enhance the economic and energy security of the United States through the development of energy technologies that—

''(i) reduce imports of energy from foreign sources;

''(ii) reduce energy-related emissions, including greenhouse gases;

''(iii) improve the energy efficiency of all economic sectors; and

''(iv) improve the resilience, reliability, and security of infrastructure to produce, deliver, and store energy; and''; and

(2) in paragraph (2), in the matter preceding subparagraph (A), by striking ''energy'' and inserting ''advanced''.

(b) RESPONSIBILITIES.—Section 5012(e)(3)(A) of the America COMPETES Act (42 U.S.C. 16538(e)(3)(A)) is amended by striking ''energy''.

(c) AWARDS.—Section 5012(f) of the America COMPETES Act (42 U.S.C. 16538(f)) is amended—

(1) by striking ''In carrying'' and inserting the following:

''(1) IN GENERAL.—In carrying''; and

(2) by adding at the end the following:

''(2) CONSIDERATION OF PRIOR GRANTS.—In awarding a grant under paragraph (1), the Director shall take into account the satisfactory completion of any project carried out by the entity applying for the grant using any prior grant funds awarded to that entity by the Director.''.

(d) REPORTS AND ROADMAPS.—Section 5012(h) of the America COMPETES Act (42 U.S.C. 16538(h)) is amended—

(1) in paragraph (1)—

(A) by striking ''describing projects'' and inserting the following: ''describing—

''(A) projects'';

(B) in subparagraph (A) (as so designated), by striking the period at the end and inserting '', including projects that examine topics and technologies closely relating to other activities funded by the Department;'' and

(C) by adding at the end the following:

''(B) an analysis of whether the Director is in compliance with subsection (i)(1)(A) in supporting projects that examine the topics and technologies described in subparagraph (A); and

''(C) current, proposed, and planned projects to be carried out pursuant to subsection (e)(3)(D).''; and

(2) in paragraph (2)—

(A) by striking ''October 1, 2010, and October 1, 2013'' and inserting ''October 1, 2021, and every 4 years thereafter''; and

(B) by striking ''3'' and inserting ''4''.

(e) COORDINATION AND NONDUPLICATION.—Section 5012(i)(1) of the America COMPETES Act (42 U.S.C. 16538(i)(1)) is amended—

(1) by striking ''that the activities'' and inserting the following: ''that—

''(A) the activities'';

(2) in subparagraph (A) (as so designated), by striking the period at the end and inserting ''; and''; and

(3) by adding at the end the following:

''(B) an award is not provided for a project unless the prospective award recipient demonstrates that—

''(i) the prospective award recipient has made a sufficient attempt to secure private financing, as determined by the Director; or

''(ii) the project is not independently commercially viable.''.

(f) EVALUATION.—Section 5012(l) of the America COMPETES Act (42 U.S.C. 16538(l)) is amended—

(1) in paragraph (1), by striking ''After'' and all that follows through ''years'' and inserting ''Not later than 3 years after the date of enactment of the American Energy Innovation Act of 2020''; and

(2) in paragraph (2)—

(A) in the matter preceding subparagraph (A), by striking ''shall'' and inserting ''may''; and

(B) in subparagraph (A), by striking ''the recommendation of the National Academy of Sciences'' and inserting ''a recommendation''.

(g) AUTHORIZATION OF APPROPRIATIONS.—Section 5012(o)(2) of the America COMPETES Act (42 U.S.C. 16538(o)(2)) is amended—

(1) in the matter preceding subparagraph (A), by striking ''paragraphs (4) and (5)'' and inserting ''paragraph (4)''; and

(2) by striking subparagraphs (A) through (E) and inserting the following:

''(A) $428,000,000 for fiscal year 2021;

''(B) $497,000,000 for fiscal year 2022;

''(C) $567,000,000 for fiscal year 2023;

''(D) $651,000,000 for fiscal year 2024; and

''(E) $750,000,000 for fiscal year 2025.''.

(h) TECHNICAL AMENDMENTS.—Section 5012 of the America COMPETES Act (42 U.S.C. 16538) is amended—

(1) in subsection (g)(3)(A)(iii), by striking ''subpart'' each place it appears and inserting ''subparagraph''; and

(2) in subsection (o)(4)(B), by striking ''(c)(2)(D)'' and inserting ''(c)(2)(C)''.

SEC. 1809. ADJUSTING STRATEGIC PETROLEUM RESERVE MANDATED DRAWDOWNS.

(a) AMERICA'S WATER INFRASTRUCTURE ACT OF 2018.—Section 3009(a)(1) of the America's Water Infrastructure Act of 2018 (42 U.S.C. 6241 note; Public Law 115–270) is amended by striking ''2028'' and inserting ''2030.''

(b) BIPARTISAN BUDGET ACT OF 2018.—Section 30204(a)(1) of the Bipartisan Budget Act of 2018 (42 U.S.C. 6241 note; Public Law 115–123) is amended—

(1) in subparagraph (B), by striking ''2026'' and inserting ''2029''; and

(2) in subparagraph (C), by striking ''2027'' and inserting ''2030''.

(c) RECONCILIATION ON THE BUDGET FOR 2018.—Section 20003(a)(1) of Public Law 115–97 (42 U.S.C. 6241 note) is amended by striking ''2026 through 2027'' and inserting ''2029 through 2030.''.

TITLE II—SUPPLY CHAIN SECURITY

Subtitle A—Mineral Security

SEC. 2101. MINERAL SECURITY.

(a) DEFINITIONS.—In this section:

(1) BYPRODUCT.—The term ''byproduct'' means a critical mineral—

(A) the recovery of which depends on the production of a host mineral that is not designated as a critical mineral; and

(B) that exists in sufficient quantities to be recovered during processing or refining.

(2) CRITICAL MINERAL.—

(A) IN GENERAL.—The term ''critical mineral'' means any mineral, element, substance, or material designated as critical by the Secretary under subsection (c).

(B) EXCLUSIONS.—The term ''critical mineral'' does not include—

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

(ii) water, ice, or snow.

(3) INDIAN TRIBE.—The term ''Indian tribe'' has the meaning given the term in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5304).

(4) SECRETARY.—The term ''Secretary'' means the Secretary of the Interior.

(5) STATE.—The term ''State'' means—

(A) a State;

(B) the District of Columbia;

(C) the Commonwealth of Puerto Rico;

(D) Guam;

(E) American Samoa;

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

(G) the United States Virgin Islands.

(b) POLICY.—

(1) IN GENERAL.—Section 3 of the National Materials and Minerals Policy, Research and Development Act of 1980 (30 U.S.C. 1602) is amended in the second sentence—

(A) by striking paragraph (3) and inserting the following:

''(3) establish an analytical and forecasting capability for identifying critical mineral demand, supply, and other factors to allow informed actions to be taken to avoid supply shortages, mitigate price volatility, and prepare for demand growth and other market shifts;'';

(B) in paragraph (6), by striking ''and'' after the semicolon at the end; and

(C) by striking paragraph (7) and inserting the following:

''(7) facilitate the availability, development, and environmentally responsible production of domestic resources to meet national material or critical mineral needs;

''(8) avoid duplication of effort, prevent unnecessary paperwork, and minimize delays in the administration of applicable laws (including regulations) and the issuance of permits and authorizations necessary to explore for, develop, and produce critical minerals and to construct critical mineral manufacturing facilities in accordance with applicable environmental and land management laws;

''(9) strengthen—

''(A) educational and research capabilities at not lower than the secondary school level; and

''(B) workforce training for exploration and development of critical minerals and critical mineral manufacturing;

''(10) bolster international cooperation through technology transfer, information sharing, and other means;

''(11) promote the efficient production, use, and recycling of critical minerals;

''(12) develop alternatives to critical minerals; and

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

(2) CONFORMING AMENDMENT.—Section 2(b) of the National Materials and Minerals Policy, Research and Development Act of 1980 (30 U.S.C. 1601(b)) is amended by striking ''(b) As used in this Act, the term'' and inserting the following:

''(b) DEFINITIONS.—In this Act:

''(1) CRITICAL MINERAL.—The term 'critical mineral' means any mineral, element, substance, or material designated as critical by the Secretary under section 2101(c) of the American Energy Innovation Act of 2020.

''(2) MATERIALS.—The term''.

(c) CRITICAL MINERAL DESIGNATIONS.—

(1) DRAFT METHODOLOGY AND LIST.—The Secretary, acting through the Director of the United States Geological Survey (referred to in this subsection as the ''Secretary''), shall publish in the Federal Register for public comment—

(A) a description of the draft methodology used to identify a draft list of critical minerals;

(B) a draft list of minerals, elements, substances, and materials that qualify as critical minerals; and

(C) a draft list of critical minerals recovered as byproducts.

(2) AVAILABILITY OF DATA.—If available data is insufficient to provide a quantitative basis for the methodology developed under this subsection, qualitative evidence may be used to the extent necessary.

(3) FINAL METHODOLOGY AND LIST.—After reviewing public comments on the draft methodology and the draft lists published under paragraph (1) and updating the methodology and lists as appropriate, not later than 45 days after the date on which the public comment period with respect to the draft methodology and draft lists closes, the Secretary shall publish in the Federal Register—

(A) a description of the final methodology for determining which minerals, elements, substances, and materials qualify as critical minerals;

(B) the final list of critical minerals; and

(C) the final list of critical minerals recovered as byproducts.

(4) DESIGNATIONS.—

(A) IN GENERAL.—For purposes of carrying out this subsection, the Secretary shall maintain a list of minerals, elements, substances, and materials designated as critical, pursuant to the final methodology published under paragraph (3), that the Secretary determines—

(i) are essential to the economic or national security of the United States;

(ii) the supply chain of which is vulnerable to disruption (including restrictions associated with foreign political risk, abrupt demand growth, military conflict, violent unrest, anti-competitive or protectionist behaviors, and other risks throughout the supply chain); and

(iii) serve an essential function in the manufacturing of a product (including energy technology-, defense-, currency-, agriculture-, consumer electronics-, and health care-related applications), the absence of which would have significant consequences for the economic or national security of the United States.

(B) INCLUSIONS.—Notwithstanding the criteria under paragraph (3), the Secretary may

designate and include on the list any mineral, element, substance, or material determined by another Federal agency to be strategic and critical to the defense or national security of the United States.

(C) REQUIRED CONSULTATION.—The Secretary shall consult with the Secretaries of Defense, Commerce, Agriculture, and Energy and the United States Trade Representative in designating minerals, elements, substances, and materials as critical under this paragraph.

(5) SUBSEQUENT REVIEW.—

(A) IN GENERAL.—The Secretary, in consultation with the Secretaries of Defense, Commerce, Agriculture, and Energy and the United States Trade Representative, shall review the methodology and list under paragraph (3) and the designations under paragraph (4) at least every 3 years, or more frequently as the Secretary considers to be appropriate.

(B) REVISIONS.—Subject to paragraph (4)(A), the Secretary may—

(i) revise the methodology described in this subsection;

(ii) determine that minerals, elements, substances, and materials previously determined to be critical minerals are no longer critical minerals; and

(iii) designate additional minerals, elements, substances, or materials as critical minerals.

(6) NOTICE.—On finalization of the methodology and the list under paragraph (3), or any revision to the methodology or list under paragraph (5), the Secretary shall submit to Congress written notice of the action.

(d) RESOURCE ASSESSMENT.—

(1) IN GENERAL.—Not later than 4 years after the date of enactment of this Act, in consultation with applicable State (including geological surveys), local, academic, industry, and other entities, the Secretary (acting through the Director of the United States Geological Survey) or a designee of the Secretary, shall complete a comprehensive national assessment of each critical mineral that—

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

(B) provides a quantitative and qualitative assessment of undiscovered critical mineral resources throughout the United States, including probability estimates of tonnage and grade, using all available public and private information and datasets, including exploration histories.

(2) SUPPLEMENTARY INFORMATION.—In carrying out this subsection, the Secretary may carry out surveys and field work (including drilling, remote sensing, geophysical surveys, topographical and geological mapping, and geochemical sampling and analysis) to supplement existing information and datasets available for determining the existence of critical minerals in the United States.

(3) PUBLIC ACCESS.—Subject to applicable law, to the maximum extent practicable, the Secretary shall make all data and metadata collected from the comprehensive national assessment carried out under paragraph (1) publically and electronically accessible.

(4) TECHNICAL ASSISTANCE.—At the request of the Governor of a State or the head of an Indian tribe, the Secretary may provide technical assistance to State governments and Indian tribes conducting critical mineral resource assessments on non-Federal land.

(5) PRIORITIZATION.—

(A) IN GENERAL.—The Secretary may sequence the completion of resource assessments for each critical mineral such that critical minerals considered to be most critical under the methodology established under subsection (c) are completed first.

(B) REPORTING.—During the period beginning not later than 1 year after the date of enactment of this Act and ending on the date of completion of all of the assessments required under this subsection, the Secretary shall submit to Congress on an annual basis an interim report that—

(i) identifies the sequence and schedule for completion of the assessments if the Secretary sequences the assessments; or

(ii) describes the progress of the assessments if the Secretary does not sequence the assessments.

(6) UPDATES.—The Secretary may periodically update the assessments conducted under this subsection based on—

(A) the generation of new information or datasets by the Federal Government; or

(B) the receipt of new information or datasets from critical mineral producers, State geological surveys, academic institutions, trade associations, or other persons.

(7) ADDITIONAL SURVEYS.—The Secretary shall complete a resource assessment for each additional mineral or element subsequently designated as a critical mineral under subsection (c)(5)(B) not later than 2 years after the designation of the mineral or element.

(8) REPORT.—Not later than 2 years after the date of enactment of this Act, the Secretary shall submit to Congress a report describing the status of geological surveying of Federal land for any mineral commodity—

(A) for which the United States was dependent on a foreign country for more than 25 percent of the United States supply, as depicted in the report issued by the United States Geological Survey entitled ''Mineral Commodity Summaries 2020''; but

(B) that is not designated as a critical mineral under subsection (c).

(e) PERMITTING.—

(1) SENSE OF CONGRESS.—It is the sense of Congress that—

(A) critical minerals are fundamental to the economy, competitiveness, and security of the United States;

(B) to the maximum extent practicable, the critical mineral needs of the United States should be satisfied by minerals responsibly produced and recycled in the United States; and

(C) the Federal permitting process has been identified as an impediment to mineral production and the mineral security of the United States.

(2) PERFORMANCE IMPROVEMENTS.—To improve the quality and timeliness of decisions, the Secretary (acting through the Director of the Bureau of Land Management) and the Secretary of Agriculture (acting through the Chief of the Forest Service) (referred to in this subsection as the ''Secretaries'') shall, to the maximum extent practicable, with respect to critical mineral production on Federal land, complete Federal permitting and review processes with maximum efficiency and effectiveness, while supporting vital economic growth, by—

(A) establishing and adhering to timelines and schedules for the consideration of, and final decisions regarding, applications, operating plans, leases, licenses, permits, and other use authorizations for mineral-related activities on Federal land;

(B) establishing clear, quantifiable, and temporal permitting performance goals and tracking progress against those goals;

(C) engaging in early collaboration among agencies, project sponsors, and affected stakeholders—

(i) to incorporate and address the interests of those parties; and

(ii) to minimize delays;

(D) ensuring transparency and accountability by using cost-effective information technology to collect and disseminate information regarding individual projects and agency performance;

(E) engaging in early and active consultation with State, local, and Indian tribal governments to avoid conflicts or duplication of effort, resolve concerns, and allow for concurrent, rather than sequential, reviews;

(F) providing demonstrable improvements in the performance of Federal permitting and review processes, including lower costs and more timely decisions;

(G) expanding and institutionalizing permitting and review process improvements that have proven effective;

(H) developing mechanisms to better communicate priorities and resolve disputes among agencies at the national, regional, State, and local levels; and

(I) developing other practices, such as preapplication procedures.

(3) REVIEW AND REPORT.—Not later than 1 year after the date of enactment of this Act, the Secretaries shall submit to Congress a report that—

(A) identifies additional measures (including regulatory and legislative proposals, as appropriate) that would increase the timeliness of permitting activities for the exploration and development of domestic critical minerals;

(B) identifies options (including cost recovery paid by permit applicants) for ensuring adequate staffing and training of Federal entities and personnel responsible for the consideration of applications, operating plans, leases, licenses, permits, and other use authorizations for critical mineral-related activities on Federal land;

(C) quantifies the amount of time typically required (including range derived from minimum and maximum durations, mean, median, variance, and other statistical measures or representations) to complete each step (including those aspects outside the control of the executive branch, such as judicial review, applicant decisions, or State and local government involvement) associated with the development and processing of applications, operating plans, leases, licenses, permits, and other use authorizations for critical mineral-related activities on Federal land, which shall serve as a baseline for the performance metric under paragraph (4); and

(D) describes actions carried out pursuant to paragraph (2).

(4) PERFORMANCE METRIC.—Not later than 90 days after the date of submission of the report under paragraph (3), the Secretaries, after providing public notice and an opportunity to comment, shall develop and publish a performance metric for evaluating the progress made by the executive branch to expedite the permitting of activities that will increase exploration for, and development of, domestic critical minerals, while maintaining environmental standards.

(5) ANNUAL REPORTS.—Beginning with the first budget submission by the President under section 1105 of title 31, United States Code, after publication of the performance metric required under paragraph (4), and annually thereafter, the Secretaries shall submit to Congress a report that—

(A) summarizes the implementation of recommendations, measures, and options identified in subparagraphs (A) and (B) of paragraph (3);

(B) using the performance metric under paragraph (4), describes progress made by the executive branch, as compared to the baseline established pursuant to paragraph (3)(C), on expediting the permitting of activities that will increase exploration for, and development of, domestic critical minerals; and

(C) compares the United States to other countries in terms of permitting efficiency and any other criteria relevant to the globally competitive critical minerals industry.

(6) INDIVIDUAL PROJECTS.—Using data from the Secretaries generated under paragraph (5), the Director of the Office of Management and Budget shall prioritize inclusion of individual critical mineral projects on the website operated by the Office of Management and Budget in accordance with section 1122 of title 31, United States Code.

(7) REPORT OF SMALL BUSINESS ADMINISTRATION.—Not later than 1 year and 300 days after the date of enactment of this Act, the Administrator of the Small Business Administration shall submit to the applicable committees of Congress a report that assesses the performance of Federal agencies with respect to—

(A) complying with chapter 6 of title 5, United States Code (commonly known as the ''Regulatory Flexibility Act''), in promulgating regulations applicable to the critical minerals industry; and

(B) performing an analysis of regulations applicable to the critical minerals industry that may be outmoded, inefficient, duplicative, or excessively burdensome.

(f) FEDERAL REGISTER PROCESS.—

(1) DEPARTMENTAL REVIEW.—Absent any extraordinary circumstance, and except as otherwise required by law, the Secretary and the Secretary of Agriculture shall ensure that each Federal Register notice described in paragraph (2) shall be—

(A) subject to any required reviews within the Department of the Interior or the Department of Agriculture; and

(B) published in final form in the Federal Register not later than 45 days after the date of initial preparation of the notice.

(2) PREPARATION.—The preparation of Federal Register notices required by law associated with the issuance of a critical mineral exploration or mine permit shall be delegated to the organizational level within the agency responsible for issuing the critical mineral exploration or mine permit.

(3) TRANSMISSION.—All Federal Register notices regarding official document availability, announcements of meetings, or notices of intent to undertake an action shall be originated in, and transmitted to the Federal Register from, the office in which, as applicable—

(A) the documents or meetings are held; or

(B) the activity is initiated.

(g) RECYCLING, EFFICIENCY, AND ALTERNATIVES.—

(1) ESTABLISHMENT.—The Secretary of Energy (referred to in this subsection as the ''Secretary'') shall conduct a program of research and development—

(A) to promote the efficient production, use, and recycling of critical minerals throughout the supply chain; and

(B) to develop alternatives to critical minerals that do not occur in significant abundance in the United States.

(2) COOPERATION.—In carrying out the program, the Secretary shall cooperate with appropriate—

(A) Federal agencies and National Laboratories;

(B) critical mineral producers;

(C) critical mineral processors;

(D) critical mineral manufacturers;

(E) trade associations;

(F) academic institutions;

(G) small businesses; and

(H) other relevant entities or individuals.

(3) ACTIVITIES.—Under the program, the Secretary shall carry out activities that include the identification and development of—

(A) advanced critical mineral extraction, production, separation, alloying, or processing technologies that decrease the energy consumption, environmental impact, and costs of those activities, including—

(i) efficient water and wastewater management strategies;

(ii) technologies and management strategies to control the environmental impacts of radionuclides in ore tailings;

(iii) technologies for separation and processing; and

(iv) technologies for increasing the recovery rates of byproducts from host metal ores;

(B) technologies or process improvements that minimize the use, or lead to more efficient use, of critical minerals across the full supply chain;

(C) technologies, process improvements, or design optimizations that facilitate the recycling of critical minerals, and options for improving the rates of collection of products and scrap containing critical minerals from post-consumer, industrial, or other waste streams;

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

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

(F) alternative energy technologies or alternative designs of existing energy technologies, particularly those that use minerals that—

(i) occur in abundance in the United States; and

(ii) are not subject to potential supply restrictions.

(4) REPORTS.—Not later than 2 years after the date of enactment of this Act, and annually thereafter, the Secretary shall submit to Congress a report summarizing the activities, findings, and progress of the program.

(h) ANALYSIS AND FORECASTING.—

(1) CAPABILITIES.—In order to evaluate existing critical mineral policies and inform future actions that may be taken to avoid supply shortages, mitigate price volatility, and prepare for demand growth and other market shifts, the Secretary (acting through the Director of the United States Geological Survey) or a designee of the Secretary, in consultation with the Energy Information Administration, academic institutions, and others in order to maximize the application of existing competencies related to developing and maintaining computer-models and similar analytical tools, shall conduct and publish the results of an annual report that includes—

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

(i) the quantity of each critical mineral domestically produced during the preceding year;

(ii) the quantity of each critical mineral domestically consumed during the preceding year;

(iii) market price data or other price data for each critical mineral;

(iv) an assessment of—

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

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

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

(v) the quantity of each critical mineral domestically recycled during the preceding year;

(vi) the market penetration during the preceding year of alternatives to each critical mineral;

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

(viii) such other data, analyses, and evaluations as the Secretary finds are necessary to achieve the purposes of this subsection; and

(B) a comprehensive forecast, entitled the ''Annual Critical Minerals Outlook'', of projected critical mineral production, consumption, and recycling patterns, including—

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

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

(iii) an assessment of—

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

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

(III) the projected implications of potential supply shortages, restrictions, or disruptions;

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

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

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

(vii) such other projections relating to each critical mineral as the Secretary determines to be necessary to achieve the purposes of this subsection.

(2) PROPRIETARY INFORMATION.—In preparing a report described in paragraph (1), the Secretary shall ensure, consistent with section 5(f) of the National Materials and Minerals Policy, Research and Development Act of 1980 (30 U.S.C. 1604(f)), that—

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

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

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

(i) EDUCATION AND WORKFORCE.—

(1) WORKFORCE ASSESSMENT.—Not later than 1 year and 300 days after the date of enactment of this Act, the Secretary of Labor

(in consultation with the Secretary, the Director of the National Science Foundation, institutions of higher education with substantial expertise in mining, institutions of higher education with significant expertise in minerals research, including fundamental research into alternatives, and employers in the critical minerals sector) shall submit to Congress an assessment of the domestic availability of technically trained personnel necessary for critical mineral exploration, development, assessment, production, manufacturing, recycling, analysis, forecasting, education, and research, including an analysis of—

(A) skills that are in the shortest supply as of the date of the assessment;

(B) skills that are projected to be in short supply in the future;

(C) the demographics of the critical minerals industry and how the demographics will evolve under the influence of factors such as an aging workforce;

(D) the effectiveness of training and education programs in addressing skills shortages;

(E) opportunities to hire locally for new and existing critical mineral activities;

(F) the sufficiency of personnel within relevant areas of the Federal Government for achieving the policies described in section 3 of the National Materials and Minerals Policy, Research and Development Act of 1980 (30 U.S.C. 1602); and

(G) the potential need for new training programs to have a measurable effect on the supply of trained workers in the critical minerals industry.

(2) CURRICULUM STUDY.—

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

(i) to design an interdisciplinary program on critical minerals that will support the critical mineral supply chain and improve the ability of the United States to increase domestic, critical mineral exploration, development, production, manufacturing, research, including fundamental research into alternatives, and recycling;

(ii) to address undergraduate and graduate education, especially to assist in the development of graduate level programs of research and instruction that lead to advanced degrees with an emphasis on the critical mineral supply chain or other positions that will increase domestic, critical mineral exploration, development, production, manufacturing, research, including fundamental research into alternatives, and recycling;

(iii) to develop guidelines for proposals from institutions of higher education with substantial capabilities in the required disciplines for activities to improve the critical mineral supply chain and advance the capacity of the United States to increase domestic, critical mineral exploration, research, development, production, manufacturing, and recycling; and

(iv) to outline criteria for evaluating performance and recommendations for the amount of funding that will be necessary to establish and carry out the program described in paragraph (3).

(B) REPORT.—Not later than 2 years after the date of enactment of this Act, the Secretary shall submit to Congress a description of the results of the study required under subparagraph (A).

(3) PROGRAM.—

(A) ESTABLISHMENT.—The Secretary and the Secretary of Labor shall jointly conduct a competitive grant program under which institutions of higher education may apply for and receive 4-year grants for—

(i) startup costs for newly designated faculty positions in integrated critical mineral education, research, innovation, training, and workforce development programs consistent with paragraph (2);

(ii) internships, scholarships, and fellowships for students enrolled in programs related to critical minerals;

(iii) equipment necessary for integrated critical mineral innovation, training, and workforce development programs; and

(iv) research of critical minerals and their applications, particularly concerning the manufacture of critical components vital to national security.

(B) RENEWAL.—A grant under this paragraph shall be renewable for up to 2 additional 3-year terms based on performance criteria outlined under paragraph (2)(A)(iv).

(j) NATIONAL GEOLOGICAL AND GEOPHYSICAL DATA PRESERVATION PROGRAM.—Section 351(k) of the Energy Policy Act of 2005 (42 U.S.C. 15908(k)) is amended by striking ''$30,000,000 for each of fiscal years 2006 through 2010'' and inserting ''$5,000,000 for each of fiscal years 2021 through 2029, to remain available until expended''.

(k) ADMINISTRATION.—

(1) IN GENERAL.—The National Critical Materials Act of 1984 (30 U.S.C. 1801 et seq.) is repealed.

(2) CONFORMING AMENDMENT.—Section 3(d) of the National Superconductivity and Competitiveness Act of 1988 (15 U.S.C. 5202(d)) is amended in the first sentence by striking '', with the assistance of the National Critical Materials Council as specified in the National Critical Materials Act of 1984 (30 U.S.C. 1801 et seq.),''.

(3) SAVINGS CLAUSES.—

(A) IN GENERAL.—Nothing in this section or an amendment made by this section modifies any requirement or authority provided by—

(i) the matter under the heading ''**GEOLOGICAL SURVEY**'' of the first section of the Act of March 3, 1879 (43 U.S.C. 31(a)); or

(ii) the first section of Public Law 87–626 (43 U.S.C. 31(b)).

(B) EFFECT ON DEPARTMENT OF DEFENSE.—Nothing in this section or an amendment made by this section affects the authority of the Secretary of Defense with respect to the work of the Department of Defense on critical material supplies in furtherance of the national defense mission of the Department of Defense.

(C) SECRETARIAL ORDER NOT AFFECTED.—This section shall not apply to any mineral described in Secretarial Order No. 3324, issued by the Secretary on December 3, 2012, in any area to which the order applies.

(4) APPLICATION OF CERTAIN PROVISIONS.—

(A) IN GENERAL.—Subsections (e) and (f) shall apply to—

(i) an exploration project in which the presence of a byproduct is reasonably expected, based on known mineral companionality, geologic formation, mineralogy, or other factors; and

(ii) a project that demonstrates that the byproduct is of sufficient grade that, when combined with the production of a host mineral, the byproduct is economic to recover, as determined by the applicable Secretary in accordance with subparagraph (B).

(B) REQUIREMENT.—In making the determination under subparagraph (A)(ii), the applicable Secretary shall consider the cost effectiveness of the byproducts recovery.

(l) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section $50,000,000 for each of fiscal years 2021 through 2029.

SEC. 2102. RARE EARTH ELEMENT ADVANCED COAL TECHNOLOGIES.

(a) PROGRAM FOR EXTRACTION AND RECOVERY OF RARE EARTH ELEMENTS AND MINERALS FROM COAL AND COAL BYPRODUCTS.—

(1) IN GENERAL.—The Secretary of Energy, acting through the Assistant Secretary for Fossil Energy (referred to in this section as the ''Secretary''), shall carry out a program under which the Secretary shall develop advanced separation technologies for the extraction and recovery of rare earth elements and minerals from coal and coal byproducts.

(2) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out the program described in paragraph (1) $23,000,000 for each of fiscal years 2021 through 2027.

(b) REPORT.—Not later than 1 year after the date of enactment of this Act, the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Energy and Commerce of the House of Representatives a report evaluating the development of advanced separation technologies for the extraction and recovery of rare earth elements and minerals from coal and coal byproducts, including acid mine drainage from coal mines.

Subtitle B—Cybersecurity and Grid Security and Modernization

PART I—CYBERSECURITY AND GRID SECURITY

SEC. 2201. INCENTIVES FOR ADVANCED CYBERSECURITY TECHNOLOGY INVESTMENT.

Part II of the Federal Power Act is amended by inserting after section 219 (16 U.S.C. 824s) the following:

''SEC. 219A. INCENTIVES FOR CYBERSECURITY INVESTMENTS.

''(a) DEFINITIONS.—In this section:

''(1) ADVANCED CYBERSECURITY TECHNOLOGY.—The term 'advanced cybersecurity technology' means any technology, operational capability, or service, including computer hardware, software, or a related asset, that enhances the security posture of public utilities through improvements in the ability to protect against, detect, respond to, or recover from a cybersecurity threat (as defined in section 102 of the Cybersecurity Act of 2015 (6 U.S.C. 1501)).

''(2) ADVANCED CYBERSECURITY TECHNOLOGY INFORMATION.—The term 'advanced cybersecurity technology information' means information relating to advanced cybersecurity technology or proposed advanced cybersecurity technology that is generated by or provided to the Commission or another Federal agency.

''(b) STUDY.—Not later than 180 days after the date of enactment of this section, the Commission, in consultation with the Secretary of Energy, the North American Electric Reliability Corporation, the Electricity Subsector Coordinating Council, and the National Association of Regulatory Utility Commissioners, shall conduct a study to identify incentive-based, including performance-based, rate treatments for the transmission and sale of electric energy subject to the jurisdiction of the Commission that could be used to encourage—

''(1) investment by public utilities in advanced cybersecurity technology; and

''(2) participation by public utilities in cybersecurity threat information sharing programs.

''(c) INCENTIVE-BASED RATE TREATMENT.—Not later than 1 year after the completion of the study under subsection (b), the Commission shall establish, by rule, incentive-based, including performance-based, rate treatments for the transmission of electric energy in interstate commerce and the sale of electric energy at wholesale in interstate commerce by public utilities for the purpose of benefitting consumers by encouraging—

''(1) investments by public utilities in advanced cybersecurity technology; and

''(2) participation by public utilities in cybersecurity threat information sharing programs.

''(d) FACTORS FOR CONSIDERATION.—In issuing a rule pursuant to this section, the Commission may provide additional incentives beyond those identified in subsection (c) in any case in which the Commission determines that an investment in advanced cybersecurity technology or information sharing program costs will reduce cybersecurity risks to—

''(1) defense critical electric infrastructure (as defined in section 215A(a)) and other facilities subject to the jurisdiction of the Commission that are critical to public safety, national defense, or homeland security, as determined by the Commission in consultation with—

''(A) the Secretary of Energy; and

''(B) appropriate Federal agencies; and

''(2) facilities of small or medium-sized public utilities with limited cybersecurity resources, as determined by the Commission.

''(e) RATEPAYER PROTECTION.—

''(1) IN GENERAL.—Any rate approved under a rule issued pursuant to this section, including any revisions to that rule, shall be subject to the requirements of sections 205 and 206 that all rates, charges, terms, and conditions—

''(A) shall be just and reasonable; and

''(B) shall not be unduly discriminatory or preferential.

''(2) PROHIBITION OF DUPLICATE RECOVERY.—Any rule issued pursuant to this section shall preclude rate treatments that allow unjust and unreasonable double recovery for advanced cybersecurity technology.

''(f) SINGLE-ISSUE RATE FILINGS.—The Commission shall permit public utilities to apply for incentive-based rate treatment under a rule issued under this section on a single-issue basis by submitting to the Commission a tariff schedule under section 205 that permits recovery of costs and incentives over the depreciable life of the applicable assets, without regard to changes in receipts or other costs of the public utility.

''(g) PROTECTION OF INFORMATION.—Advanced cybersecurity technology information that is provided to, generated by, or collected by the Federal Government under subsection (b), (c), or (f) shall be considered to be critical electric infrastructure information under section 215A.''.

SEC. 2202. RURAL AND MUNICIPAL UTILITY ADVANCED CYBERSECURITY GRANT AND TECHNICAL ASSISTANCE PROGRAM.

(a) DEFINITIONS.—In this section:

(1) ADVANCED CYBERSECURITY TECHNOLOGY.—The term ''advanced cybersecurity technology'' means any technology, operational capability, or service, including computer hardware, software, or a related asset, that enhances the security posture of electric utilities through improvements in the ability to protect against, detect, respond to, or recover from a cybersecurity threat (as defined in section 102 of the Cybersecurity Act of 2015 (6 U.S.C. 1501)).

(2) ELIGIBLE ENTITY.—The term ''eligible entity'' means—

(A) a rural electric cooperative;

(B) a utility owned by a political subdivision of a State, such as a municipally owned electric utility;

(C) a utility owned by any agency, authority, corporation, or instrumentality of 1 or more political subdivisions of a State;

(D) a not-for-profit entity that is in a partnership with not fewer than 6 entities described in subparagraph (A), (B), or (C); and

(E) an investor-owned electric utility that sells less than 4,000,000 megawatt hours of electricity per year.

(3) PROGRAM.—The term ''Program'' means the Rural and Municipal Utility Advanced Cybersecurity Grant and Technical Assistance Program established under subsection (b).

(b) ESTABLISHMENT.—Not later than 180 days after the date of enactment of this Act, the Secretary, in consultation with the Federal Energy Regulatory Commission, the North American Electric Reliability Corporation, and the Electricity Subsector Coordinating Council, shall establish a program, to be known as the ''Rural and Municipal Utility Advanced Cybersecurity Grant and Technical Assistance Program'', to provide grants and technical assistance to, and enter into cooperative agreements with, eligible entities to protect against, detect, respond to, and recover from cybersecurity threats.

(c) OBJECTIVES.—The objectives of the Program shall be—

(1) to deploy advanced cybersecurity technologies for electric utility systems; and

(2) to increase the participation of eligible entities in cybersecurity threat information sharing programs.

(d) AWARDS.—

(1) IN GENERAL.—The Secretary—

(A) shall award grants and provide technical assistance under the Program to eligible entities on a competitive basis;

(B) shall develop criteria and a formula for awarding grants and providing technical assistance under the Program;

(C) may enter into cooperative agreements with eligible entities that can facilitate the objectives described in subsection (c); and

(D) shall establish a process to ensure that all eligible entities are informed about and can become aware of opportunities to receive grants or technical assistance under the Program.

(2) PRIORITY FOR GRANTS AND TECHNICAL ASSISTANCE.—In awarding grants and providing technical assistance under the Program, the Secretary shall give priority to an eligible entity that, as determined by the Secretary—

(A) has limited cybersecurity resources;

(B) owns assets critical to the reliability of the bulk power system; or

(C) owns defense critical electric infrastructure (as defined in section 215A(a) of the Federal Power Act (16 U.S.C. 824o–1(a))).

(e) PROTECTION OF INFORMATION.—Information provided to, or collected by, the Federal Government under this section—

(1) shall be exempt from disclosure under section 552(b)(3) of title 5, United States Code; and

(2) shall not be made available by any Federal agency, State, political subdivision of a State, or Tribal authority under any applicable law requiring public disclosure of information or records.

(f) FUNDING.—There is authorized to be appropriated to carry out this section $50,000,000 for each of fiscal years 2021 through 2025, to remain available until expended.

SEC. 2203. STATE ENERGY SECURITY PLANS.

(a) IN GENERAL.—Part D of title III of the Energy Policy and Conservation Act (42 U.S.C. 6321 et seq.) is amended by adding at the end the following:

''SEC. 367. STATE ENERGY SECURITY PLANS.

''(a) IN GENERAL.—Federal financial assistance made available to a State under this part may be used for the development, implementation, review, and revision of a State energy security plan that assesses the State's existing circumstances and proposes methods to strengthen the ability of the State, in consultation with owners and operators of energy infrastructure in such State, to—

''(1) secure the energy infrastructure of the State against all physical and cybersecurity threats;

''(2) mitigate the risk of energy supply disruptions to the State and enhance the response to, and recovery from, energy disruptions; and

''(3) ensure the State has a reliable, secure, and resilient energy infrastructure.

''(b) CONTENTS OF PLAN.—A State energy security plan described in subsection (a) shall—

''(1) address all energy sources and regulated and unregulated energy providers;

''(2) provide a State energy profile, including an assessment of energy production, distribution, and end-use;

''(3) address potential hazards to each energy sector or system, including physical threats and cybersecurity threats and vulnerabilities;

''(4) provide a risk assessment of energy infrastructure and cross-sector interdependencies;

''(5) provide a risk mitigation approach to enhance reliability and end-use resilience; and

''(6) address multi-State, Indian Tribe, and regional coordination planning and response, and to the extent practicable, encourage mutual assistance in cyber and physical response plans.

''(c) COORDINATION.—In developing or revising a State energy security plan under this section, the energy office of the State shall, to the extent practicable, coordinate with—

''(1) the public utility or service commission of the State;

''(2) energy providers from the private and public sectors; and

''(3) other entities responsible for maintaining fuel or electric reliability and securing energy infrastructure.

''(d) FINANCIAL ASSISTANCE.—A State is not eligible to receive Federal financial assistance under this part, for any purpose, for a fiscal year unless the Governor of such State submits to the Secretary, with respect to such fiscal year—

''(1) a State energy security plan described in subsection (a) that meets the requirements of subsection (b); or

''(2) after an annual review of the State energy security plan by the Governor—

''(A) any necessary revisions to such plan; or

''(B) a certification that no revisions to such plan are necessary.

''(e) TECHNICAL ASSISTANCE.—Upon request of the Governor of a State, the Secretary may provide information and technical assistance, and other assistance, in the development, implementation, or revision of a State energy security plan.

''(f) REQUIREMENT.—Each State receiving Federal financial assistance under this part shall provide reasonable assurance to the Secretary that the State has established policies and procedures designed to assure that the financial assistance will be used—

''(1) to supplement, and not to supplant, State and local funds; and

''(2) to the maximum extent practicable, to increase the amount of State and local funds that otherwise would be available, in the absence of the financial assistance, for the implementation of the State energy security plan under this section.

''(g) PROTECTION OF INFORMATION.—Information provided to, or collected by, the Federal Government under this section—

''(1) shall be exempt from disclosure under section 552(b)(3) of title 5, United States Code; and

''(2) shall not be made available by any Federal agency, State, political subdivision of a State, or Tribal authority pursuant to

any Federal, State, or Tribal law, as applicable, requiring public disclosure of information or records.

''(h) SUNSET.—This section shall expire on October 31, 2024.''.

(b) AUTHORIZATION OF APPROPRIATIONS.—Section 365(f) of the Energy Policy and Conservation Act (42 U.S.C. 6325(f)) is amended—

(1) by striking ''$125,000,000'' and inserting ''$90,000,000''; and

(2) by striking ''2007 through 2012'' and inserting ''2021 through 2025''.

(c) TECHNICAL AND CONFORMING AMENDMENTS.—

(1) CONFORMING AMENDMENTS.—Section 363 of the Energy Policy and Conservation Act (42 U.S.C. 6323) is amended—

(A) by striking subsection (e); and

(B) by redesignating subsection (f) as subsection (e).

(2) TECHNICAL AMENDMENT.—Section 366(3)(B)(i) of the Energy Policy and Conservation Act (42 U.S.C. 6326(3)(B)(i)) is amended by striking ''approved under section 367''.

(3) REFERENCE.—The matter under the heading ''ENERGY CONSERVATION'' under the heading ''DEPARTMENT OF ENERGY'' in title II of the Department of the Interior and Related Agencies Appropriations Act, 1985 (42 U.S.C. 6323a) is amended by striking ''sections 361 through 366'' and inserting ''sections 361 through 367''.

(4) TABLE OF CONTENTS.—The table of contents for part D of title III of the Energy Policy and Conservation Act (Public Law 94–163; 89 Stat. 872; 92 Stat. 3272; 104 Stat. 1006) is amended by adding at the end the following:

''Sec. 367. State energy security plans.''.

SEC. 2204. ENHANCING GRID SECURITY THROUGH PUBLIC-PRIVATE PARTNERSHIPS.

(a) DEFINITIONS.—In this section:

(1) ELECTRIC RELIABILITY ORGANIZATION.—The term ''Electric Reliability Organization'' has the meaning given the term in section 215(a) of the Federal Power Act (16 U.S.C. 824o(a)).

(2) ELECTRIC UTILITY; STATE REGULATORY AUTHORITY.—The terms ''electric utility'' and ''State regulatory authority'' have the meanings given those terms in section 3 of the Federal Power Act (16 U.S.C. 796).

(b) PROGRAM TO PROMOTE AND ADVANCE PHYSICAL SECURITY AND CYBERSECURITY OF ELECTRIC UTILITIES.—

(1) ESTABLISHMENT.—The Secretary, in consultation with State regulatory authorities, industry stakeholders, the Electric Reliability Organization, and any other Federal agencies that the Secretary determines to be appropriate, shall carry out a program—

(A) to develop, and provide for voluntary implementation of, maturity models, self-assessments, and auditing methods for assessing the physical security and cybersecurity of electric utilities;

(B) to assist with threat assessment and cybersecurity training for electric utilities;

(C) to provide technical assistance for electric utilities subject to the program;

(D) to provide training to electric utilities to address and mitigate cybersecurity supply chain management risks;

(E) to advance the cybersecurity of third-party vendors in partnerships with electric utilities; and

(F) to increase opportunities for sharing best practices and data collection within the electric sector.

(2) SCOPE.—In carrying out the program under paragraph (1), the Secretary shall—

(A) take into consideration—

(i) the different sizes of electric utilities; and

(ii) the regions that electric utilities serve;

(B) prioritize electric utilities with fewer available resources due to size or region; and

(C) to the maximum extent practicable, use and leverage—

(i) existing Department programs; and

(ii) existing programs of the Federal agencies determined to be appropriate under paragraph (1).

(3) PROTECTION OF INFORMATION.—Information provided to, or collected by, the Federal Government pursuant to this subsection—

(A) shall be exempt from disclosure under section 552(b)(3) of title 5, United States Code; and

(B) shall not be made available by any Federal agency, State, political subdivision of a State, or Tribal authority pursuant to any Federal, State, political subdivision of a State, or Tribal law, respectively, requiring public disclosure of information or records.

(c) REPORT ON CYBERSECURITY AND DISTRIBUTION SYSTEMS.—

(1) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Secretary, in consultation with State regulatory authorities, industry stakeholders, and any other Federal agencies that the Secretary determines to be appropriate, shall submit to Congress a report that assesses—

(A) priorities, policies, procedures, and actions for enhancing the physical security and cybersecurity of electricity distribution systems, including behind-the-meter generation, storage, and load management devices, to address threats to, and vulnerabilities of, electricity distribution systems; and

(B) the implementation of the priorities, policies, procedures, and actions assessed under subparagraph (A), including—

(i) an estimate of potential costs and benefits of the implementation; and

(ii) an assessment of any public-private cost-sharing opportunities.

(2) PROTECTION OF INFORMATION.—Information provided to, or collected by, the Federal Government under this subsection—

(A) shall be exempt from disclosure under section 552(b)(3) of title 5, United States Code; and

(B) shall not be made available by any Federal agency, State, political subdivision of a State, or Tribal authority pursuant to any Federal, State, political subdivision of a State, or Tribal law, respectively, requiring public disclosure of information or records.

SEC. 2205. ENHANCED GRID SECURITY.

(a) DEFINITIONS.—In this section:

(1) ELECTRIC UTILITY.—The term ''electric utility'' has the meaning given the term in section 3 of the Federal Power Act (16 U.S.C. 796).

(2) E–ISAC.—The term ''E–ISAC'' means the Electricity Sector Information Sharing and Analysis Center.

(b) CYBERSECURITY FOR THE ENERGY SECTOR RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM.—

(1) IN GENERAL.—The Secretary, in consultation with appropriate Federal agencies, the energy sector, the States, and other stakeholders, shall carry out a program—

(A) to develop advanced cybersecurity applications and technologies for the energy sector—

(i) to identify and mitigate vulnerabilities, including—

(I) dependencies on other critical infrastructure; and

(II) impacts from weather and fuel supply; and

(ii) to advance the security of field devices and third-party control systems, including—

(I) systems for generation, transmission, distribution, end use, and market functions;

(II) specific electric grid elements including advanced metering, demand response, distributed generation, and electricity storage;

(III) forensic analysis of infected systems; and

(IV) secure communications;

(B) to leverage electric grid architecture as a means to assess risks to the energy sector, including by implementing an all-hazards approach to communications infrastructure, control systems architecture, and power systems architecture;

(C) to perform pilot demonstration projects with the energy sector to gain experience with new technologies; and

(D) to develop workforce development curricula for energy sector-related cybersecurity.

(2) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this subsection $65,000,000 for each of fiscal years 2021 through 2029.

(c) ENERGY SECTOR COMPONENT TESTING FOR CYBERRESILIENCE PROGRAM.—

(1) IN GENERAL.—The Secretary shall carry out a program—

(A) to establish a cybertesting and mitigation program to identify vulnerabilities of energy sector supply chain products to known threats;

(B) to oversee third-party cybertesting; and

(C) to develop procurement guidelines for energy sector supply chain components.

(2) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this subsection $15,000,000 for each of fiscal years 2021 through 2029.

(d) ENERGY SECTOR OPERATIONAL SUPPORT FOR CYBERRESILIENCE PROGRAM.—

(1) IN GENERAL.—The Secretary may carry out a program—

(A) to enhance and periodically test—

(i) the emergency response capabilities of the Department; and

(ii) the coordination of the Department with other agencies, the National Laboratories, and private industry;

(B) to expand cooperation of the Department with the intelligence communities for energy sector-related threat collection and analysis;

(C) to enhance the tools of the Department and E–ISAC for monitoring the status of the energy sector;

(D) to expand industry participation in E–ISAC; and

(E) to provide technical assistance to small electric utilities for purposes of assessing cybermaturity level.

(2) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this subsection $10,000,000 for each of fiscal years 2021 through 2029.

(e) MODELING AND ASSESSING ENERGY INFRASTRUCTURE RISK.—

(1) IN GENERAL.—The Secretary shall develop an advanced energy security program to secure energy networks, including electric, natural gas, and oil exploration, transmission, and delivery.

(2) SECURITY AND RESILIENCY OBJECTIVE.—The objective of the program developed under paragraph (1) is to increase the functional preservation of the electric grid operations or natural gas and oil operations in the face of natural and human-made threats and hazards, including electric magnetic pulse and geomagnetic disturbances.

(3) ELIGIBLE ACTIVITIES.—In carrying out the program developed under paragraph (1), the Secretary may—

(A) develop capabilities to identify vulnerabilities and critical components that pose major risks to grid security if destroyed or impaired;

(B) provide modeling at the national level to predict impacts from natural or human-made events;

(C) develop a maturity model for physical security and cybersecurity;

(D) conduct exercises and assessments to identify and mitigate vulnerabilities to the electric grid, including providing mitigation recommendations;

(E) conduct research hardening solutions for critical components of the electric grid;

(F) conduct research mitigation and recovery solutions for critical components of the electric grid; and

(G) provide technical assistance to States and other entities for standards and risk analysis.

(4) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this subsection $10,000,000 for each of fiscal years 2021 through 2029.

(f) LEVERAGING EXISTING PROGRAMS.—The programs established under this section shall be carried out consistent with—

(1) the report of the Department entitled ''Roadmap to Achieve Energy Delivery Systems Cybersecurity'' and dated 2011;

(2) existing programs of the Department; and

(3) any associated strategic framework that links together academic and National Laboratory researchers, electric utilities, manufacturers, and any other relevant private industry organizations, including the Electricity Sub-sector Coordinating Council.

PART II—GRID MODERNIZATION

SEC. 2210. GRID STORAGE PROGRAM.

(a) IN GENERAL.—The Secretary shall conduct a program of research, development, and demonstration of electric grid energy storage that addresses the principal challenges identified in the 2013 Department of Energy Strategic Plan for Grid Energy Storage.

(b) AREAS OF FOCUS.—The program under this section shall focus on—

(1) materials, electric thermal, electromechanical, and electrochemical systems research;

(2) power conversion technologies research;

(3) developing—

(A) empirical and science-based industry standards to compare the storage capacity, cycle length and capabilities, and reliability of different types of electricity storage; and

(B) validation and testing techniques;

(4) other fundamental and applied research critical to widespread deployment of electricity storage;

(5) device development that builds on results from research described in paragraphs (1), (2), and (4), including combinations of power electronics, advanced optimizing controls, and energy storage as a general purpose element of the electric grid;

(6) grid-scale testing and analysis of storage devices, including test-beds and field trials;

(7) cost-benefit analyses that inform capital expenditure planning for regulators and owners and operators of components of the electric grid;

(8) electricity storage device safety and reliability, including potential failure modes, mitigation measures, and operational guidelines;

(9) standards for storage device performance, control interface, grid interconnection, and interoperability; and

(10) maintaining a public database of energy storage projects, policies, codes, standards, and regulations.

(c) ASSISTANCE TO STATES.—The Secretary may provide technical and financial assistance to States, Indian Tribes, or units of local government to participate in or use research, development, or demonstration of technology developed under this section.

(d) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out this section $50,000,000 for each of fiscal years 2021 through 2029.

(e) NO EFFECT ON OTHER PROVISIONS OF LAW.—Nothing in this Act or an amendment made by this Act authorizes regulatory actions that would duplicate or conflict with regulatory requirements, mandatory standards, or related processes under section 215 of the Federal Power Act (16 U.S.C. 824o).

(f) USE OF FUNDS.—To the maximum extent practicable, in carrying out this section, the Secretary shall ensure that the use of funds to carry out this section is coordinated among different offices within the Grid Modernization Initiative of the Department and other programs conducting energy storage research.

SEC. 2211. TECHNOLOGY DEMONSTRATION ON THE DISTRIBUTION SYSTEM.

(a) IN GENERAL.—The Secretary shall establish a grant program to carry out eligible projects related to the modernization of the electric grid, including the application of technologies to improve observability, advanced controls, and prediction of system performance on the distribution system.

(b) ELIGIBLE PROJECTS.—To be eligible for a grant under subsection (a), a project shall—

(1) be designed to improve the performance and efficiency of the future electric grid, while ensuring the continued provision of safe, secure, reliable, and affordable power;

(2) demonstrate—

(A) secure integration and management of two or more energy resources, including distributed energy generation, combined heat and power, micro-grids, energy storage, electric vehicles, energy efficiency, demand response, and intelligent loads; and

(B) secure integration and interoperability of communications and information technologies; and

(3) be subject to the requirements of section 545(a) of the Energy Security and Independence Act of 2007 (42 U.S.C. 17155(a)).

SEC. 2212. MICRO-GRID AND HYBRID MICRO-GRID SYSTEMS PROGRAM.

(a) DEFINITIONS.—In this section:

(1) HYBRID MICRO-GRID SYSTEM.—The term ''hybrid micro-grid system'' means a stand-alone electrical system that—

(A) is comprised of conventional generation and at least 1 alternative energy resource; and

(B) may use grid-scale energy storage.

(2) ISOLATED COMMUNITY.—The term ''isolated community'' means a community that is powered by a stand-alone electric generation and distribution system without the economic and reliability benefits of connection to a regional electric grid.

(3) MICRO-GRID SYSTEM.—The term ''micro-grid system'' means a standalone electrical system that uses grid-scale energy storage.

(4) STRATEGY.—The term ''strategy'' means the strategy developed pursuant to subsection (b)(2)(B).

(b) PROGRAM.—

(1) ESTABLISHMENT.—The Secretary shall establish a program to promote the development of—

(A) hybrid micro-grid systems for isolated communities; and

(B) micro-grid systems to increase the resilience of critical infrastructure.

(2) PHASES.—The program established under paragraph (1) shall be divided into the following phases:

(A) Phase I, which shall consist of the development of a feasibility assessment for—

(i) hybrid micro-grid systems in isolated communities; and

(ii) micro-grid systems to enhance the resilience of critical infrastructure.

(B) Phase II, which shall consist of the development of an implementation strategy, in accordance with paragraph (3), to promote the development of hybrid micro-grid systems for isolated communities, particularly for those communities exposed to extreme weather conditions and high energy costs, including electricity, space heating and cooling, and transportation.

(C) Phase III, which shall be carried out in parallel with Phase II and consist of the development of an implementation strategy to promote the development of micro-grid systems that increase the resilience of critical infrastructure.

(D) Phase IV, which shall consist of cost-shared demonstration projects, based upon the strategies developed under subparagraph (B) that include the development of physical and cybersecurity plans to take appropriate measures to protect and secure the electric grid.

(E) Phase V, which shall establish a benefits analysis plan to help inform regulators, policymakers, and industry stakeholders about the affordability, environmental and resilience benefits associated with Phases II, III, and IV.

(3) REQUIREMENTS FOR STRATEGY.—In developing the strategy under paragraph (2)(B), the Secretary shall consider—

(A) establishing future targets for the economic displacement of conventional generation using hybrid micro-grid systems, including displacement of conventional generation used for electric power generation, heating and cooling, and transportation;

(B) the potential for renewable resources, including wind, solar, and hydropower, to be integrated into a hybrid micro-grid system;

(C) opportunities for improving the efficiency of existing hybrid micro-grid systems;

(D) the capacity of the local workforce to operate, maintain, and repair a hybrid micro-grid system;

(E) opportunities to develop the capacity of the local workforce to operate, maintain, and repair a hybrid micro-grid system;

(F) leveraging existing capacity within local or regional research organizations, such as organizations based at institutions of higher education, to support development of hybrid micro-grid systems, including by testing novel components and systems prior to field deployment;

(G) the need for basic infrastructure to develop, deploy, and sustain a hybrid micro-grid system;

(H) input of traditional knowledge from local leaders of isolated communities in the development of a hybrid micro-grid system;

(I) the impact of hybrid micro-grid systems on defense, homeland security, economic development, and environmental interests;

(J) opportunities to leverage existing interagency coordination efforts and recommendations for new interagency coordination efforts to minimize unnecessary overhead, mobilization, and other project costs; and

(K) any other criteria the Secretary determines appropriate.

(c) COLLABORATION.—The program established under subsection (b)(1) shall be carried out in collaboration with relevant stakeholders, including, as appropriate—

(1) States;

(2) Indian Tribes;

(3) regional entities and regulators;

(4) units of local government;

(5) institutions of higher education; and

(6) private sector entities.

(d) REPORT.—Not later than 180 days after the date of enactment of this Act, and annually thereafter until calendar year 2029, the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Energy and Commerce of the House of Representatives a report on the efforts to implement the program established under subsection (b)(1) and the status

of the strategy developed under subsection (b)(2)(B).

SEC. 2213. ELECTRIC GRID ARCHITECTURE, SCENARIO DEVELOPMENT, AND MODELING.

(a) GRID ARCHITECTURE AND SCENARIO DEVELOPMENT.—

(1) IN GENERAL.—Subject to paragraph (2), the Secretary shall establish and facilitate a collaborative process to develop model grid architecture and a set of future scenarios for the electric grid to examine the impacts of different combinations of resources (including different quantities of distributed energy resources and large-scale, central generation) on the electric grid.

(2) MARKET STRUCTURE.—The grid architecture and scenarios developed under paragraph (1) shall account for differences in market structure, including an examination of the potential for stranded costs in each type of market structure.

(3) FINDINGS.—

(A) IN GENERAL.—Based on the findings of grid architecture developed under paragraph (1), the Secretary shall—

(i) determine whether any additional standards are necessary to ensure the interoperability of grid systems and associated communications networks; and

(ii) if the Secretary makes a determination that additional standards are necessary under subparagraph (A), make recommendations for additional standards, including, as may be appropriate, to the Electric Reliability Organization under section 215 of the Federal Power Act (16 U.S.C. 824o).

(B) CONSIDERATION.—The Electric Reliability Organization shall not be under any obligation to establish any process to consider the recommendations described in subparagraph (A)(ii).

(b) MODELING.—Subject to subsection (c), the Secretary shall—

(1) conduct modeling based on the scenarios developed under subsection (a); and

(2) analyze and evaluate the technical and financial impacts of the models to assist States, utilities, and other stakeholders in—

(A) enhancing strategic planning efforts;

(B) avoiding stranded costs; and

(C) maximizing the cost-effectiveness of future grid-related investments.

(c) INPUT.—The Secretary shall develop the scenarios and conduct the modeling and analysis under subsections (a) and (b) with participation or input, as appropriate, from—

(1) the National Laboratories;

(2) States;

(3) State regulatory authorities;

(4) transmission organizations;

(5) representatives of all sectors of the electric power industry;

(6) academic institutions;

(7) independent research institutes; and

(8) other entities.

(d) EFFECT.—Nothing in this section grants any person a right to receive or review confidential, proprietary, or otherwise protected information concerning grid architecture or scenarios.

SEC. 2214. VOLUNTARY MODEL PATHWAYS.

(a) ESTABLISHMENT OF VOLUNTARY MODEL PATHWAYS.—

(1) ESTABLISHMENT.—Not later than 90 days after the date of enactment of this Act, the Secretary, in consultation with the steering committee established under paragraph (3), shall initiate the development of voluntary model pathways for modernizing the electric grid through a collaborative, public-private effort that—

(A) produces illustrative policy pathways encompassing a diverse range of technologies that can be adapted for State and regional applications by regulators and policymakers;

(B) facilitates the modernization of the electric grid and associated communications networks to achieve the objectives described in paragraph (2);

(C) ensures a reliable, resilient, affordable, safe, and secure electric grid; and

(D) acknowledges and accounts for different priorities, electric systems, and rate structures across States and regions.

(2) OBJECTIVES.—The pathways established under paragraph (1) shall facilitate achievement of as many of the following objectives as practicable:

(A) Near real-time situational awareness of the electric system.

(B) Data visualization.

(C) Advanced monitoring and control of the advanced electric grid.

(D) Enhanced certainty of policies for investment in the electric grid.

(E) Increased innovation.

(F) Greater consumer empowerment.

(G) Enhanced grid resilience, reliability, and robustness.

(H) Improved—

(i) integration of distributed energy resources;

(ii) interoperability of the electric system; and

(iii) predictive modeling and capacity forecasting.

(I) Reduced cost of service for consumers.

(J) Diversification of generation sources.

(3) STEERING COMMITTEE.—Not later than 90 days after the date of enactment of this Act, the Secretary shall establish a steering committee to help develop the pathways under paragraph (1), to be composed of members appointed by the Secretary, consisting of persons with appropriate expertise representing a diverse range of interests in the public, private, and academic sectors, including representatives of—

(A) the Federal Energy Regulatory Commission;

(B) the National Laboratories;

(C) States;

(D) State regulatory authorities;

(E) transmission organizations;

(F) representatives of all sectors of the electric power industry;

(G) institutions of higher education;

(H) independent research institutes; and

(I) other entities.

(b) TECHNICAL ASSISTANCE.—The Secretary may provide technical assistance to States, Indian Tribes, or units of local government to adopt or implement one or more elements of the pathways developed under subsection (a)(1), including on a pilot basis.

SEC. 2215. PERFORMANCE METRICS FOR ELECTRICITY INFRASTRUCTURE PROVIDERS.

(a) IN GENERAL.—Not later than 2 years after the date of enactment of this Act, the Secretary, in consultation with the steering committee established under section 2214(a)(3), shall submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Energy and Commerce of the House of Representatives a report that includes—

(1) an evaluation of the performance of the electric grid as of the date of the report; and

(2) a description of the projected range of measurable costs and benefits associated with the changes evaluated under the scenarios developed under section 2213.

(b) CONSIDERATIONS FOR DEVELOPMENT OF METRICS.—In developing metrics for the evaluation and projections under subsection (a), the Secretary shall consider—

(1) standard methodologies for calculating improvements or deteriorations in the performance metrics, such as reliability, grid efficiency, power quality, consumer satisfaction, sustainability, and financial incentives;

(2) standard methodologies for calculating potential costs and measurable benefits value to ratepayers, applying the performance metrics developed under paragraph (1);

(3) identification of tools, resources, and deployment models that may enable improved performance through the adoption of emerging, commercially available or advanced grid technologies or solutions, including—

(A) multicustomer micro-grids;

(B) distributed energy resources;

(C) energy storage;

(D) electric vehicles;

(E) electric vehicle charging infrastructure;

(F) integrated information and communications systems;

(G) transactive energy systems; and

(H) advanced demand management systems; and

(4) the role of States and local regulatory authorities in enabling a robust future electric grid to ensure that—

(A) electric utilities remain financially viable;

(B) electric utilities make the needed investments that ensure a reliable, secure, and resilient grid; and

(C) costs incurred to transform to an integrated grid are allocated and recovered responsibly, efficiently, and equitably.

SEC. 2216. VOLUNTARY STATE, REGIONAL, AND LOCAL ELECTRICITY DISTRIBUTION PLANNING.

(a) IN GENERAL.—On the request of a State, regional organization, or electric utility, the Secretary shall provide assistance to States, regional organizations, and electric utilities to facilitate the development of State, regional, and local electricity distribution plans by—

(1) conducting a resource assessment and analysis of future demand and distribution requirements; and

(2) developing open source tools for State, regional, and local planning and operations.

(b) RISK AND SECURITY ANALYSIS.—The assessment under subsection (a)(1) shall include—

(1) the evaluation of the physical security, cybersecurity, and associated communications needs of an advanced distribution management system and the integration of distributed energy resources; and

(2) advanced use of grid architecture to analyze risks in an all-hazards approach that includes communications infrastructure, control systems architecture, and power systems architecture.

(c) DESIGNATION.—The information collected for the assessment and analysis under subsection (a)(1)—

(1) shall be considered to be critical electric infrastructure information under section 215A of the Federal Power Act (16 U.S.C. 824o–1); and

(2) shall only be released in compliance with regulations implementing that section.

(d) TECHNICAL ASSISTANCE.—For the purpose of assisting in the development of State and regional electricity distribution plans, the Secretary shall provide technical assistance to—

(1) States;

(2) regional reliability entities; and

(3) other distribution asset owners and operators.

(e) WITHDRAWAL.—A State or any entity that has requested technical assistance under this section may withdraw the request for technical assistance at any time, and on such withdrawal, the Secretary shall terminate all assistance efforts.

(f) EFFECT.—Nothing in this section authorizes the Secretary to require any State, regional organization, regional reliability entity, asset owner, or asset operator to

adopt any model, tool, plan, analysis, or assessment.

SEC. 2217. AUTHORIZATION OF APPROPRIATIONS.

There is authorized to be appropriated to the Secretary to carry out sections 2211 through 2216 $200,000,000 for each of fiscal years 2021 through 2029.

Subtitle C—Workforce Development

SEC. 2301. DEFINITIONS.

In this subtitle:

(1) WIOA TERMS.—The terms ''community-based organization'', ''economic development agency'', ''recognized postsecondary credential'', and ''State'' have the meanings given the terms in section 3 of the Workforce Innovation and Opportunity Act (29 U.S.C. 3102).

(2) APPRENTICESHIP PROGRAM.—The term ''apprenticeship program'' means an apprenticeship registered under the Act of August 16, 1937 (commonly known as the ''National Apprenticeship Act'') (50 Stat. 664, chapter 663; 29 U.S.C. 50 et seq.), including, as in effect on December 30, 2019, any requirement, standard, or rule promulgated under that Act.

(3) AREA CAREER AND TECHNICAL EDUCATION SCHOOL.—The term ''area career and technical education school'' has the meaning given the term in section 3 of the Carl D. Perkins Career and Technical Education Act of 2006 (20 U.S.C. 2302).

(4) BOARD.—The term ''Board'' means the 21st Century Energy Workforce Advisory Board established under section 2304(a).

(5) COVERED FACILITY OF THE NATIONAL NUCLEAR SECURITY ADMINISTRATION.—The term ''covered facility of the National Nuclear Security Administration'' means a national security laboratory or a nuclear weapons production facility (as those terms are defined in section 4002 of the Atomic Energy Defense Act (50 U.S.C. 2501)).

(6) ELIGIBLE SPONSOR.—The term ''eligible sponsor'' means a public organization or an organization described in section 501(c) of the Internal Revenue Code of 1986 and exempt from tax under section 501(a) of that Code, that—

(A) with respect to an apprenticeship program, administers such program through a partnership that may include—

(i) a business;

(ii) an employer or industry association;

(iii) a labor-management organization;

(iv) a local workforce development board or State workforce development board;

(v) a 2- or 4-year institution of higher education that offers an educational program leading to an associate's or bachelor's degree in conjunction with a certificate of completion of apprenticeship;

(vi) the Armed Forces (including the National Guard and Reserves);

(vii) a community-based organization;

(viii) a labor organization with significant energy experience; or

(ix) an economic development agency; and

(B) with respect to a preapprenticeship program, is a local educational agency, a secondary school, an area career and technical education school, a State workforce development board, a local workforce development board, a labor organization, or a community-based organization, that administers such program with any required coordination and necessary approvals from the Secretary of Labor or a State department of labor.

(7) INDIAN TRIBE.—The term ''Indian tribe'' has the meaning given the term in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5304).

(8) INSTITUTION OF HIGHER EDUCATION.—The term ''institution of higher education'' has the meaning given the term in section 101 and subparagraphs (A) and (B) of section 102(a)(1) of the Higher Education Act of 1965 (20 U.S.C. 1001, 1002(a)(1)).

(9) LABOR ORGANIZATION.—The term ''labor organization'' has the meaning given the term in section 2 of the National Labor Relations Act (29 U.S.C. 152).

(10) LOCAL EDUCATIONAL AGENCY.—The term ''local educational agency'' has the meaning given the term in section 8101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7801).

(11) LOCAL WORKFORCE DEVELOPMENT BOARD.—The term ''local workforce development board'' has the meaning given the term ''local board'' in section 3 of the Workforce Innovation and Opportunity Act (29 U.S.C. 3102).

(12) MINORITY-SERVING INSTITUTION.—The term ''minority-serving institution'' means an institution of higher education eligible to receive funds under section 320 or 371(a) of the Higher Education Act of 1965 (20 U.S.C. 1059g, 1067q(a)).

(13) PREAPPRENTICESHIP.—The term ''preapprenticeship'', used with respect to a program, means an initiative or set of strategies that—

(A) is designed to prepare participants to enter an apprenticeship program;

(B) is carried out by an eligible sponsor that has a documented partnership with 1 or more sponsors of apprenticeship programs; and

(C) includes each of the following:

(i) Training (including a curriculum for the training) aligned with industry standards related to an apprenticeship program and reviewed and approved annually by sponsors of the apprenticeship program within the documented partnership that will prepare participants by teaching the skills and competencies needed to enter 1 or more apprenticeship programs.

(ii) Hands-on training and theoretical education for participants that does not displace a paid employee.

(iii) A formal agreement with a sponsor of an apprenticeship program that would enable participants who successfully complete the preapprenticeship program—

(I) to enter directly into the apprenticeship program if a place in the program is available and if the participant meets the qualifications of the apprenticeship program; and

(II) to earn credits towards the apprenticeship program.

(14) SECONDARY SCHOOL.—The term ''secondary school'' has the meaning given the term in section 8101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7801).

(15) STATE WORKFORCE DEVELOPMENT BOARD.—The term ''State workforce development board'' has the meaning given the term ''State board'' in section 3 of the Workforce Innovation and Opportunity Act (29 U.S.C. 3102).

(16) TRIBAL ORGANIZATION.—The term ''tribal organization'' has the meaning given the term in section 3765 of title 38, United States Code.

SEC. 2302. ADDRESSING INSUFFICIENT COMPENSATION OF EMPLOYEES AND OTHER PERSONNEL OF THE FEDERAL ENERGY REGULATORY COMMISSION.

(a) IN GENERAL.—Section 401 of the Department of Energy Organization Act (42 U.S.C. 7171) is amended by adding at the end the following:

''(k) ADDRESSING INSUFFICIENT COMPENSATION OF EMPLOYEES AND OTHER PERSONNEL OF THE COMMISSION.—

''(1) IN GENERAL.—Notwithstanding any other provision of law, if the Chairman publicly certifies that compensation for a category of employees or other personnel of the Commission is insufficient to retain or attract employees and other personnel to allow the Commission to carry out the functions of the Commission in a timely, efficient, and effective manner, the Chairman may fix the compensation for the category of employees or other personnel without regard to chapter 51 and subchapter III of chapter 53 of title 5, United States Code, or any other civil service law.

''(2) CERTIFICATION REQUIREMENTS.—A certification issued under paragraph (1) shall—

''(A) apply with respect to a category of employees or other personnel responsible for conducting work of a scientific, technological, engineering, or mathematical nature;

''(B) specify a maximum amount of reasonable compensation for the category of employees or other personnel;

''(C) be valid for a 5-year period beginning on the date on which the certification is issued;

''(D) be no broader than necessary to achieve the objective of retaining or attracting employees and other personnel to allow the Commission to carry out the functions of the Commission in a timely, efficient, and effective manner; and

''(E) include an explanation for why the other approaches available to the Chairman for retaining and attracting employees and other personnel are inadequate.

''(3) RENEWAL.—

''(A) IN GENERAL.—Not later than 90 days before the date of expiration of a certification issued under paragraph (1), the Chairman shall determine whether the certification should be renewed for a subsequent 5-year period.

''(B) REQUIREMENT.—If the Chairman determines that a certification should be renewed under subparagraph (A), the Chairman may renew the certification, subject to the certification requirements under paragraph (2) that were applicable to the initial certification.

''(4) NEW HIRES.—

''(A) IN GENERAL.—An employee or other personnel that is a member of a category of employees or other personnel that would have been covered by a certification issued under paragraph (1), but was hired during a period in which the certification has expired and has not been renewed under paragraph (3) shall not be eligible for compensation at the level that would have applied to the employee or other personnel if the certification had been in effect on the date on which the employee or other personnel was hired.

''(B) COMPENSATION OF NEW HIRES ON RENEWAL.—On renewal of a certification under paragraph (3), the Chairman may fix the compensation of the employees or other personnel described in subparagraph (A) at the level established for the category of employees or other personnel in the certification.

''(5) RETENTION OF LEVEL OF FIXED COMPENSATION.—A category of employees or other personnel, the compensation of which was fixed by the Chairman in accordance with paragraph (1), may, at the discretion of the Chairman, have the level of fixed compensation for the category of employees or other personnel retained, regardless of whether a certification described under that paragraph is in effect with respect to the compensation of the category of employees or other personnel.

''(6) CONSULTATION REQUIRED.—The Chairman shall consult with the Director of the Office of Personnel Management in implementing this subsection, including in the determination of the amount of compensation with respect to each category of employees or other personnel.

''(7) EXPERTS AND CONSULTANTS.—

''(A) IN GENERAL.—Subject to subparagraph (B), the Chairman may—

''(i) obtain the services of experts and consultants in accordance with section 3109 of title 5, United States Code;

''(ii) compensate those experts and consultants for each day (including travel time) at rates not in excess of the rate of pay for level IV of the Executive Schedule under section 5315 of that title; and

''(iii) pay to the experts and consultants serving away from the homes or regular places of business of the experts and consultants travel expenses and per diem in lieu of subsistence at rates authorized by sections 5702 and 5703 of that title for persons in Government service employed intermittently.

''(B) LIMITATIONS.—The Chairman shall—

''(i) to the maximum extent practicable, limit the use of experts and consultants pursuant to subparagraph (A); and

''(ii) ensure that the employment contract of each expert and consultant employed pursuant to subparagraph (A) is subject to renewal not less frequently than annually.''.

(b) REPORTS.—

(1) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, and every 2 years thereafter for 10 years, the Chairman of the Federal Energy Regulatory Commission shall submit to the Committee on Energy and Commerce of the House of Representatives and the Committee on Energy and Natural Resources of the Senate a report on information relating to hiring, vacancies, and compensation at the Federal Energy Regulatory Commission.

(2) INCLUSIONS.—Each report under paragraph (1) shall include—

(A) an analysis of any trends with respect to hiring, vacancies, and compensation at the Federal Energy Regulatory Commission; and

(B) a description of the efforts to retain and attract employees or other personnel responsible for conducting work of a scientific, technological, engineering, or mathematical nature at the Federal Energy Regulatory Commission.

(c) APPLICABILITY.—The amendment made by subsection (a) shall apply beginning on the date that is 30 days after the date of enactment of this Act.

SEC. 2303. REPORT ON THE AUTHORITY OF THE SECRETARY TO IMPLEMENT FLEXIBLE COMPENSATION MODELS.

Not later than 180 days after the date of enactment of this Act, the Secretary shall submit to Congress a report examining the full scope of the hiring authority made available to the Secretary by the Office of Personnel Management to implement flexible compensation models, including pay for performance and pay banding, throughout the Department, including at the National Laboratories, for the purposes of hiring, recruiting, and retaining employees responsible for conducting work of a scientific, technological, engineering, or mathematical nature.

SEC. 2304. 21ST CENTURY ENERGY WORKFORCE ADVISORY BOARD.

(a) ESTABLISHMENT.—The Secretary shall establish a board, to be known as the ''21st Century Energy Workforce Advisory Board'', to develop a strategy for the Department that, with respect to the role of the Department in the support and development of a skilled energy workforce—

(1) meets the current and future industry and labor needs of the energy sector;

(2) provides opportunities for students to become qualified for placement in traditional energy sector and clean energy sector jobs;

(3) identifies areas in which the Department can effectively utilize the technical expertise of the Department to support the workforce activities of other Federal agencies;

(4) strengthens and engages the workforce training programs of the Department and the National Laboratories in carrying out the Minorities in Energy Initiative of the Department and other Department workforce priorities;

(5) develops plans to support and retrain displaced and unemployed energy sector workers; and

(6) prioritizes education and job training for underrepresented groups, including racial and ethnic minorities, Indian tribes, women, veterans, and socioeconomically disadvantaged individuals.

(b) MEMBERSHIP.—

(1) IN GENERAL.—The Board shall be composed of not fewer than 10 and not more than 15 members, with the initial members of the Board to be appointed by the Secretary not later than 1 year after the date of enactment of this Act.

(2) REQUIREMENT.—The Board shall include not fewer than 1 representative of a labor organization with significant energy experience who has been nominated by a national labor federation.

(3) QUALIFICATIONS.—Each individual appointed to the Board under paragraph (1) shall have expertise in—

(A) the field of economics or workforce development;

(B) relevant traditional energy industries or clean energy industries;

(C) secondary or postsecondary education;

(D) energy workforce development or apprenticeship programs of States or units of local government;

(E) relevant organized labor organizations; or

(F) bringing underrepresented groups, including racial and ethnic minorities, women, veterans, and socioeconomically disadvantaged individuals, into the workforce.

(4) LIMITATION.—No individual shall be appointed to the Board who is an employee or a board member of an entity applying for a grant under section 2305 or 2306.

(c) ADVISORY BOARD REVIEW AND RECOMMENDATIONS.—

(1) DETERMINATION BY BOARD.—In developing the strategy required under subsection (a), the Board shall—

(A) determine whether there are opportunities to more effectively and efficiently use the capabilities of the Department in the development of a skilled energy workforce;

(B) identify ways in which the Department could work with other relevant Federal agencies, States, units of local government, institutions of higher education, labor organizations, Indian tribes and tribal organizations, and industry in the development of a skilled energy workforce;

(C) identify ways in which the Department and National Laboratories can—

(i) increase outreach to minority-serving institutions; and

(ii) make resources available to increase the number of skilled minorities and women trained to go into the energy- and manufacturing-related sectors;

(iii) increase outreach to displaced and unemployed energy sector workers; and

(iv) make resources available to provide training to displaced and unemployed energy sector workers to reenter the energy workforce; and

(D)(i) identify the energy sectors in greatest need of workforce training; and

(ii) in consultation with the Secretary of Labor, develop guidelines for the skills necessary to develop a workforce trained to work in those energy sectors.

(2) REQUIRED ANALYSIS.—In developing the strategy required under subsection (a), the Board shall analyze the effectiveness of—

(A) existing Department-directed support; and

(B) developing energy workforce training programs.

(3) REPORT.—

(A) IN GENERAL.—Not later than 1 year after the date on which the Board is established under this section, and biennially thereafter until the date on which the Board is terminated under subsection (g), the Board shall submit to the Secretary a report containing, with respect to the strategy required under subsection (a)—

(i) the findings of the Board; and

(ii) the proposed energy workforce strategy of the Board.

(B) RESPONSE OF THE SECRETARY.—Not later than 60 days after the date on which a report is submitted to the Secretary under subparagraph (A), the Secretary shall—

(i) submit to the Board a response to the report that—

(I) describes whether the Secretary approves or disapproves of each recommendation of the Board under subparagraph (A); and

(II) if the Secretary approves of a recommendation, provides an implementation plan for the recommendation; and

(ii) submit to Congress—

(I) the report of the Board under subparagraph (A); and

(II) the response of the Secretary under clause (i).

(C) PUBLIC AVAILABILITY OF REPORT.—

(i) IN GENERAL.—The Board shall make each report under subparagraph (A) available to the public on the earlier of—

(I) the date on which the Board receives the response of the Secretary under subparagraph (B)(i); and

(II) the date that is 90 days after the date on which the Board submitted the report to the Secretary.

(ii) REQUIREMENT.—If the Board has received a response to a report from the Secretary under subparagraph (B)(i), the Board shall make that response publicly available with the applicable report.

(d) ENERGY JOBS SURVEY AND ANALYSIS.—

(1) IN GENERAL.—The Secretary, acting through the Administrator of the Energy Information Administration, shall—

(A) conduct a voluntary survey of employers in the energy, energy efficiency, and motor vehicle sectors of the economy of the United States; and

(B) perform an analysis of the employment figures and demographics in those sectors, including the number of personnel in each sector who devote a substantial portion of working hours, as determined by the Secretary, to compliance matters.

(2) METHODOLOGY.—In conducting the survey and analysis under paragraph (1), the Secretary shall employ a methodology that—

(A) was approved in 2016 by the Office of Management and Budget for use in the document entitled ''OMB Control Number 1910–5179'';

(B) uses a representative, stratified sampling of businesses in the United States; and

(C) is designed to elicit a comparable number of responses from businesses in each State and with the same North American Industry Classification System codes as were received for the 2016 and 2017 reports entitled ''U.S. Energy and Employment Report''.

(3) CONSULTATION.—In conducting the survey and analysis under paragraph (1), the Secretary shall consult with key stakeholders, including—

(A) as the Secretary determines to be appropriate, the heads of relevant Federal agencies and offices, including—

(i) the Secretary of Commerce;

(ii) the Secretary of Transportation;

(iii) the Director of the Bureau of the Census;

(iv) the Commissioner of the Bureau of Labor Statistics; and

(v) the Administrator of the Environmental Protection Agency;

(B) officials of State agencies responsible for maintaining State employment data;

(C) the State Energy Advisory Board established by section 365(g) of the Energy Policy and Conservation Act (42 U.S.C. 6325(g));

(D) energy industry trade associations; and

(E) labor organizations with significant energy experience.

(e) REPORTS BY THE SECRETARY.—

(1) REPORT ON WORKFORCE BOARD.—Not later than 180 days before the date of expiration of a term of the Board under subsection (g), the Secretary shall submit to the Committees on Energy and Natural Resources and Appropriations of the Senate and the Committees on Energy and Commerce and Appropriations of the House of Representatives a report that—

(A) describes the effectiveness and accomplishments of the Board during the applicable term;

(B) contains a determination of the Secretary as to whether the Board should be renewed; and

(C) if the Secretary determines that the Board should be renewed, any recommendations as to whether and how the scope and functions of the Board should be modified.

(2) ENERGY AND EMPLOYMENT REPORT.—

(A) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, and annually thereafter, the Secretary shall—

(i) make publicly available on the website of the Department a report, to be entitled the ''U.S. Energy and Employment Report'', describing the employment figures and demographics in the energy, energy efficiency, and motor vehicle sectors of the United States based on the survey and analysis conducted under subsection (d); and

(ii) subject to the requirements of the Confidential Information Protection and Statistical Efficiency Act of 2002 (44 U.S.C. 3501 note; Public Law 107–347), make the data collected under subsection (d) publicly available on the website of the Department.

(B) CONTENTS.—

(i) IN GENERAL.—The report under subparagraph (A) shall include employment figures and demographic data for—

(I) the energy sector of the economy of the United States, including—

(aa) the electric power generation and fuels sectors; and

(bb) the transmission, storage, and distribution sectors;

(II) the energy efficiency sector of the economy of the United States; and

(III) the motor vehicle sector of the economy of the United States.

(ii) INCLUSION.—With respect to each sector described in clause (i), the report under subparagraph (A) shall include employment figures and demographic data sorted by—

(I) each technology, subtechnology, and fuel type of those sectors; and

(II) subject to the requirements of the Confidential Information Protection and Statistical Efficiency Act of 2002 (44 U.S.C. 3501 note; Public Law 107–347)—

(aa) each State;

(bb) each territory of the United States;

(cc) the District of Columbia; and

(dd) to the maximum extent practicable, each county (or equivalent jurisdiction) in the United States.

(f) OUTREACH TO MINORITY-SERVING INSTITUTIONS, VETERANS, AND DISPLACED AND UNEMPLOYED ENERGY WORKERS.—In developing the strategy under subsection (a), the Board shall—

(1) give special consideration to increasing outreach to minority-serving institutions, veterans, and displaced and unemployed energy workers;

(2) make resources available to—

(A) minority-serving institutions, with the objective of increasing the number of skilled minorities and women trained to go into the energy and manufacturing sectors;

(B) institutions that serve veterans, with the objective of increasing the number veterans in the energy industry by ensuring that veterans have the credentials and training necessary to secure careers in the energy industry; and

(C) institutions that serve displaced and unemployed energy workers to increase the number of individuals trained for jobs in the energy industry;

(3) encourage the energy industry to improve the opportunities for students of minority-serving institutions, veterans, and displaced and unemployed energy workers to participate in internships, preapprenticeships, and cooperative work-study programs in the energy industry; and

(4) work with the National Laboratories to increase the participation of underrepresented groups, veterans, and displaced and unemployed energy workers in internships, fellowships, training programs, and employment at the National Laboratories.

(g) TERM.—

(1) IN GENERAL.—Subject to paragraph (2), the Board shall terminate on September 30, 2025.

(2) EXTENSIONS.—The Secretary may renew the Board for 1 or more 5-year periods by submitting, not later than the date described in subsection (e)(1), a report described in that subsection that contains a determination by the Secretary that the Board should be renewed.

SEC. 2305. NATIONAL LABORATORY JOBS ACCESS PILOT PROGRAM.

(a) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Secretary, in consultation with the Secretary of Labor, shall establish a pilot program to award, on a competitive basis, grants to eligible entities described in subsection (c) for the Federal share of the costs of technical, skills-based preapprenticeship and apprenticeship programs that provide employer-driven or recognized postsecondary credentials.

(b) REQUIREMENTS.—A program funded by a grant awarded under this section shall develop and deliver customized and competency-based training that—

(1) is focused on skills and qualifications needed to meet the immediate and on-going needs of traditional and emerging technician positions (including machinists and cyber security technicians) at the National Laboratories and covered facilities of the National Nuclear Security Administration;

(2) creates an apprenticeship program or preapprenticeship partnership with a National Laboratory or covered facility of the National Nuclear Security Administration; and

(3) creates an apprenticeship program or preapprenticeship program with the Secretary of Labor or a State department of labor in coordination with a National Laboratory or covered facility of the National Nuclear Security Administration.

(c) ELIGIBLE ENTITIES.—To be eligible to receive a grant under this section, an entity shall be an eligible sponsor that—

(1) demonstrates experience in implementing and operating apprenticeship programs or preapprenticeship programs;

(2)(A) has a relationship with a National Laboratory or covered facility of the National Nuclear Security Administration;

(B) has knowledge of technician workforce needs of such laboratory or facility and the associated security requirements of such laboratory or facility; and

(C) is eligible to enter into an agreement with such laboratory or facility that would be paid for in part or entirely from grant funds received under this section;

(3) demonstrates the ability to recruit and support individuals who plan to work in the energy industry in the successful completion of relevant job training and education programs;

(4) provides students who complete a program funded by a grant awarded under this section with a recognized postsecondary credential; and

(5) demonstrates successful outcomes connecting graduates of preapprenticeship or apprenticeship programs to careers relevant to such programs.

(d) APPLICATIONS.—An eligible entity desiring a grant under this section shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary may require.

(e) PRIORITY.—In selecting eligible entities to receive grants under this section, the Secretary shall prioritize applicants that—

(1) house the preapprenticeship or apprenticeship programs in an institution of higher education that includes basic science and math education in the curriculum of the institution of higher education;

(2) work with the Secretary of Defense and the Secretary of Veterans Affairs or veteran service organizations recognized by the Secretary of Veterans Affairs under section 5902 of title 38, United States Code, to transition members of the Armed Forces and veterans to careers in the energy sector;

(3) work with—

(A) Indian tribes;

(B) tribal organizations; and

(C) Native American veterans (as defined in section 3765 of title 38, United States Code), including veterans who are descendants of Natives (as defined in section 3 of the Alaska Native Claims Settlement Act (43 U.S.C. 1602));

(4) apply as a State or regional consortia to leverage best practices already available in the State or region in which an institution of higher education is located;

(5) have a State-supported entity included in the consortium applying for the grant;

(6) provide support services and career coaching;

(7) provide introductory energy workforce development training;

(8) work with minority-serving institutions to provide job training to increase the number of skilled minorities and women in the energy sector; or

(9) provide job training for displaced and unemployed workers in the energy sector.

(f) ADDITIONAL CONSIDERATION.—In making grants under this section, the Secretary shall consider regional diversity.

(g) LIMITATION ON APPLICATIONS.—An eligible entity may not submit, either individually or as part of a joint application, more than 1 application for a grant under this section during any 1 fiscal year.

(h) LIMITATIONS ON AMOUNT OF GRANT.—The amount of an individual grant for any 24-month period shall not exceed $500,000.

(i) FEDERAL SHARE.—The Federal share of the cost of a preapprenticeship or apprenticeship program carried out using a grant under this section shall be not greater than 50 percent.

(j) REPORT.—Not later than 1 year after the date on which the first grant is awarded under this section, and annually thereafter for 5 years, the Secretary shall submit to Congress and make publicly available on the website of the Department a report on the pilot program established under this section, including a description of—

(1) the entities receiving grants;

(2) the activities carried out using the grants;

(3) best practices used to leverage the investment of the Federal Government; and

(4) an assessment of the results achieved by the pilot program, including the rate of employment at the National Laboratories for participants after completing a preapprenticeship or apprenticeship program carried out using a grant awarded under this section.

(k) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section $5,000,000 for each of fiscal years 2021 through 2025.

SEC. 2306. CLEAN ENERGY WORKFORCE PILOT PROGRAM.

(a) DEFINITIONS.—In this section:

(1) ELIGIBLE ENTITY.—The term ''eligible entity'' means a business, labor organization, or labor management organization that—

(A)(i) is directly involved with energy efficiency, renewable energy technology, or reduction in greenhouse gas emissions, as determined by the Secretary of Labor in consultation with the Secretary; or

(ii) works on behalf of a business or labor management organization that is directly involved with energy efficiency, renewable energy technology, or reduction in greenhouse gas emissions, as determined by the Secretary of Labor in consultation with the Secretary; or

(B) provides services related to—

(i) energy efficiency and renewable energy technology deployment and maintenance;

(ii) grid modernization; or

(iii) reduction in greenhouse gas emissions through the use of other low-carbon technologies.

(2) LABOR MANAGEMENT ORGANIZATION.—The term ''labor management organization'' includes a nonprofit organization or qualified youth or conservation corps that provides training to individuals to work for an eligible entity that is a business, or works on behalf of an eligible entity that is a business.

(3) PILOT PROGRAM.—The term ''pilot program'' means the pilot program established under subsection (b).

(b) ESTABLISHMENT.—The Secretary of Labor, in consultation with the Secretary and in accordance with section 169(b) of the Workforce Innovation and Opportunity Act (29 U.S.C. 3224(b)), shall establish a pilot program to provide competitively awarded cost-shared grants to eligible entities to pay for—

(1) on-the-job training of a new or existing employee to work—

(A) in renewable energy, energy efficiency, or grid modernization; or

(B) on the reduction of greenhouse gas emissions; or

(2) preapprenticeship programs that provide a direct pathway to a career working—

(A) in renewable energy, energy efficiency, or grid modernization; or

(B) on the reduction of greenhouse gas emissions.

(c) GRANTS.—

(1) IN GENERAL.—An eligible entity desiring a grant under the pilot program shall submit to the Secretary of Labor an application at such time, in such manner, and containing such information as the Secretary of Labor may require.

(2) PRIORITY FOR TARGETED COMMUNITIES.—In providing grants under the pilot program, the Secretary of Labor, in consultation with the Secretary shall give priority to an eligible entity that—

(A) recruits employees—

(i) from the 1 or more communities that are served by the eligible entity; and

(ii) that are minorities, women, veterans, or individuals who are transitioning from fossil energy sector jobs;

(B) provides trainees with the opportunity to obtain real-world experience;

(C) has fewer than 100 employees; and

(D) in the case of a preapprenticeship program, demonstrates—

(i) a multi-year record of—

(I) successfully recruiting minorities, women, and veterans for training; and

(II) supporting those individuals in the successful completion of the preapprenticeship program; and

(ii) a successful multi-year record of placing the majority of the graduates of the preapprenticeship program into apprenticeship programs.

(3) USE OF GRANT FOR FEDERAL SHARE.—

(A) IN GENERAL.—An eligible entity shall use a grant received under the pilot program to pay the Federal share of the cost of—

(i) providing on-the-job training for an employee, in accordance with subparagraph (B); or

(ii) in the case of a preapprenticeship program—

(I) recruiting minorities, women, and veterans for training;

(II) supporting those individuals in the successful completion of the preapprenticeship program; and

(III) carrying out any other activity of the preapprenticeship program, as determined to be appropriate by the Secretary of Labor, in consultation with the Secretary.

(B) FEDERAL SHARE AMOUNT.—The Federal share described in subparagraph (A) shall not exceed—

(i) for activities described in clause (i) of that subparagraph—

(I) in the case of an eligible entity with 20 or fewer employees, 45 percent of the cost of on-the-job-training for an employee;

(II) in the case of an eligible entity with not fewer than 21 employees and not more than 99 employees, 37.5 percent of the cost of on-the-job-training for an employee; and

(III) in the case of an eligible entity with not fewer than 100 employees, 25 percent of the cost of on-the-job-training for an employee; and

(ii) for activities described in clause (ii) of that subparagraph, 50 percent.

(4) EMPLOYER PAYMENT OF NON-FEDERAL SHARE.—

(A) IN GENERAL.—The non-Federal share of the cost of providing on-the-job training for an employee under a grant received under the pilot program shall be paid in cash or in kind by the employer of the employee receiving the training.

(B) INCLUSIONS.—The non-Federal share described in subparagraph (A)(i) may include the amount of wages paid by the employer to the employee during the time that the employee is receiving on-the-job training, as fairly evaluated by the Secretary of Labor.

(5) GRANT AMOUNT.—An eligible entity may not receive more than $100,000 per fiscal year in grant funds under the pilot program.

(d) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section $15,000,000 for each of fiscal years 2021 through 2023.

TITLE III—CODE MAINTENANCE

SEC. 3001. REPEAL OF OFF-HIGHWAY MOTOR VEHICLES STUDY.

(a) REPEAL.—Part I of title III of the Energy Policy and Conservation Act (42 U.S.C. 6373) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Energy Policy and Conservation Act (Public Law 94–163; 89 Stat. 871) is amended—

(1) by striking the item relating to part I of title III; and

(2) by striking the item relating to section 385.

SEC. 3002. REPEAL OF METHANOL STUDY.

Section 400EE of the Energy Policy and Conservation Act (42 U.S.C. 6374d) is amended—

(1) by striking subsection (a); and

(2) by redesignating subsections (b) and (c) as subsections (a) and (b), respectively.

SEC. 3003. REPEAL OF STATE UTILITY REGULATORY ASSISTANCE.

(a) REPEAL.—Section 207 of the Energy Conservation and Production Act (42 U.S.C. 6807) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Energy Conservation and Production Act (Public Law 94–385; 90 Stat. 1126) is amended by striking the item relating to section 207.

SEC. 3004. REPEAL OF AUTHORIZATION OF APPROPRIATIONS PROVISION.

(a) REPEAL.—Section 208 of the Energy Conservation and Production Act (42 U.S.C. 6808) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Energy Conservation and Production Act (Public Law 94–385; 90 Stat. 1126) is amended by striking the item relating to section 208.

SEC. 3005. REPEAL OF RESIDENTIAL ENERGY EFFICIENCY STANDARDS STUDY.

(a) REPEAL.—Section 253 of the National Energy Conservation Policy Act (42 U.S.C. 8232) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the National Energy Conservation Policy Act (Public Law 95–619; 92 Stat. 3206) is amended by striking the item relating to section 253.

SEC. 3006. REPEAL OF WEATHERIZATION STUDY.

(a) REPEAL.—Section 254 of the National Energy Conservation Policy Act (42 U.S.C. 8233) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the National Energy Conservation Policy Act (Public Law 95–619; 92 Stat. 3206) is amended by striking the item relating to section 254.

SEC. 3007. REPEAL OF REPORT TO CONGRESS.

(a) REPEAL.—Section 273 of the National Energy Conservation Policy Act (42 U.S.C. 8236b) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the National Energy Conservation Policy Act (Public Law 95–619; 92 Stat. 3206) is amended by striking the item relating to section 273.

SEC. 3008. REPEAL OF SURVEY OF ENERGY SAVING POTENTIAL.

(a) REPEAL.—Section 550 of the National Energy Conservation Policy Act (42 U.S.C. 8258b) is repealed.

(b) CONFORMING AMENDMENTS.—

(1) The table of contents for the National Energy Conservation Policy Act (Public Law 95–619; 92 Stat. 3206; 106 Stat. 2851) is amended by striking the item relating to section 550.

(2) Section 543(d)(2) of the National Energy Conservation Policy Act (42 U.S.C. 8253(d)(2)) is amended by striking '', incorporating any relevant information obtained from the survey conducted pursuant to section 550''.

SEC. 3009. REPEAL OF REPORT BY GENERAL SERVICES ADMINISTRATION.

(a) REPEAL.—Section 154 of the Energy Policy Act of 1992 (42 U.S.C. 8262a) is repealed.

(b) CONFORMING AMENDMENTS.—

(1) The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 154.

(2) Section 159 of the Energy Policy Act of 1992 (42 U.S.C. 8262e) is amended by striking subsection (c).

SEC. 3010. REPEAL OF INTERGOVERNMENTAL ENERGY MANAGEMENT PLANNING AND COORDINATION WORKSHOPS.

(a) REPEAL.—Section 156 of the Energy Policy Act of 1992 (42 U.S.C. 8262b) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 156.

SEC. 3011. REPEAL OF INSPECTOR GENERAL AUDIT SURVEY AND PRESIDENT'S COUNCIL ON INTEGRITY AND EFFICIENCY REPORT TO CONGRESS.

(a) REPEAL.—Section 160 of the Energy Policy Act of 1992 (42 U.S.C. 8262f) is amended by striking the section designation and heading and all that follows through ''(c) INSPECTOR GENERAL REVIEW.—Each Inspector General'' and inserting the following:

''SEC. 160. INSPECTOR GENERAL REVIEW.

''Each Inspector General''.

(b) CONFORMING AMENDMENT.—The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 160 and inserting the following:

''Sec. 160. Inspector General review.''.

SEC. 3012. REPEAL OF PROCUREMENT AND IDENTIFICATION OF ENERGY EFFICIENT PRODUCTS PROGRAM.

(a) REPEAL.—Section 161 of the Energy Policy Act of 1992 (42 U.S.C. 8262g) is repealed.

(b) CONFORMING AMENDMENTS.—

(1) The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 161.

(2) Section 548(b) of the National Energy Conservation Policy Act (42 U.S.C. 8258(b)) (as amended by section 1033(a)) is amended—

(A) in paragraph (3), by inserting ''and'' after the semicolon at the end;

(B) by striking paragraph (4); and

(C) by redesignating paragraph (5) as paragraph (4).

SEC. 3013. REPEAL OF PHOTOVOLTAIC ENERGY PROGRAM.

(a) REPEAL.—Part 4 of title V of the National Energy Conservation Policy Act (42 U.S.C. 8271 et seq.) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the National Energy Conservation Policy Act (Public Law 95–619; 92 Stat. 3206) is amended—

(1) by striking the item relating to part 4 of title V; and

(2) by striking the items relating to sections 561 through 570.

SEC. 3014. REPEAL OF NATIONAL ACTION PLAN FOR DEMAND RESPONSE.

(a) REPEAL.—Part 5 of title V of the National Energy Conservation Policy Act (42 U.S.C. 8279) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the National Energy Conservation Policy Act (Public Law 95–619; 92 Stat. 3206; 121 Stat. 1665) is amended—

(1) by striking the item relating to part 5 of title V; and

(2) by striking the item relating to section 571.

SEC. 3015. REPEAL OF ENERGY AUDITOR TRAINING AND CERTIFICATION.

(a) REPEAL.—Subtitle F of title V of the Energy Security Act (42 U.S.C. 8285 et seq.) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Energy Security Act (Public Law 96–294; 94 Stat. 611) is amended—

(1) by striking the item relating to subtitle F of title V; and

(2) by striking the items relating to sections 581 through 584.

SEC. 3016. REPEAL OF NATIONAL COAL POLICY STUDY.

(a) REPEAL.—Section 741 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8451) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Powerplant and Industrial Fuel Use Act of 1978 (Public Law 95–620; 92 Stat. 3289) is amended by striking the item relating to section 741.

SEC. 3017. REPEAL OF STUDY ON COMPLIANCE PROBLEM OF SMALL ELECTRIC UTILITY SYSTEMS.

(a) REPEAL.—Section 744 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8454) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Powerplant and Industrial Fuel Use Act of 1978 (Public Law 95–620; 92 Stat. 3289) is amended by striking the item relating to section 744.

SEC. 3018. REPEAL OF STUDY OF SOCIO-ECONOMIC IMPACTS OF INCREASED COAL PRODUCTION AND OTHER ENERGY DEVELOPMENT.

(a) REPEAL.—Section 746 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8456) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Powerplant and Industrial Fuel Use Act of 1978 (Public Law 95–620; 92 Stat. 3289) is amended by striking the item relating to section 746.

SEC. 3019. REPEAL OF STUDY OF THE USE OF PETROLEUM AND NATURAL GAS IN COMBUSTORS.

(a) REPEAL.—Section 747 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8457) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Powerplant and Industrial Fuel Use Act of 1978 (Public Law 95–620; 92 Stat. 3289) is amended by striking the item relating to section 747.

SEC. 3020. REPEAL OF AUTHORIZATION OF APPROPRIATIONS.

(a) REPEAL.—Subtitle F of title VII of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8461) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Powerplant and Industrial Fuel Use Act of 1978 (Public Law 95–620; 92 Stat. 3289) is amended—

(1) by striking the item relating to subtitle F of title VII; and

(2) by striking the item relating to section 751.

SEC. 3021. REPEAL OF SUBMISSION OF REPORTS.

(a) REPEAL.—Section 807 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8483) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Powerplant and Industrial Fuel Use Act of 1978 (Public Law 95–620; 92 Stat. 3289) is amended by striking the item relating to section 807.

SEC. 3022. REPEAL OF ELECTRIC UTILITY CONSERVATION PLAN.

(a) REPEAL.—Section 808 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8484) is repealed.

(b) CONFORMING AMENDMENTS.—

(1) TABLE OF CONTENTS.—The table of contents for the Powerplant and Industrial Fuel Use Act of 1978 (Public Law 95–620; 92 Stat. 3289) is amended by striking the item relating to section 808.

(2) REPORT ON IMPLEMENTATION.—Section 712 of the Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C. 8422) is amended—

(A) by striking ''(a) GENERALLY.—''; and

(B) by striking subsection (b).

SEC. 3023. EMERGENCY ENERGY CONSERVATION REPEALS.

(a) REPEALS.—

(1) Section 201 of the Emergency Energy Conservation Act of 1979 (42 U.S.C. 8501) is amended by striking the section designation and heading and all that follows through ''(b) PURPOSES.—The purposes'' and inserting the following:

''SEC. 201. PURPOSES.

''The purposes''.

(2) Part B of title II of the Emergency Energy Conservation Act of 1979 (42 U.S.C. 8521 et seq.) is repealed.

(3) Section 241 of the Emergency Energy Conservation Act of 1979 (42 U.S.C. 8531) is repealed.

(b) CONFORMING AMENDMENTS.—

(1) The table of contents for the Emergency Energy Conservation Act of 1979 (Public Law 96–102; 93 Stat. 749) is amended—

(A) by striking the item relating to section 201 and inserting the following:

''Sec. 201. Purposes.'';

(B) by striking the item relating to part B of title II; and

(C) by striking the items relating to sections 221, 222, and 241.

(2) Section 251(b) of the Emergency Energy Conservation Act of 1979 (42 U.S.C. 8541(b)) is amended—

(A) by striking ''or 221'' each place it appears; and

(B) by striking ''(as the case may be)''.

SEC. 3024. ENERGY SECURITY ACT REPEALS.

(a) BIOMASS ENERGY DEVELOPMENT PLANS.—Subtitle A of title II of the Energy Security Act (42 U.S.C. 8811 et seq.) is repealed.

(b) MUNICIPAL WASTE BIOMASS ENERGY.—Subtitle B of title II of the Energy Security Act (42 U.S.C. 8831 et seq.) is repealed.

(c) USE OF GASOHOL IN FEDERAL MOTOR VEHICLES.—Section 271 of the Energy Security Act (42 U.S.C. 8871) is repealed.

(d) CONFORMING AMENDMENTS.—

(1) The table of contents for the Energy Security Act (Public Law 96–294; 94 Stat. 611) is amended—

(A) by striking the items relating to subtitle A of title II;

(B) by striking the items relating to subtitle B of title II;

(C) by striking the item relating to section 204 and inserting the following:

''Sec. 204. Funding.'';

and

(D) by striking the item relating to section 271.

(2) Section 203 of the Biomass Energy and Alcohol Fuels Act of 1980 (42 U.S.C. 8802) is amended—

(A) by striking paragraph (16); and

(B) by redesignating paragraphs (17) through (19) as paragraphs (16) through (18), respectively.

(3) Section 204 of the Energy Security Act (42 U.S.C. 8803) is amended—

(A) in the section heading, by striking ''FOR SUBTITLES A AND B''; and

(B) in subsection (a)—

(i) in paragraph (1), by adding ''and'' after the semicolon at the end;

(ii) in paragraph (2), by striking ''; and'' at the end and inserting a period; and

(iii) by striking paragraph (3).

SEC. 3025. NUCLEAR SAFETY RESEARCH, DEVELOPMENT, AND DEMONSTRATION ACT OF 1980 REPEALS.

Sections 5 and 6 of the Nuclear Safety Research, Development, and Demonstration Act of 1980 (42 U.S.C. 9704, 9705) are repealed.

SEC. 3026. REPEAL OF RENEWABLE ENERGY AND ENERGY EFFICIENCY TECHNOLOGY COMPETITIVENESS ACT OF 1989.

(a) REPEAL.—The Renewable Energy and Energy Efficiency Technology Competitiveness Act of 1989 (42 U.S.C. 12001 et seq.) is repealed.

(b) CONFORMING AMENDMENTS.—

(1) Section 6(b)(3) of the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5905(b)(3)) (as amended by section 1205(c)(2)) is amended—

(A) in subparagraph (P), by adding ''and'' after the semicolon;

(B) by striking subparagraph (Q); and

(C) by redesignating subparagraph (R) as subparagraph (Q).

(2) Section 1204 of the Energy Policy Act of 1992 (42 U.S.C. 13313) is amended—

(A) in subsection (b), in the matter preceding paragraph (1), in the first sentence, by striking '', in consultation with'' and all that follows through ''under section 6 of the Renewable Energy and Energy Efficiency Technology Competitiveness Act of 1989,''; and

(B) in subsection (c), by striking '', in consultation with the Advisory Committee,''.

SEC. 3027. REPEAL OF HYDROGEN RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM.

The Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990 (42 U.S.C. 12401 et seq.) is repealed.

SEC. 3028. REPEAL OF STUDY ON ALTERNATIVE FUEL USE IN NONROAD VEHICLES AND ENGINES.

(a) IN GENERAL.—Section 412 of the Energy Policy Act of 1992 (42 U.S.C. 13238) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 412.

SEC. 3029. REPEAL OF LOW INTEREST LOAN PROGRAM FOR SMALL BUSINESS FLEET PURCHASES.

(a) IN GENERAL.—Section 414 of the Energy Policy Act of 1992 (42 U.S.C. 13239) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 414.

SEC. 3030. REPEAL OF TECHNICAL AND POLICY ANALYSIS FOR REPLACEMENT FUEL DEMAND AND SUPPLY INFORMATION.

(a) IN GENERAL.—Section 506 of the Energy Policy Act of 1992 (42 U.S.C. 13256) is repealed.

(b) CONFORMING AMENDMENTS.—

(1) The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 506.

(2) Section 507(m) of the Energy Policy Act of 1992 (42 U.S.C. 13257(m)) is amended by striking ''and section 506''.

SEC. 3031. REPEAL OF 1992 REPORT ON CLIMATE CHANGE.

(a) IN GENERAL.—Section 1601 of the Energy Policy Act of 1992 (42 U.S.C. 13381) is repealed.

(b) CONFORMING AMENDMENTS.—

(1) The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 1601.

(2) Section 1602(a) of the Energy Policy Act of 1992 (42 U.S.C. 13382(a)) is amended, in the matter preceding paragraph (1), in the third sentence, by striking ''the report required under section 1601 and''.

SEC. 3032. REPEAL OF DIRECTOR OF CLIMATE PROTECTOR ESTABLISHMENT.

(a) IN GENERAL.—Section 1603 of the Energy Policy Act of 1992 (42 U.S.C. 13383) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 1603.

SEC. 3033. REPEAL OF 1994 REPORT ON GLOBAL CLIMATE CHANGE EMISSIONS.

(a) IN GENERAL.—Section 1604 of the Energy Policy Act of 1992 (42 U.S.C. 13384) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 1604.

SEC. 3034. REPEAL OF TELECOMMUTING STUDY.

(a) IN GENERAL.—Section 2028 of the Energy Policy Act of 1992 (42 U.S.C. 13438) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 2028.

SEC. 3035. REPEAL OF ADVANCED BUILDINGS FOR 2005 PROGRAM.

(a) IN GENERAL.—Section 2104 of the Energy Policy Act of 1992 (42 U.S.C. 13454) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 2104.

SEC. 3036. REPEAL OF ENERGY RESEARCH, DEVELOPMENT, DEMONSTRATION, AND COMMERCIAL APPLICATION ADVISORY BOARD.

(a) IN GENERAL.—Section 2302 of the Energy Policy Act of 1992 (42 U.S.C. 13522) is repealed.

(b) CONFORMING AMENDMENTS.—

(1) The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 2302.

(2) Section 6 of the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5905) is amended—

(A) in subsection (a), in the matter preceding paragraph (1), in the first sentence, by striking '', in consultation with the Advisory Board established under section 2302 of the Energy Policy Act of 1992,'';

(B) in subsection (b)—

(i) in paragraph (1), in the first sentence, by striking '', in consultation with the Advisory Board established under section 2302 of the Energy Policy Act of 1992,''; and

(ii) in paragraph (2), in the second sentence, by striking '', in consultation with the Advisory Board established under section 2302 of the Energy Policy Act of 1992,''; and

(C) in subsection (c), in the first sentence, by striking '', in consultation with the Advisory Board established under section 2302 of the Energy Policy Act of 1992,''.

(3) Section 2011(c) of the Energy Policy Act of 1992 (42 U.S.C. 13411(c)) is amended, in the second sentence, by striking '', and with the Advisory Board established under section 2302''.

(4) Section 2304 of the Energy Policy Act of 1992 (42 U.S.C. 13523), is amended—

(A) in subsection (a), by striking '', in consultation with the Advisory Board established under section 2302,''; and

(B) in subsection (c), in the matter preceding paragraph (1), in the first sentence, by striking '', with the advice of the Advisory Board established under section 2302 of this Act,''.

SEC. 3037. REPEAL OF STUDY ON USE OF ENERGY FUTURES FOR FUEL PURCHASE.

(a) IN GENERAL.—Section 3014 of the Energy Policy Act of 1992 (42 U.S.C. 13552) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 3014.

SEC. 3038. REPEAL OF ENERGY SUBSIDY STUDY.

(a) IN GENERAL.—Section 3015 of the Energy Policy Act of 1992 (42 U.S.C. 13553) is repealed.

(b) CONFORMING AMENDMENT.—The table of contents for the Energy Policy Act of 1992 (Public Law 102–486; 106 Stat. 2776) is amended by striking the item relating to section 3015.

SEC. 3039. ELIMINATION AND CONSOLIDATION OF CERTAIN AMERICA COMPETES PROGRAMS.

(a) ELIMINATION OF PROGRAM AUTHORITIES.—

(1) NUCLEAR SCIENCE TALENT EXPANSION PROGRAM FOR INSTITUTIONS OF HIGHER EDUCATION.—Section 5004 of the America COMPETES Act (42 U.S.C. 16532) is repealed.

(2) HYDROCARBON SYSTEMS SCIENCE TALENT EXPANSION PROGRAM FOR INSTITUTIONS OF HIGHER EDUCATION.—Section 5005 of the America COMPETES Act (42 U.S.C. 16533) is amended—

(A) by striking subsection (e); and

(B) in subsection (f)—

(i) by striking paragraph (2);

(ii) by striking the subsection designation and heading and all that follows through ''There are'' in paragraph (1) and inserting the following:

''(e) AUTHORIZATION OF APPROPRIATIONS.—There are''; and

(iii) by redesignating subparagraphs (A) through (F) as paragraphs (1) through (6), respectively, and indenting appropriately.

(3) DISCOVERY SCIENCE AND ENGINEERING INNOVATION INSTITUTES.—Section 5008 of the America COMPETES Act (42 U.S.C. 16535) is repealed.

(4) ELIMINATION OF DUPLICATIVE AUTHORITY FOR EDUCATION PROGRAMS.—Sections 3181 and 3185 of the Department of Energy Science Education Enhancement Act (42 U.S.C. 7381l, 42 U.S.C. 7381n) are repealed.

(5) MENTORING PROGRAM.—Section 3195 of the Department of Energy Science Education Enhancement Act (42 U.S.C. 7381r) is repealed.

(b) REPEAL OF AUTHORIZATIONS.—

(1) DEPARTMENT OF ENERGY EARLY CAREER AWARDS FOR SCIENCE, ENGINEERING, AND MATHEMATICS RESEARCHERS.—Section 5006 of the America COMPETES Act (42 U.S.C. 16534) is amended by striking subsection (h).

(2) PROTECTING AMERICA'S COMPETITIVE EDGE (PACE) GRADUATE FELLOWSHIP PROGRAM.—Section 5009 of the America COMPETES Act (42 U.S.C. 16536) is amended by striking subsection (f).

(3) DISTINGUISHED SCIENTIST PROGRAM.—Section 5011 of the America COMPETES Act (42 U.S.C. 16537) is amended by striking subsection (j).

(c) CONSOLIDATION OF DUPLICATIVE PROGRAM AUTHORITIES.—

(1) UNIVERSITY NUCLEAR SCIENCE AND ENGINEERING SUPPORT.—Section 954 of the Energy Policy Act of 2005 (42 U.S.C. 16274) (as amended by section 1504(a)) is amended in subsection (a)—

(A) in paragraph (1), by inserting ''nuclear chemistry,'' after ''nuclear engineering,''; and

(B) in paragraph (2)—

(i) by redesignating subparagraphs (C) through (E) as subparagraphs (D) through (F), respectively; and

(ii) by inserting after subparagraph (B) the following:

''(C) award grants, not to exceed 5 years in duration, to institutions of higher education with existing academic degree programs in nuclear sciences and related fields—

''(i) to increase the number of graduates in nuclear science and related fields;

''(ii) to enhance the teaching and research of advanced nuclear technologies;

''(iii) to undertake collaboration with industry and National Laboratories; and

''(iv) to bolster or sustain nuclear infrastructure and research facilities of institutions of higher education, such as research and training reactors and laboratories;''.

(2) CONSOLIDATION OF DEPARTMENT OF ENERGY EARLY CAREER AWARDS FOR SCIENCE, ENGINEERING, AND MATHEMATICS RESEARCHERS PROGRAM AND DISTINGUISHED SCIENTIST PROGRAM.—

(A) FUNDING.—Section 971(c) of the Energy Policy Act of 2005 (42 U.S.C. 16311(c)) is amended by adding at the end the following:

''(8) For the Department of Energy early career awards for science, engineering, and mathematics researchers program under section 5006 of the America COMPETES Act (42 U.S.C. 16534) and the distinguished scientist program under section 5011 of that Act (42 U.S.C. 16537), $150,000,000 for each of fiscal years 2018 through 2022, of which not more than 65 percent of the amount made available for a fiscal year under this paragraph may be used to carry out section 5006 or 5011 of that Act.''.

(B) DEPARTMENT OF ENERGY EARLY CAREER AWARDS FOR SCIENCE, ENGINEERING, AND MATHEMATICS RESEARCHERS.—Section 5006 of the America COMPETES Act (42 U.S.C. 16534) is amended—

(i) in subsection (b)(1)—

(I) in the matter preceding subparagraph (A)—

(aa) by inserting ''average'' before ''amount''; and

(bb) by inserting ''for each year'' before ''shall'';

(II) in subparagraph (A), by striking ''$80,000'' and inserting ''$190,000''; and

(III) in subparagraph (B), by striking ''$125,000'' and inserting ''$490,000'';

(ii) in subsection (c)(1)(C)—

(I) in clause (i)—

(aa) by striking ''assistant professor or equivalent title'' and inserting ''untenured assistant or associate professor''; and

(bb) by inserting ''or'' after the semicolon at the end;

(II) by striking clause (ii); and

(III) by redesignating clause (iii) as clause (ii);

(iii) in subsection (d), by striking ''on a competitive, merit-reviewed basis'' and inserting ''through a competitive process using merit-based peer review'';

(iv) in subsection (e)—

(I) by striking the subsection designation and heading and all that follows through ''To be eligible'' in paragraph (1) and inserting the following:

''(e) SELECTION PROCESS AND CRITERIA.—To be eligible''; and

(II) by striking paragraph (2); and

(v) in subsection (f)(1), by striking ''nonprofit, nondegree-granting research organizations'' and inserting ''National Laboratories''.

(3) SCIENCE EDUCATION PROGRAMS.—Section 3164 of the Department of Energy Science Education Enhancement Act (42 U.S.C. 7381a) is amended—

(A) in subsection (b)—

(i) by striking paragraphs (1) and (2) and inserting the following:

''(1) IN GENERAL.—The Director of the Office of Science (referred to in this subsection as the 'Director') shall provide for appropriate coordination of science, technology, engineering, and mathematics education programs across all functions of the Department.

''(2) ADMINISTRATION.—In carrying out paragraph (1), the Director shall—

''(A) consult with—

''(i) the Assistant Secretary of Energy with responsibility for energy efficiency and renewable energy programs; and

''(ii) the Deputy Administrator for Defense Programs of the National Nuclear Security Administration; and

''(B) seek to increase the participation and advancement of women and underrepresented minorities at every level of science, technology, engineering, and mathematics education.''; and

(ii) in paragraph (3)—

(I) in subparagraph (D), by striking ''and'' at the end;

(II) by redesignating subparagraph (E) as subparagraph (F); and

(III) by inserting after subparagraph (D) the following:

''(E) represent the Department as the principal interagency liaison for all coordination activities under the President for science, technology, engineering, and mathematics education programs; and''; and

(B) in subsection (d)—

(i) by striking ''The Secretary'' and inserting the following:

''(1) IN GENERAL.—The Secretary''; and

(ii) by adding at the end the following:

''(2) REPORT.—Not later than 180 days after the date of enactment of this paragraph, the Director shall submit a report describing the impact of the activities assisted with the Fund established under paragraph (1) to—

''(A) the Committee on Science, Space, and Technology of the House of Representatives; and

''(B) the Committee on Energy and Natural Resources of the Senate.''.

(4) PROTECTING AMERICA'S COMPETITIVE EDGE (PACE) GRADUATE FELLOWSHIP PROGRAM.—Section 5009 of the America COMPETES Act (42 U.S.C. 16536) is amended—

(A) in subsection (c)—

(i) in paragraph (1) by striking '', involving'' and all that follows through ''Secretary''; and

(ii) in paragraph (2), by striking subparagraph (B) and inserting the following:

''(B) to demonstrate excellent academic performance and understanding of scientific or technical subjects; and'';

(B) in subsection (d)(1)(B)(i), by inserting ''full or partial'' before ''graduate tuition''; and

(C) in subsection (e), in the matter preceding paragraph (1), by striking ''Director of Science, Engineering, and Mathematics Education'' and inserting ''Director of the Office of Science.''.

(d) CONFORMING AMENDMENTS.—The table of contents for the America COMPETES ACT (Public Law 110–69; 121 Stat. 573) is amended by striking the items relating to sections 5004 and 5008.

SEC. 3040. REPEAL OF PRIOR LIMITATION ON COMPENSATION OF THE SECRETARY OF THE INTERIOR.

(a) IN GENERAL.—The Joint Resolution entitled ''Joint Resolution ensuring that the compensation and other emoluments attached to the office of Secretary of the Interior are those which were in effect on January 1, 2005'', approved January 16, 2009 (5 U.S.C. 5312 note; Public Law 111–1), is repealed.

(b) EFFECTIVE DATE.—This section shall take effect as though enacted on March 2, 2017.

SA 1408. Ms. MURKOWSKI submitted an amendment intended to be proposed by her to the bill S. 2657, to support innovation in advanced geothermal research and development, and for other purposes; which was ordered to lie on the table; as follows:

Amend the title so as to read: ''A bill to promote clean American energy innovation, strengthen national security, improve global competitiveness, and protect the environment.''.

SA 1409. Mr. THUNE submitted an amendment intended to be proposed to amendment SA 1407 submitted by Ms. MURKOWSKI and intended to be proposed to the bill S. 2657, to support innovation in advanced geothermal research and development, and for other purposes; which was ordered to lie on the table; as follows:

At the end of subtitle B of title I, add the following:

SEC. 12_____. UPPER MISSOURI RIVER BASIN REPOWERING FEASIBILITY STUDY.

(a) DEFINITIONS.—In this section:

(1) MAINSTEM DAM.—The term ''mainstem dam'' means each of the major dams operated by the Secretary of the Army in the Upper Missouri River Basin, including—

(A) Fort Peck Dam in the State of Montana;

(B) Garrison Dam in the State of North Dakota; and

(C) Oahe Dam, Big Bend Dam, Fort Randall Dam, and Gavins Point Dam in the State of South Dakota.

(2) UPPER MISSOURI RIVER BASIN.—The term ''Upper Missouri River Basin'' means the Missouri River Water Management Division (as defined by the Secretary of the Army) located above the Gavins Point Dam in the State of South Dakota.

(b) AUTHORIZATION OF STUDY.—The Secretary shall conduct a study on the potential for hydroelectric repowering in the Upper Missouri River Basin.

(c) CONTENTS.—The study under subsection (b) shall include an examination of the potential for repowering the existing mainstem dams in the Upper Missouri River Basin, including—

(1) possible upgrades to existing hydroelectric infrastructure to improve the capacity and efficiency of generation; and

(2) the estimated additional generating capacity associated with upgrades under paragraph (1).

(d) COORDINATION.—In carrying out the study under subsection (b), the Secretary may coordinate with the Secretary of Defense and the Secretary of the Interior.

(e) REPORT.—Not later than 2 years after the date of enactment of this Act, the Secretary shall submit to the appropriate committees of Congress a report describing the results of the study under subsection (b).

SA 1410. Mr. THUNE submitted an amendment intended to be proposed to amendment SA 1407 submitted by Ms. MURKOWSKI and intended to be proposed to the bill S. 2657, to support innovation in advanced geothermal research and development, and for other purposes; which was ordered to lie on the table; as follows:

At the end of subtitle B of title I, add the following:

SEC. 12_____. UPPER MISSOURI BASIN HYDROPOWER FEASIBILITY STUDY.

(a) IN GENERAL.—The Secretary shall conduct a study on the potential for hydroelectric expansion and development in the Upper Missouri Basin.

(b) CONTENTS.—The study under subsection (a) shall include an examination of the potential for adding hydroelectric capacity to existing, nonpowered dams in the Upper Missouri Basin, including—

(1) an assessment of dams with hydroelectric capacity of 1 megawatt or more; and

(2) for existing dams with a hydroelectric capacity of less than 1 megawatt, the possible use of innovative technologies to add hydroelectric capacity.

(c) COORDINATION.—In carrying out the study under subsection (a), the Secretary may coordinate with the Secretary of Defense and the Secretary of the Interior.