

American Energy Innovation Act

Section-By-Section Summary

February 2020

Title I **Innovation**

Subtitle A – Efficiency

Part 1 – Energy Savings and Industrial Competitiveness

Subpart A – Buildings

Chapter 1 – Building Efficiency

Section 1001. Commercial Building Energy Consumption Information Sharing.

Section 1001 requires the Energy Information Administration (EIA) and the Environmental Protection Agency (EPA) to submit to Congress an information sharing agreement relating to commercial building energy consumption data.

Section 1002. Energy Efficiency Materials Pilot Program.

Section 1002 requires the Secretary to establish a pilot program within one year of the date of enactment to award grants for the purpose of providing nonprofit buildings with energy-efficiency materials.

Section 1003. Coordination of Energy Retrofitting Assistance for Schools.

Section 1003 directs DOE’s Office of Energy Efficiency and Renewable Energy (EERE) to coordinate and disseminate information on existing federal programs that may be used to help initiate, develop, and finance energy efficiency, renewable energy, and energy retrofitting projects for schools.

Section 1004. Grants for Energy Efficiency Improvements and Renewable Energy Improvements at Public School Facilities.

Section 1004 authorizes the Secretary to award competitive grants to a consortium consisting of one local educational agency and one or more schools, nonprofit organizations, for-profit organizations, or community partners to make energy improvements.

Section 1005. Smart Building Acceleration.

Section 1005 directs the Secretary to establish a program to implement smart building technology and demonstrate the costs and benefits of smart buildings. The Secretary is required to select at least one building from among each of several key federal agencies (including the Departments of the Army, Navy, Air Force, Energy, Interior, Veterans Affairs, and GSA) for the implementation of smart building technologies in order to ensure a diverse selection of buildings based on size, type, and geographic location. Buildings that are federally owned and commercially operated may be included. The section requires the Secretary, as a part of the Better Building Challenge, to develop smart building accelerators to demonstrate innovative policies and approaches that will accelerate the transition to smart buildings in the public, institutional, and commercial building sectors, and to address key barriers to the integration of advanced building technologies and to accelerate the transition to smart buildings.

Chapter 2 – Worker Training and Capacity Building

Section 1011. Building Training and Assessment Centers.

Section 1011 directs the Secretary to provide grants to institutions of higher education and tribal colleges or universities to establish building training and assessment centers.

Section 1012. Career Skills Training.

Section 1012 directs the Secretary to provide grants to eligible entities to cover a portion of the cost of career skills training programs that lead to students receiving an industry-related certification for the installation of energy efficient building technologies.

Subpart B – Industrial Efficiency and Competitiveness

Section 1021. Purposes.

Section 1021 provides the purposes of this subpart.

Section 1022. Future of Industry Program and Industrial Research and Assessment Centers.

Section 1022 amends the Energy Independence and Security Act of 2007 (EISA, P.L. 110-140) to require the Secretary to establish Centers of Excellence at not more than five of the highest-performing industrial assessment centers to coordinate with and advise within their region on best practices for carrying out assessments.

Section 1023. Combined Heat and Power Technical Assistance Partnership Program.

Section 1023 amends the Energy Policy and Conservation Act (EPCA, P.L. 109-163, as amended) to re-designate DOE's Clean Energy Application Centers as the Combined Heat and Power (CHP) Technical Assistance Partnership Program (Program). The Program is required to include the 10 current regional CHP Technical Assistance Partnerships, any others the Secretary establishes, and any supporting activities under the Technical Partnership Program of the Advanced Manufacturing Office. The Program must encourage deployment of CHP, waste heat to power, and efficient district energy by providing education and outreach and project-specific support to building and industrial professionals through assessments and advisory activities.

Section 1024. Sustainable Manufacturing Initiative.

Section 1024 amends EPCA to add a Sustainable Manufacturing Initiative which requires DOE's EERE to provide onsite technical assessments to manufacturers seeking efficiency opportunities. This section further requires the Secretary to carry out a joint industry-government partnership program to research, develop, and demonstrate new sustainable manufacturing and industrial technologies and processes.

Section 1025. Conforming Amendments.

Section 1025 makes conforming changes to the Energy Policy Act of 2005 (EPACT05, P.L. 109-58).

Subpart C – Federal Agency Energy Efficiency

Section 1031. Energy and Water Performance Requirements for Federal Buildings.

Section 1031 amends the National Energy Conservation Policy Act (NECPA, P.L. 95-619, as amended) to extend existing federal building energy efficiency improvement targets through 2028, and add water use reduction targets through 2030. Exclusions are provided for buildings with energy intensive activities. This section also repeals a provision within Section 433 of ECPA regarding fossil fuel-generated energy consumption in certain federal buildings.

Section 1032. Federal Energy Management Program.

Section 1032 amends NECPA to formally establish the Federal Energy Management Program (FEMP). This section details FEMP's directives and the duties of its director.

Section 1033. Use of Energy and Water Efficiency Measures in Federal Buildings.

Section 1033 amends NECPA to require DOE to report to the President and Congress on each agency's energy savings performance contracts, including their investment value; their initial guaranteed savings compared to actual energy savings from the previous year; the plan for entering into new contracts in the coming year; and information explaining why any previously submitted plans for contracts were not implemented. The section further amends NECPA to allow agencies to accept, retain, sell, or transfer energy savings and apply the proceeds to fund a performance contract under this title. It excludes contracts for work performed at federal hydropower facilities that provide power marketed by a Power Marketing Administration or facilities owned and operated by the Tennessee Valley Authority.

Section 1034. Federal Building Energy Efficiency Performance Standards; Certification System and Level for Green Buildings.

Section 1034 amends ECPA to expand the scope of existing energy standards for new federal buildings to cover major renovations.

Section 1035. Energy-Efficient and Energy-Saving Information Technologies.

Section 1035 amends NECPA to require the Director of the Office of Management and Budget (OMB) to collaborate with each federal agency to develop an implementation strategy for the maintenance, purchase, and use of energy-efficient and energy-saving information technologies.

Section 1036. High-Performance Green Federal Buildings.

Section 1036 amends EISA to require the Federal Director of the Office of Federal High-Performance Green Buildings, within the General Services Administration (GSA), to conduct an ongoing review of private sector green building certification systems and provide the Secretary with a list of certification systems most likely to encourage a comprehensive and environmentally sound approach to the certification of green buildings.

Section 1037. Energy Efficient Data Centers.

Section 1037 amends EISA to update the Voluntary National Information Program. It requires the Secretary to develop a metric for data center energy efficiency and directs the Secretary, in consultation with the Director of OMB, to maintain a data center energy practitioner program and open data initiative for federal data center energy usage.

Subpart D – Rebates and certifications

Section 1041. Third-Party Certification under Energy Star Program.

Section 1041 amends EPCA to direct EPA to revise the certification requirements for Energy Star program partners that manufacture consumer, home, and office electronic products and have complied with all program requirements for at least 18 months.

Section 1042. Extended Product System Rebate Program.

Section 1042 directs the Secretary to establish a rebate program to encourage the replacement of energy inefficient electric motors.

Section 1043. Energy Efficient Transformer Rebate Program.

Section 1043 directs the Secretary to establish a rebate program to encourage the replacement of energy inefficient transformers.

Subpart E – Miscellaneous

Section 1051. Advance Appropriations Required.

Section 1051 provides that authorization of amounts under this Act and the amendments made by this Act, shall be effective for any fiscal year (FY) only to the extent and in the amount provided in advance in appropriations Acts.

PART II - Weatherization

Section 1101. Weatherization Assistance Program.

Section 1101 reauthorizes the Weatherization Assistance Program (WAP) through fiscal year 2025. It amends ECPA to clarify that renewable energy technologies are included in the definition of weatherization materials and authorizes DOE to take non-energy benefits such as health and safety improvements, into account when determining appropriate standards and procedures for WAP. This section further amends ECPA to (1) make technical training grants available to private contractors that provide weatherization assistance as well as to persons involved in weatherizing low-income housing, and (2) add a new Section 414D to create a financial assistance program within WAP for enhancement and innovation.

Subtitle B – Renewable Energy

Section 1201. Hydroelectric Production Incentives and Efficiency Improvements.

Section 1201 extends the incentives for hydroelectric production and efficiency authorized in EPACT 2005 through FY 2036.

Section 1202. Marine Energy Research and Development.

Section 1202 modernizes DOE's research and development (R&D) work for marine and hydrokinetic renewable energy. It also authorizes the Secretary to establish National Marine Renewable Energy Research, Development, and Demonstration Centers at institutions of higher education.

Section 1203. Advanced Geothermal Innovation Leadership.

Section 1203 directs the U.S. Geological Survey (USGS) to update its geothermal resource assessment; establishes a program to transfer and adapt key oil and gas technologies for geothermal development; creates a prize competition for the production of critical minerals from geothermal brines; expands research into enhanced geothermal systems; establishes a research program for heat pumps and direct use; defines the thermal component of geothermal energy as renewable; reauthorizes DOE's geothermal R&D program for five years; reauthorizes a program for geothermal development in locations with high utility prices; directs the Secretaries of the Interior, Energy, and Agriculture to establish national goals for geothermal development; allows noncompetitive leasing for geothermal energy on federal lands if it will be coproduced from an existing oil or gas well; provides for expedited geothermal energy exploration on public lands under certain strict, environmentally protective parameters; and directs the Bureau of Land Management (BLM) to coordinate with the Forest Service, Department of Defense, and EPA on permit processing.

Section 1204. Wind Energy Research and Development.

Section 1204 authorizes the Secretary to establish a wind energy technology program through FY 2025. The section also provides the purposes of the program and a number of specific targets and activities for it.

Section 1205. Solar Energy Research and Development.

Section 1205 authorizes the Secretary to establish a solar energy technology program to address near-term, mid-term, and long-term challenges in solar energy development. The section authorizes the program through FY 2025.

Subtitle C – Energy Storage

Section 1301. Better Energy Storage Technology.

Section 1301 establishes a research, development, and deployment (RD&D) program to advance energy storage technologies; directs the Secretary to carry out at least five demonstration projects, as well as a competitive pilot project grant program; establishes a joint long-term demonstration initiative with the Secretary of Defense; facilitates a technical and planning assistance program for rural electric cooperatives and municipal utilities; establishes an energy storage materials recycling prize competition; and directs the Federal Energy Regulatory Commission (FERC) to issue a regulation on energy storage cost recovery.

Section 1302. Bureau of Reclamation Pumped Storage Hydropower Development.

Section 1302 amends the Reclamation Project Act of 1939 (P.L. 57-161, as amended) to provide the Secretary of the Interior with sole authority for the development of pumped storage hydropower projects that exclusively utilize Reclamation reservoirs so that two separate permits from the Bureau of Reclamation (BOR) and FERC are not required. In addition, the section specifies the transfer of the only active project now in FERC's permitting process to BOR, but makes clear it is not precedential or binding on any future project.

Subtitle D – Carbon Capture, Utilization, and Storage

Section 1401. Fossil Energy.

Section 1401 amends EPACT05 to include additional objectives for the fossil energy programs.

Section 1402. Establishment of Coal and Natural Gas Technology Program.

Section 1402 amends EPACT05 to require the Secretary to establish a coal and natural gas technology program to improve the efficiency, effectiveness, costs, and environmental performance of coal and natural gas use, including an R&D program, large-scale pilot projects, demonstration projects, and a front-end engineering and design program.

Section 1403. Carbon Storage Validation and Testing.

Section 1403 amends EPACT05 to direct the Secretary to establish a RD&D carbon storage program, a large-scale carbon sequestration demonstration program, and an integrated storage program.

Section 1404. Carbon Utilization Program.

Section 1404 amends EPACT05 to direct the Secretary to establish a RD&D program for carbon utilization. The program is to identify and assess novel uses for carbon, carbon oxide, carbon capture technologies for industrial systems, and alternative uses for coal.

Section 1405. Carbon Removal.

Section 1405 amends EPACT05 to establish a program to develop technologies to remove carbon dioxide from the atmosphere on a large scale. It also establishes an air capture technology prize competition, a direct air capture test center, and a direct air capture pilot and demonstration program.

Subtitle E – Nuclear

Section 1501. Light Water Reactor Sustainability Program.

Section 1501 amends EPACT05 to replace DOE’s existing Nuclear Energy Systems Support Program with a new Light Water Reactor Sustainability Program to achieve maximum benefit from existing nuclear generation, enable continued operation of existing nuclear power plants through technology development, and improve performance and reduce plant operating and maintenance costs.

Section 1502. Nuclear Energy Research, Development, and Demonstration.

Section 1502 amends EPACT05 to authorize an advanced nuclear energy research program to develop innovative technologies to improve safety, functionality, and affordability.

Section 1503. Advanced Fuels Development.

Section 1503 amends EPACT05 to modernize advanced nuclear fuels research at DOE. It further authorizes the Secretary to carry out a research program on next-generation light water reactor and advanced reactor fuels through FY 2025.

Section 1504. Nuclear Science and Engineering Support.

Section 1504 amends EPACT05 to update DOE’s university research reactor support activities to fit current practices. It also directs the Secretary to establish and carry out a nuclear energy apprenticeship program.

Section 1505. University Nuclear Leadership Program.

Section 1505 reauthorizes the university nuclear scholarship program, which helps meet the highly-skilled workforce needs of the nuclear energy industry, the Nuclear Regulatory Commission, and the National Nuclear Security Administration (NNSA) in order to develop, regulate, and safeguard the next generation of advanced reactors.

Section 1506. Versatile, Reactor-Based Fast Neutron Source.

Section 1506 amends EPACT05 to direct DOE to construct a fast neutron-capable research facility to test important reactor components, demonstrate safe and reliable operation, and license advanced reactor concepts.

Section 1507. Advanced Nuclear Reactor Research and Development Goals.

Section 1507 amends EPACT05 to direct DOE to demonstrate advanced reactors with the private sector and to establish specific goals.

Section 1508. Nuclear Energy Strategic Plan.

Section 1508 amends EPACT05 to require DOE's Office of Nuclear Energy to develop a 10-year strategic plan that supports advanced nuclear R&D goals on breakthrough innovation to help advanced nuclear reactors reach the market.

Section 1509. Advanced Nuclear Fuel Security Program.

Section 1509 amends EPACT05 to ensure that DOE provides a minimum amount of high-assay low-enriched uranium (HALEU) to U.S. developers until a long-term domestic supply is developed, while also facilitating the development of HALEU-appropriate transportation equipment.

Section 1510. International Nuclear Energy Cooperation.

Section 1510 amends EPACT05 to authorize an international nuclear energy cooperation program for bilateral R&D agreements with foreign nations.

Section 1511. Integrated Energy Systems Program.

Section 1511 establishes an R&D program at DOE to analyze energy systems integration, including emissions reducing energy resources and nuclear hybrid energy systems.

Subtitle F – Industrial Technologies

Part I – Innovation

Section 1601. Purpose.

Section 1601 sets forth the purpose of the subtitle.

Section 1602. Coordination of Research and Development of Energy Efficient Technologies for Industry.

Section 1602 makes technical changes to Section 6(a) of the American Energy Manufacturing Technical Corrections Act (P.L. 112-210).

Section 1603. Industrial Emissions Reduction Technology Development Program.

Section 1603 amends EISA to require the Secretary to establish a program focused on crosscutting industrial emissions reduction technologies.

Section 1604. Industrial Technology Innovation Advisory Committee.

Section 1604 amends EPACT05 to require the Secretary, in consultation with the Director of the Office of Science and Technology Policy, to establish an Industrial Technology Innovation Advisory Committee and specifies its duties.

Section 1605. Technical Assistance Program to Implement Industrial Emissions Reduction.

Section 1605 amends EPACT05 to require the Secretary to establish a program to provide technical assistance to eligible entities, including States, local government units, and tribal governments, to implement industrial emissions reductions and establish goals and priorities to accelerate technology development.

Part II – Smart Manufacturing

Section 1611. Definitions.

Section 1611 provides definitions for this section.

Section 1612. Development of National Smart Manufacturing Plan.

Section 1612 requires the Secretary, in consultation with the National Academies, to develop a national plan for smart manufacturing technology development and deployment to improve the productivity and efficiency of the domestic manufacturing sector.

Section 1613. Leveraging Existing Agency Programs to Assist Small and Medium Manufacturers.

Section 1613 requires the Secretary to expand the scope of technologies covered by DOE's Industrial Assessment Centers to include smart manufacturing technologies and practices and to equip the Center directors with the necessary training and tools to provide technical assistance.

Section 1614. Leveraging Smart Manufacturing Infrastructure at National Laboratories.

Section 1614 requires the Secretary to study how DOE can increase access to existing high-performance computing resources in the national laboratories. It also requires the Secretary to facilitate access to the high-performance computing resources at the national laboratories for small and medium manufacturers.

Section 1615. State Manufacturing Leadership.

Section 1615 authorizes the Secretary to provide financial assistance to States to establish programs to support the implementation of smart manufacturing technologies.

Section 1616. Report.

Section 1616 requires the Secretary to submit an annual report to Congress.

Subtitle G – Vehicles

Section 1701. Objectives.

Section 1701 lays out the objectives of the subtitle.

Section 1702. Coordination and Nonduplication.

Section 1702 requires the Secretary to ensure that authorized activities are not duplicative of existing programs.

Section 1703. Authorization of Appropriations.

Section 1703 authorizes appropriations for DOE's vehicle technologies program through FY 2025.

Section 1704. Reporting.

Section 1704 requires an annual report to Congress on technologies developed as a result of activities authorized by this subtitle.

Section 1705. Vehicle Research and Development.

Subsection 1705(a) directs the Secretary to conduct a program of basic and applied research, development, engineering, demonstration, and commercial application activities for materials, technologies, and processes that can increase the efficiency of, and reduce petroleum use in, passenger and commercial vehicles.

Subsection (b) directs the Secretary to carry out a program of research, development, engineering, demonstration, and commercial application for advanced vehicle manufacturing technologies and practices.

Section 1706. Medium- and Heavy-Duty Commercial and Transit Vehicles Program.

Section 1706 directs the Secretary to 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.

Section 1707. Class 8 Truck and Trailer Systems Demonstration.

Section 1707 directs the Secretary to conduct a competitive grant program to demonstrate the integration of multiple advanced technologies on Class 8 truck and trailer platforms.

Section 1708. Technology Testing and Metrics

Section 1708 directs the Secretary to coordinate with interagency research program partners to develop standard testing procedures to evaluate the performance of advanced heavy vehicle technologies.

Section 1709. Nonroad Systems Pilot Program

Section 1709 directs the Secretary to undertake a pilot program of research, development, demonstration, and commercial application for technologies to improve total machine or system efficiency for nonroad mobile equipment.

Section 1710. Repeal of Existing Authorities

Section 1710 repeals a number of EPACT05 provisions that are duplicated by this subtitle and makes technical and conforming changes.

Subtitle H – Department of Energy

Section 1801. Veterans Health Initiative.

Section 1801 requires the Secretary to carry out a research program in artificial intelligence and high-performance computing focused on the development of tools to solve big data challenges associated with veterans' health care. It also authorizes the Secretary to develop tools to apply to big data challenges across federal agencies to leverage DOE capabilities to solve complex problems through a competitive, merit-reviewed process.

Section 1802. Small Scale LNG Access.

Section 1802 amends the Natural Gas Act of 1938 (P.L. 75-688, as amended) to expedite approval of exports of small volumes of natural gas by deeming applications to export up to 51.75 billion cubic feet per year to any country to be consistent with the public interest. Requires the Secretary to grant applications for these exports without modification or delay.

Section 1803. Appalachian Energy for National Security.

Section 1803 requires the Secretary to conduct a study, in consultation with the Secretaries of Defense and Treasury, and other relevant federal departments, regarding the potential national and economic security benefits of building ethane and other natural-gas-liquids-related petrochemical infrastructure in the vicinity of the Marcellus, Utica, and Rogersville shale plays.

Section 1804. Energy and Water for Sustainability.

Section 1804 requires the Secretaries of Energy and the Interior to establish the joint Nexus of Energy and Water Sustainability Office (Office) and an accompanying Interagency Coordination Committee (Committee). The Office is to be located at DOE and run jointly by the Secretary and the Secretary of the Interior in their capacity as Committee co-chairs. This section further establishes duties for the Committee; affirms that it does not have the authority to issue regulations or set standards; and requires the co-chairs to submit an interagency crosscutting budget to Congress. It also authorizes a new Smart Energy and Water Efficiency Pilot Program.

Section 1805. Technology Transitions.

Section 1805 amends EPACT05 to establish the Office of Technology Transitions at DOE, which will be headed by a Chief Commercialization Officer appointed by the Secretary. This section also requires the Secretary to conduct a review of all applied energy R&D programs at DOE that focus on technologies that reduce emissions and provide a report to Congress.

Section 1806. Energy Technology Commercialization Fund Cost-Sharing.

Section 1806 amends EPACT05 to make the cost-share requirements of the Technology Commercialization Fund consistent with the Department-wide cost sharing requirements in Section 988 of EPACT05.

Section 1807. State Loan Eligibility.

Section 1807 amends EPACT05 to increase access to DOE's Title XVII loan guarantee program by making certain state financing entities eligible to apply. Prohibits the use of existing appropriations to serve as credit subsidy for this purpose.

Section 1808. ARPA-E Reauthorization.

Section 1808 reauthorizes the Advanced Research Projects Agency – Energy (ARPA-E) through FY 2025.

Section 1809. Adjusting Strategic Petroleum Reserve Mandated Drawdowns.

Section 1809 adjusts the dates of statutorily-mandated Strategic Petroleum Reserve.

Title II Supply Chain Security

Subtitle A – Mineral Security

Section 2101. Mineral Security.

Section 2101 promotes a secure and robust critical minerals supply chain by (1) updating the Congressional declaration of policy on mineral security; (2) requiring the executive branch to designate a list of critical minerals and to update that list every three years; (3) requiring USGS to conduct domestic resource assessments of critical minerals and to make that information publically available; (4) providing a Sense of Congress that critical minerals are fundamental to the economic and national security of the United States; (5) encouraging the Departments of the Interior and Agriculture to complete federal permits efficiently, without compromising environmental review; (6) requiring Federal Register notices to be published within 45 days of being finalized; (7) directing the Secretary of Energy to conduct R&D on recycling of and developing alternatives to critical minerals; (8) directing the Secretary of Energy and the Director of the EIA to develop analytical and forecasting tools to evaluate critical minerals markets; (9) requiring the Secretary of Labor and the Director of the National Science Foundation to develop curriculum and a program for institutions of higher education to build a strong critical minerals workforce; and (10) reauthorizing the National Geological and Geophysical Data Preservation Program through FY 2029.

Section 2102. Rare Earth Element Advanced Coal Technologies.

Section 2102 requires the Secretary, acting through the Assistant Secretary for Fossil Energy, to carry out a program to develop advanced separation technologies for the extraction and recovery of rare earth elements (REEs) and minerals from coal and coal byproducts. Directs the Secretary, within one year of enactment, to provide a report to Congress that evaluates the development of advanced separation technologies for the extraction and recovery of REEs and minerals from coal and coal byproducts.

Subtitle B – Cybersecurity and Grid Security and Modernization

Part I – Cybersecurity and Grid Security

Section 2201. Incentives for Advanced Cybersecurity Technology Investment.

Section 2201 amends the Federal Power Act (16 U.S.C. 791a et seq.) to include a new section 219A entitled “Incentives for Cybersecurity Investments.” This new section requires FERC, in consultation with the Secretary, the North American Electric Reliability Corporation, the Electricity Subsector Coordinating Council, and the National Association of Regulatory Utility Commissioners to establish incentive-based rate treatments to encourage utility investments in advanced cybersecurity technology and participation in cybersecurity threat information sharing programs.

Section 2202. Rural and Municipal Utility Advanced Cybersecurity Grant and Technical Assistance Program.

Section 2202 requires the Secretary to establish a competitive grant program for rural and municipal utilities to deploy advanced cybersecurity technology and participate in cybersecurity threat information sharing programs.

Section 2203. State Energy Security Plans.

Section 2203 amends EPCA to authorize the Secretary to provide financial assistance to a state for a State Energy Security Plan that assesses the State's existing circumstances and proposes methods to strengthen the state's ability to secure infrastructure and minimize supply disruptions. This section also reauthorizes the State Energy Program through FY 2025.

Section 2204. Enhancing Grid Security Through Public-Private Partnerships.

Section 2204 requires the Secretary, in consultation with State regulatory authorities, industry, the Electric Reliability Organization, and other relevant federal agencies, to carry out a program to promote and advance the physical security and cybersecurity of electric utilities, with priority provided to utilities with fewer resources. This section also requires a report to Congress on improving the cybersecurity of electricity distribution systems.

Section 2205. Enhanced Grid Security.

Section 2205 directs the Secretary to carry out a program to develop advanced energy sector cybersecurity technologies and applications, and to leverage electric grid architecture to assess risks to the energy sector. This section also requires the Secretary to carry out a program on cybertesting and mitigation to identify vulnerabilities of energy sector supply chain products, a program on energy sector operational support for cyberresilience, and an advanced energy security program to secure energy networks from threats and hazards.

Part II – Grid Modernization.

Section 2210. Grid Storage Program.

Section 2210 directs the Secretary to conduct a program focused on grid-scale energy storage that addresses the principal challenges identified in the 2013 DOE Strategic Plan for Grid Energy Storage. The program's focus areas include systems research, power conversion technologies research, grid-scale testing and analysis of storage devices, and electric storage device safety and reliability.

Section 2211. Technology Demonstration on the Distribution System.

Section 2211 requires the Secretary to establish a grant program to carry out projects related to the modernization of the electric grid, including for distribution system technologies.

Section 2212. Microgrid and Hybrid Microgrid Systems Program.

Section 2212 directs the Secretary to establish a program to promote the development of hybrid microgrid systems for isolated communities and microgrid systems to increase the resilience of critical infrastructure.

Section 2213. Electric Grid Architecture, Scenario Development, and Modeling.

Section 2213 requires the Secretary to establish and facilitate a collaborative process to develop model grid architecture and a set of future scenarios to examine the impacts of different combinations of resources on the electric grid. Based on the findings of the model architecture and scenarios, which must account for market structure differences, the Secretary is required to determine whether any new standards are necessary for the grid, and if so, make recommendations for such standards.

Section 2214. Voluntary Model Pathways.

Section 2214 requires the Secretary to initiate the development of voluntary model pathways for modernizing the electric grid through a collaborative public-private effort that produces illustrative policy pathways for states, regions, and regulators, and facilitates the modernization of the grid and associated communications networks.

Section 2215. Performance Metrics for Electricity Infrastructure Providers.

Section 2215 directs the Secretary, in consultation with the steering committee, to submit a report to Congress that includes an evaluation of grid performance and a description of the costs and benefits associated with the changes evaluated in the scenarios under Section 2214.

Section 2216. Voluntary State, Regional, and Local Electricity Distribution Planning.

Section 2216 direct the Secretary to provide, on the request of a state, regional organization, or electric utility, assistance to develop electricity distribution plans by conducting resource assessments and analysis of further demand and distribution requirements, and developing open source tools for state, regional, and local planning and operations.

Section 2217. Authorization of Appropriations.

Section 2217 authorizes appropriations for sections 2211 through 2216.

Subtitle C – Workforce Development

Section 2301. Definitions

Section 2301 provides definitions for the workforce development subtitle.

Section 2302. Addressing Insufficient Compensation of Employees and Other Personnel of the Federal Energy Regulatory Commission.

Section 2302 authorizes FERC, under certain conditions, to compensate persons with scientific, technological, engineering, and mathematical skills at a higher level than the rate allowed under the civil service.

Section 2303. Report on the Authority of the Secretary to Implement Flexible Compensation Models.

Section 2303 requires the Secretary of Energy to submit a report to Congress on the hiring authority made available to the Secretary by the Office of Personnel Management.

Section 2304. 21st Century Energy Workforce Advisory Board.

Section 2304 establishes a 21st Century Energy Workforce Advisory Board (Board) to propose a strategy for DOE to support the development of a skilled energy workforce. In developing the strategy, the Board is required to conduct outreach to institutions serving minorities, veterans, and displaced and unemployed energy workers. The Board sunsets in FY 2025 unless the Secretary determines renewal is in order. This section also directs the Secretary to conduct an annual survey and analysis of energy employment in the United States.

Section 2305. National Laboratory Jobs Access Pilot.

Section 2305 establishes a pilot program for the Secretary to award competitive, cost-shared grants for apprenticeship and pre-apprenticeship programs that deliver skills and training relevant for working at the national laboratories run by DOE and NNSA.

Section 2306. Clean Energy Workforce Pilot Program.

Section 2306 establishes a pilot program under the Workforce Innovation and Opportunity Act (P.L. 113-128) for the Secretary of Labor to provide competitively awarded cost-shared grants to support on-the-job training or pre-apprenticeship programs related to careers working in renewable energy, energy efficiency, grid modernization, or the reduction of greenhouse gas emissions.

Title III Code Maintenance

Section 3001. Repeal of Off-Highway Motor Vehicles Study.

Section 3001 repeals an outdated study.

Section 3002. Repeal of Methanol Study.

Section 3002 repeals an outdated study.

Section 3003. Repeal of State Utility Regulatory Assistance.

Section 3003 repeals an outdated grant program.

Section 3004. Repeal of Authorization of Appropriations Provision.

Section 3004 repeals expired authorizations.

Section 3005. Repeal of Residential Energy Efficiency Standards Study.

Section 3005 repeals an outdated study.

Section 3006. Repeal of Weatherization Study.

Section 3006 repeals an outdated study.

Section 3007. Repeal of Report to Congress.

Section 3007 repeals an outdated report.

Section 3008. Repeal of Survey of Energy Saving Potential.

Section 3008 repeals an outdated report.

Section 3009. Repeal of Report by General Services Administration.

Section 3009 repeals an outdated report.

Section 3010. Repeal of Intergovernmental Energy Management Planning and Coordination Workshops.

Section 3010 repeals an outdated requirement for intergovernmental workshops.

Section 3011. Repeal of Inspector General Audit Survey and President's Council on Integrity and Efficiency Report to Congress.

Section 3011 repeals an outdated Inspector General audit and an outdated report.

Section 3012. Repeal of Procurement and Identification of Energy Efficient Products Program.

Section 3012 repeals an outdated program at DOE.

Section 3013. Repeal of Photovoltaic Energy Program.

Section 3013 repeals an outdated photovoltaic energy commercialization program for the accelerated procurement and installation of photovoltaic solar electric systems for electric production in federal facilities.

Section 3014. Repeal of National Action Plan for Demand Response.

Section 3014 repeals an outdated report and expired authorization.

Section 3015. Repeal of Energy Auditor Training and Certification.

Section 3015 repeals an outdated grant program for training and certification of individuals to conduct energy audits.

Section 3016. Repeal of National Coal Policy Study.

Section 3016 repeals an outdated study.

Section 3017. Repeal of Study on Compliance Problem of Small Electric Utility Systems.

Section 3017 repeals an outdated study.

Section 3018. Repeal of Study of Socioeconomic Impacts of Increased Coal Production and Other Energy Development.

Section 3018 repeals an outdated study.

Section 3019. Repeal of Study of the Use of Petroleum and Natural Gas in Combustors.

Section 3019 repeals an outdated study.

Section 3020. Repeal of Authorization of Appropriations.

Section 3020 repeals an expired authorization of appropriations.

Section 3021. Repeal of Submission of Reports.

Section 3021 repeals outdated reporting requirements.

Section 3022. Repeal of Electric Utility Conservation Plan.

Section 3022 repeals an outdated requirement for electric utilities to submit a plan to Congress.

Section 3023. Emergency Energy Conservation Repeals.

Section 3023 repeals outdated findings and requirements for minimum purchases of gasoline and associated fines in the event of a violation.

Section 3024. Energy Security Act Repeals.

Section 3024 repeals outdated provisions related to biomass and the use of gasohol in federal motor vehicles.

Section 3025. Nuclear Safety Research, Development, and Demonstration Act of 1980 Repeals.

Section 3025 repeals outdated studies.

Section 3026. Repeal of Renewable Energy and Energy Efficiency Technology Competitiveness Act.

Section 3026 repeals an outdated research program.

Section 3027. Repeal of Hydrogen Research, Development, and Demonstration Program.

Section 3027 repeals an outdated research program.

Section 3028. Repeal of Study on Alternative Fuel Use in Nonroad Vehicles and Engines.

Section 3028 repeals an outdated study.

Section 3029. Repeal of Low Interest Loan Program for Small Business Fleet Purchases.

Section 3029 repeals an outdated low interest loan program.

Section 3030. Repeal of Technical and Policy Analysis for Replacement Fuel Demand and Supply Information.

Section 3030 repeals an outdated requirement for technical and policy analysis.

Section 3031. Repeal of 1992 Report on Climate Change.

Section 3031 repeals an outdated report.

Section 3032. Repeal of Director of Climate Protector Establishment.

Section 3032 repeals an outdated position.

Section 3033. Repeal of 1994 Report on Global Climate Change Emissions.

Section 3033 repeals an outdated report.

Section 3034. Repeal of Telecommuting Study.

Section 3034 repeals an outdated study.

Section 3035. Repeal of Advanced Buildings for 2005 Program.

Section 3035 repeals an outdated advanced buildings program.

Section 3036. Repeal of Energy Research, Development, Demonstration, and Commercial Application Advisory Board.

Section 3036 repeals an outdated advisory board.

Section 3037. Repeal of Study on Use of Energy Futures for Fuel Purchase.

Section 3037 repeals an outdated study.

Section 3038. Repeal of Energy Subsidy Study.

Section 3038 repeals an outdated study.

Section 3039. Elimination and Consolidation of Certain America COMPETES Programs.

Section 3039 repeals unused or outdated America COMPETES program authorities and consolidates other duplicative authorities.

Section 3040. Repeal of Prior Limitations on Compensation of the Secretary of the Interior.

Section 3040 repeals an outdated provision.