SECTION BY SECTION

TITLE I—ENERGY EFFICIENCY

Subtitle A—Buildings

PART 1—BUILDING ENERGY CODES

Sec. 1101. Greater energy efficiency in building codes.

Directs the Department of Energy (DOE) to set national energy-saving targets for building energy codes, propose amendments to the model codes that meet the targets, and determine whether updated model codes meet the targets. Requires states, in addition to certifying whether they have adopted codes equivalent to the model codes, to certify whether they have achieved compliance with their codes, including measuring compliance rates. Specifies technical and financial assistance DOE is to provide to code-setting bodies and state and local governments. Directs DOE to support development of stretch codes. Authorizes $200 million that will remain available until expended.

Sec. 1102. Cost-effective codes implementation for efficiency and resilience.

Creates a grant program at DOE to help entities with the adaptation and implementation of updated building energy codes. Authorizes $25 million annually for fiscal year (FY) 2021 through 2030, and such sums as are necessary beginning in FY 2031.

Sec. 1103. Commercial building energy consumption information sharing.

Directs the Energy Information Administration (EIA) and the Environmental Protection Agency (EPA) to develop an information-sharing agreement providing EIA access to building-specific data to improve the analysis of activity and energy usage by the Commercial Buildings Energy Consumption Survey.

PART 2—WORKER TRAINING AND CAPACITY BUILDING

Sec. 1111. Building training and assessment centers.

Establishes a DOE program for university-based Building Training and Assessment Centers, modeled after the existing Industrial Assessment Centers (IACs). Authorizes $10 million, to remain available until expended, to train engineers, architects and workers in energy-efficient commercial building design and operations.

Sec. 1112. Career skills training.

Creates a DOE career skills program to provide grants to nonprofit partnerships for worker training for the construction and installation of energy-efficient building technologies. Authorizes $10 million that will remain available until expended.

PART 3—SCHOOL BUILDINGS

Sec. 1121. Coordination of energy retrofitting assistance for schools.

Streamlines available federal energy efficiency programs and financing to help improve efficiency and lower energy costs for schools.

Subtitle B—Industrial Efficiency and Competitiveness

PART 1—MANUFACTURING ENERGY EFFICIENCY

Sec. 1201. Purposes.
Establishes the purposes for this subtitle.

Sec. 1202. Future of Industry program and industrial research and assessment centers.
Moves the existing IAC statute from Sec. 452 of the Energy Independence and Security Act of 2007 (EISA), which is focused on all energy-intensive industries, to its own section under EISA's Industrial Energy Efficiency subtitle. Encourages IACs to coordinate with Manufacturing Extension Partnership Centers to streamline energy and water auditing efforts. Authorizes $30 million that will remain available until expended.

Sec. 1203. Sustainable manufacturing initiative.
Requires DOE's Office of Energy Efficiency and Renewable Energy to provide onsite technical assessments to manufacturers seeking efficiency opportunities.

Sec. 1204. Conforming amendments.
Makes conforming amendments to the Energy Policy Act of 1992 (EPACT 92), the Energy Policy Act of 2005 (EPACT 05), and the Energy Policy and Conservation Act (EPCA).

PART 2—EXTENDED PRODUCT SYSTEM REBATE PROGRAM

Sec. 1211. Extended Product System Rebate Program.
Creates a DOE rebate program to incentivize purchases of new, high-efficiency motor systems. Authorizes $5 million for each of the first two fiscal years following the date of enactment.

PART 3—TRANSFORMER REBATE PROGRAM

Sec. 1221. Energy Efficient Transformer Rebate Program.
Directs DOE to establish an incentive rebate for the purchase of energy efficient transformers for industrial/manufacturing facilities or commercial/multifamily residential buildings. Authorizes $5 million annually for FY 2021 and 2022.

Subtitle C—Federal Agency Energy Efficiency

Sec. 1301. Energy-efficient and energy-saving information technologies. Directs the Director of the Office of Management and Budget (OMB) to collaborate with each federal agency to implement energy-efficient and energy-saving information technologies.

Sec. 1302. Energy efficient data centers. Requires the development of a metric for data center energy efficiency, and requires the Secretary of Energy, EPA Administrator, and Director of OMB to maintain a data center energy practitioner program and open data initiative for federally owned and operated data center energy usage.

Subtitle D—Regulatory Provisions

PART 1—FEDERAL GREEN BUILDINGS

Sec. 1401. High-performance green Federal buildings.
Amends section 436(h) of EISA to require the Director of the Office of Federal High-Performance Green Buildings to identify and provide to the Secretary of Energy a list of certification systems most likely to encourage a comprehensive and environmentally sound approach to certification of green buildings.

PART 2—ENERGY AND WATER PERFORMANCE REQUIREMENTS FOR FEDERAL BUILDINGS

Sec. 1411. Federal Energy Management Program.

Codifies the Federal Energy Management Program (FEMP), which leverages DOE expertise in providing training, guidance and technical assistance to enable federal agencies to meet energy-related goals. Authorizes $36 million annually for FY 2021 through 2025.

Sec. 1412. Federal building energy efficiency performance standards; certification system and level for green buildings.

Amends section 303 of the Energy Conservation and Production Act (ECPA) to expand the scope of existing energy standards for new federal buildings to include major renovations. Amends EPCA section 305(a)(3) to require the Secretary of Energy to establish revised federal building energy efficiency performance standards.

Subtitle E—HOPE for HOMES

Sec. 1501. Definitions.

Defines terms used in this subtitle.

PART 1—HOPE TRAINING

Sec. 1511. Notice for HOPE Qualification training and grants.

Requires the Secretary of Energy to issue a notice of established criteria for courses eligible for HOPE Qualification credits, a list of such courses, and information on grant applications within 30 days of enactment of this Act.

Sec. 1512. Course criteria.

Establishes criteria for approval of courses qualifying for HOPE training task and supplemental credits. Requires the Secretary to approve one or more courses which meet established criteria.

Sec. 1513. HOPE Qualification.

Authorizes the Secretary or other entities to issue credits. Establishes that the Secretary, or a state energy office, may certify that an individual has achieved a HOPE Qualification.

Sec. 1514. Grants.

Direct the Secretary to provide grants supporting the training of individuals towards the completion of HOPE Qualification. Establishes eligible grant recipients and criteria for receiving grants.

Sec. 1515. Authorization of appropriations.

Authorizes $500 million for this part from FY 2021 through 2025 that will remain available until expended.

PART 2—HOME ENERGY SAVINGS RETROFIT REBATE PROGRAM

Sec. 1521. Establishment of Home Energy Savings Retrofit Rebate Program.

Requires DOE establish a Home Energy Savings Retrofit Rebate Program to provide rebates to homeowners for retrofits that achieve home energy savings.

Sec. 1522. Partial system rebates.

Specifies amounts for partial system rebates, including $800 for the installation of insulation and air sealing and $1,500 for the installation of insulation, air sealing, and replacement of a heating, ventilation, or air conditioning system.

Sec. 1523. State administered rebates.

Establishes minimum criteria for states to receive grant funding under the program. Homeowners performing retrofits that are projected to save at least 20 percent of energy usage would be eligible for a $2,000 rebate; those performing retrofits projected to save at least 40 percent of energy usage would be eligible for a $4,000 rebate.

Sec. 1524. Special provisions for moderate income households.

Establishes procedures for certifying that the household of a homeowner is moderate income for purposes of this subtitle.

Sec. 1525. Evaluation reports to Congress.
Requires a report to Congress evaluating the use of funds for the program.

Sec. 1526. Administration.
Requires DOE provide technical support to contractors, rebate aggregators, states, and Indian Tribes to assist in carrying out the program.

Sec. 1527. Authorization of appropriations.
Authorizes $1 billion each year for FY 2021 through 2025. Requires DOE provide technical support to contractors, rebate aggregators, states, and Indian Tribes to assist in carrying out the program.

PART 3—GENERAL PROVISIONS
Sec. 1531. Appointment of personnel.
Establishes that the Secretary may appoint such personnel as the Secretary considers necessary to carry out this subtitle notwithstanding the provisions of title 5, United States Code.

Sec. 1532. Maintenance of funding.
Requires that federal funds provided under this subtitle be used to supplement, not supplant, state and local funds.

Subtitle F—Weatherization

Sec. 1601. Weatherization assistance program.
Amends section 422 of the Energy Conservation and Production Act to reauthorize the program for five years beginning in FY 2021 at $310 million, increasing to $350 million in FY 2025. It amends the definition of weatherization materials to add renewable energy technologies and other advanced technologies to the list of weatherization materials that may be installed in residences under the program, and permits the Secretary of Energy to take improvements in health and safety of building occupants into consideration when setting standards under the program. The section allows entities receiving funds through the program to use private contractors in performing work of the projects and to use funding for contractor training.

The section adds a new competitive grant program to expand the number of dwelling units receiving weatherization assistance, deploy renewable energy, ensure healthy indoor environments, disseminate new methods and practices in weatherization, and encourage the hiring and retention of individuals from groups that are underrepresented in the weatherization and home energy performance workforce. It directs the Secretary to make the first award under the program within 270 days of enactment and to submit to Congress an annual report on the program's accomplishments. The new program is authorized beginning in FY 2021 through 2025. The specific amount authorized is determined by the appropriated funds for the weatherization assistance program in a given FY and capped within a FY to be the lesser of $25 million or six percent of the funding for the weatherization assistance program if the weatherization assistance program's annual appropriation is $300 million or more.

The section also encourages entities receiving funds through the weatherization assistance program to prioritize and retain employees who reside in the community where the weatherization project is located or from communities or groups that are underrepresented in the home energy performance workforce. It increases the cap on the percent of funds awarded under the weatherization program that may be used for administration from 10 percent to 15 percent and amends the date when a dwelling unit may become eligible to receive weatherization assistance for further projects to be 15 years after the date when that unit's previous weatherization project was completed.

Finally, it requires the Secretary produce an annual report enumerating the number of multifamily buildings in which dwelling units were weatherized during the previous year and the number of individual dwelling units in multifamily buildings that were weatherized using program funds in the previous year.

Sec. 1602. Report on waivers.
Requires the Secretary of Energy to report on requests for waivers of specific requirements of the weatherization assistance program.

Subtitle G—Energy and Water Research Integration

Sec. 1701. Integrating energy and water research.
This section outlines general requirements for the Secretary of Energy to integrate water and energy considerations into research, development, and demonstration programs within the Department of Energy. It also establishes a requirement for the Secretary to develop a strategic plan for carrying out the general requirements no later than twelve months after the enactment of the Act. Additional specific considerations are given that the Secretary must consider when developing the strategic plan. All of the requirements and considerations are focused on reducing energy and water consumption in Department activities or research and development relating to water efficient technologies. The Secretary is instructed to collaborate with other Federal agencies and National Laboratories to encourage widespread participation and avoid duplicative efforts. Various stakeholders will participate in the development of the strategic plan. The plan is to be updated no later than three years after the enactment of the Act and at least once every five years thereafter.

Sec. 1702. Energy-water oversight and coordination.
This section requires the Secretary to establish an Energy-Water Advisory Committee. The membership will consist of both Federal and non-Federal members. The Committee is to promote and enable improved energy and water resource data collection, reporting, and technical innovation, as well as conduct annual technical workshops to facilitate information exchange on the energy water nexus. The Committee will report on its findings and activities no later than one year after the enactment of the Act and at least once every two years thereafter.

Sec. 1703. Rule of construction.
This section states that nothing in this Act should be interpreted to require any governments to take any action that would result in an increased financial burden. It also states that participation in data collection processes is optional.

Sec. 1704. Coordination and nonduplication.
This section instructs the Secretary to coordinate activities under this Act with other Department of Energy and Federal research programs, to the maximum extent practicable.

Sec. 1705. Definitions.
Defines terms used in this subtitle.

Subtitle H—Other Matters

Sec. 1801. Modifications to the ceiling fan energy conservation standard.
Amends EPCA by adding language exempting large-diameter ceiling fans manufactured on or after January 21, 2020 from meeting minimum ceiling fan efficiency requirements as described in the final rule titled “Energy Conservation Program: Energy Conservation Standards for Ceiling Fans.” Establishes that large-diameter ceiling fans shall meet Calculation of the Fan Energy Index in accordance with ANSI/AMCA Standard 208-18.

Sec. 1802. Smart energy and water efficiency program.

Establishes a smart energy and water efficiency management program and directs DOE to award grants to eligible entities to demonstrate advanced and innovative technology-based solutions regarding the optimal use of water, wastewater, water reuse systems, and energy. Authorizes $15 million that will be available until expended.

Sec. 1803. Energy Efficiency and Conservation Block Grant Program.
Amends EISA section 542 by adding the additional purpose of diversifying energy supplies by facilitating and promoting the use of alternative fuels to the Energy Efficiency and Conservation Block Grant Program's (EECBG) purposes. Amends EISA section 544 to clarify that program funds may be used to deploy infrastructure for delivering alternative fuels. Also amends EISA section 546 to clarify that projects to expand the use of alternative fuels are eligible for funding through competitive grants awarded through the program. Authorizes $3.5 billion each year for FY 2021 through 2025 and caps administrative costs of the program at one percent of the amount appropriated for a FY. Makes technical and conforming changes to EISA.

Sec. 1804. Energy efficient public buildings.
Reauthorizes EPACT 05 section 125 to provide grants for improving the energy efficiency of public buildings. Increases the authorization from $30 million annually to $100 million each year from FY 2021 through 2025.

Sec. 1805. Smart buildings.
Requires DOE to conduct a survey of smart buildings across the country, and then select at least one building from an appropriate range of building sizes and types to be evaluated further. Also establishes an initiative at DOE to implement smart building technology at one or more buildings under each of several federal agencies and evaluate the costs and benefits of each building.

Also authorizes a Better Buildings Program consisting of a technical assistance program; an accelerator to develop innovative policies and approaches to advance the transition to smart buildings; and a program to support research, development, and demonstration to reduce emissions and energy use in new and existing residential buildings.

Lastly, authorizes a research, development, and demonstration program on technologies to reduce emissions from, increase the energy efficiency of, and increase beneficial electrification of new and existing commercial and residential buildings. This includes research on: energy equity; reducing non-technical barriers to enabling greater use of building technologies; advanced building construction, design, and retrofit; grid-interactive buildings; and modeling and data analysis. This subsection also instructs the Secretary to support testing and validation activities for technologies developed in this subsection.

TITLE II—RENEWABLE ENERGY

Subtitle A—Energy Storage

PART 1—CONSIDERATION OF ENERGY STORAGE SYSTEMS
Sec. 2101. Consideration of energy storage systems.
Amends section 111(d) of the Public Utility Regulatory Policies Act of 1978 (PURPA) by adding energy storage systems to the list of strategies states and utilities should consider when developing supply side resource planning.

Sec. 2102. Coordination of programs.
Requires the Secretary of Energy to ensure, to the extent practicable, that the different offices within the Grid Modernization Initiative of the Department of Energy and other programs conducting energy storage research are coordinated.

PART 2—ENERGY STORAGE AND MICROGRID PROJECTS
Sec. 2121. Definitions.

Defines terms used in this part.

Sec. 2122. Energy storage and microgrid assistance program.
Establishes an energy storage and microgrid grant and technical assistance program at DOE. The program will provide grants and technical assistance to a rural electric cooperative or non-profit entity, working with at least six rural electric cooperatives, to assist with designing and demonstrating energy storage and microgrid projects that utilize energy from renewable energy sources.

Sec. 2123. Authorization of appropriations.
Authorizes $5 million annually for the program from FY 2021 through 2025.

Subtitle B—Dam Safety

Sec. 2201. Hydroelectric production incentives and efficiency improvements.
Reauthorizes EPACT 05 section 242 to provide incentives for owners and operators of hydroelectric projects to make hydroelectric production and efficiency improvements to hydropower facilities from FY 2021 through 2036, and to expand eligibility for the program to hydropower facilities at existing dams or conduits with generating capacities of 10 megawatts or less.

Sec. 2202. FERC briefing on Edenville Dam and Sanford Dam failures.
Requires the Federal Energy Regulatory Commission (FERC) to provide a briefing and report to Congress on the findings of the independent forensic analysis of the Edenville Dam and Sanford Dam failures.

Sec. 2203. Dam safety conditions.
Amends FPA section 10 to require the dam and project works meet FERC's dam safety requirements and that the licensee manage, operate, and maintain the dam and other project works in a manner that ensures dam safety and public safety as part of the project license conditions.

Sec. 2204. Dam safety requirements.
Amends FPA section 15 to require FERC to issue a new license only if the Commission determines the dam and other project works meet the Commission's dam safety requirements and that the operating conditions of the license are consistent with those requirements.

Sec. 2205. Viability procedures.
Requires FERC establish procedures for evaluating the financial health of prospective hydropower licensees.

Sec. 2206. FERC dam safety technical conference with States.
Requires FERC to convene a technical conference with state representatives to examine best practices for dam safety.

Sec. 2207. Required dam safety communications between FERC and States.
Establishes requirements for FERC to inform a state in which a project is located when a licensee is required to take actions to repair a dam or other project works following a dam safety inspection, if a licensee who has been so notified fails to take actions to make repairs for a period of five years, or if the Commission takes steps to revoke a license for failure to make such repairs. Requires FERC provide specific documents to the state if the Commission issues an order to revoke or approve the surrender of a license.

Subtitle C—Distributed Renewable Energy

Sec. 2301. Definitions.
Defines the terms used in this subtitle.

Sec. 2302. Establishment or designation of the Distributed Energy Opportunity Board.

Requires the Secretary of Energy to establish a non-profit corporation, the Distributed Energy Opportunity Board, in consultation with non-federal stakeholders, to carry out a program to streamline the process for local permitting and inspection of qualifying distributed energy systems by developing voluntary, model expedited permit-to-build protocols and other activities. Designates the Board's composition and activities and authorizes the Board to assess fees for the provision of its services.

Sec. 2303. Distributed Energy Opportunity Communities.
Requires the Secretary to recognize communities that have adopted and implemented a model expedited permit-to-build protocol established by the Board as "Distributed Energy Opportunity Communities" and establishes a program to award grants to those communities.

Sec. 2304. Authorization of appropriations.
Authorizes $20 million each year for FY 2021 through 2025.

Subtitle D—Low-income Solar

Sec. 2401. Grant program for solar installations located in, or that serve, low-income and underserved areas.
Defines terms used in the section. Directs the Secretary of Energy to establish a program providing loans and grants to eligible entities to construct or install community solar facilities or solar generating facilities to serve multi-family affordable housing. Sets conditions for loan and grant applications. Requires funding received through the program to be used for solar generating equipment, job training, deployment support, or administrative expenses. Authorizes $200 million each year for FY 2021 through 2025.

Subtitle E—Research and Development

PART 1—SOLAR ENERGY RESEARCH AND DEVELOPMENT

Sec. 2501. Definitions.
Defines terms used throughout the part.

Sec. 2502. Solar energy research and development.
Directs the Secretary of Energy to carry out a program for research, development, demonstration, and commercial application (RDD&CA) of solar energy technologies. The program prioritizes solar energy technologies, including photovoltaic and concentrating solar power systems, that improve:

1. capacity and efficiency;
2. manufacturing, construction, operation, maintenance, and decommissioning;
3. reliability, resilience and security;
4. grid integration; and
5. affordability.

Directs the Secretary to conduct technical assistance and workforce development activities to promote information-based advances to solar energy systems' development and operation. Throughout all these activities, the Secretary must support technologies and strategies to reduce the potential negative impact of solar energy technologies on wildlife and incorporate sustainable chemistry practices and methodologies, to the extent practicable.

Repeals law that is duplicative and outdated in the context of this part.

Sec. 2503. Solar energy demonstration projects.

Directs the Secretary of Energy to award grants to demonstrate solar energy technologies. Projects will prioritize technologies that have the greatest potential to scale, reduce energy costs, expand access to disadvantaged communities, and improve domestic manufacturing, capacity, grid integration, and resilience of solar technologies.

Sec. 2504. Next generation solar energy manufacturing initiative.
Directs the Secretary of Energy to produce a Strategic Vision Report that outlines the market opportunities, challenges, and recommendations for domestic solar energy technology manufacturing. Based on the Report's results, the Secretary shall support projects that improve the competitiveness of solar manufacturing. The program must be evaluated no later than 3 years after the Report is published and reevaluated at least every 4 years thereafter.

Sec. 2505. Photovoltaic device recycling research and development.
Directs the Secretary of Energy to support projects that improve the recycling of solar energy technologies and reduce their life-cycle environmental impact. Not later than September 2022, the Secretary must create a photovoltaic materials physical property database to identify materials in photovoltaic devices and their current and projected commercially available amounts.

Sec. 2506. Authorization of appropriations.
Authorizes 5% annual funding increases over 5 years for solar energy RDD&CA activities, beginning with $294 million in 2021, to carry out this part.

PART 2—WIND ENERGY RESEARCH AND DEVELOPMENT

Sec. 2521. Definitions.
Defines terms used throughout the part.

Sec. 2522. Wind energy research and development.
Directs the Secretary of Energy to carry out a program for research, development, demonstration, and commercial application (RDD&CA) of wind energy technologies. The program prioritizes wind energy technologies, including onshore, distributed, and offshore turbines and airborne technologies, that improve:

1. capacity and efficiency;
2. manufacturing, construction, operation, maintenance, and decommissioning;
3. reliability, resilience, and security;
4. operational capability in new geographic and atmospheric environments;
5. grid integration; and
6. affordability.

The Act also instructs the Secretary to produce a report on the potential and technical viability of airborne wind energy systems to provide a significant source energy to the U.S., including a summary of the RDD&CA needs to further examine the viability of these technologies.

Repeals law that is duplicative and outdated in the context of this text.

Sec. 2523. Wind energy technology validation and market transformation program.
Directs the Secretary of Energy to award grants to demonstrate and validate wind energy technologies. The Secretary is specifically directed to support or establish a Hybrid Energy System Facility, Offshore Research Facility, and Offshore Support Structure Testing Facility. The Hybrid Energy System Facility would research and demonstrate wind energy technologies in an electric grid system that incorporates diverse generation sources, loads, and storage technologies. The Offshore Research Facility would test offshore atmospheric, oceanic, biological, and geological monitoring technologies relevant to offshore wind energy development and provide benchmark data. The Offshore Support Structure Testing Facility would conduct RDD&CA on large-scale and full-scale offshore wind energy support structures and components.

Sec. 2524. Wind energy incubator funding.

Directs the Secretary of Energy to provide support for incubators that support innovative wind energy technologies that are not already well-represented in DOE's RDD&CA portfolio and roadmaps.

Sec. 2525. Mitigating regulatory and market barriers.
Directs the Secretary of Energy to research, develop, test, and evaluate ways to reduce regulatory and market barriers for wind energy technologies. Projects will prioritize grid integration, siting and permitting challenges, and wildlife impact mitigation. The Secretary must also support education and workforce development activities to promote public understanding of wind energy technologies and the wind energy workforce.

Sec. 2526. Authorization of appropriations.
Authorizes 5% annual funding increases over 5 years for wind energy RDD&CA activities, beginning with $109.2 million in 2021, to carry out this part.

PART 3—ADVANCED GEOTHERMAL RESEARCH AND DEVELOPMENT

Sec. 2541. Definitions.
Defines terms used throughout this part.

Sec. 2542. Hydrothermal research and development.
Reauthorizes a research, development, demonstration, and commercial application program for geothermal energy production from hydrothermal systems as well as advanced technologies and techniques for exploratory drilling for undiscovered resources.

Sec. 2543. General geothermal systems research and development.
Reauthorizes a research, development, demonstration, and commercial application program for various geothermal systems, including subsurface components and systems, reservoir thermal energy storage, and environmental impacts of geothermal energy systems. This section also authorizes an oil and gas technology transfer initiative, a coproduction initiative between geothermal energy and minerals production, and research on flexible operations and hybrid energy systems.

Sec. 2544. Enhanced geothermal systems research and development.
Reauthorizes a research, development, demonstration, and commercial application program for enhanced geothermal systems research and development. It also authorizes the construction of up to three Frontier Observatory for Research in Geothermal Energy (FORGE) sites, including authorization of funding for these sites beginning at $45 million for fiscal year 2021 and increasing to $70 million by fiscal year 2025. Additionally, it supports an initiative for demonstration of enhanced geothermal systems technologies with projects taking into account a variety of development techniques and different geologic settings, including at least 1 demonstration carried out in an area east of the Mississippi River.

Sec. 2545. Geothermal heat pumps and direct use.
Authorizes a research, development, demonstration, and commercial application grant program for geothermal heat pumps and the direct use of geothermal energy, including consideration of environmental impacts of such technologies.

Sec. 2546. Cost sharing and proposal evaluation.
Amends existing code related to cost sharing and proposal evaluation to reflect current practice.

Sec. 2547. Advanced geothermal computing and data science research and development.
Authorizes a research and development program of advanced computing and data science tools for geothermal energy. This program includes advanced computing for geothermal systems technologies and geothermal systems reservoir

modeling. Additionally, this section directs the Secretary of Energy to coordinate with DOE Office of Science in carrying out the activities authorized in this program.

Sec. 2548. Geothermal workforce development.
Establishes a geothermal energy workforce development program that facilitates collaboration between universities and the national labs.

Sec. 2549. Organization and administration of programs.
Establishes an education and outreach program to disseminate information on geothermal energy technologies and the geothermal energy workforce. Establishes a technical assistance program for eligible entities to support commercial application of geothermal energy systems. Establishes reporting requirements for activities described in this part, which include a report to be completed every 5 years on the concepts and technologies to maximize geothermal potential in the U.S., and progress reports every two years on the results of projects undertaken under this part.

Sec. 2550. Repeals.
Makes conforming amendments to the existing code pursuant to the content of this part.

Sec. 2551. Authorization of appropriations.
Authorizes five years of funding for the activities and programs described in this part, which begins at $121.375 million for fiscal year 2021 and increases to $151.875 million for fiscal year 2025, including funding for FORGE sites and a high cost region geothermal energy grant program.

Sec. 2552. International geothermal energy development.
Reauthorizes an international collaborative effort to promote research, development, and demonstration of geothermal technologies.

Sec. 2553. Reauthorization of High Cost Region Geothermal Energy Grant Program.

Reauthorizes a high cost region geothermal energy grant program, including authorization of funding for this program of $5 million for each of fiscal years 2021 through 2025.

PART 4—WATER POWER RESEARCH AND DEVELOPMENT ACT

Sec. 2561. Water power research and development.
Amends Subtitle C of title VI of the Energy Independence and Security Act of 2007 (42 U.S.C 17211 et seq.) to reauthorize a research, development, demonstration, and commercial application (RDD&CA) program for water power technologies, which refers to hydropower, pumped storage, and marine energy technologies.

Definitions
Defines terms used throughout this section.

Water Power Technology Research, Development, and Demonstration
Outlines the purposes of this section, which are to authorize the Secretary of Energy (herein referred to as the Secretary) to carry out a RDD&CA program for water power technologies to increase their capacity and reduce cost; improve their environmental impact; provide grid reliability, resilience, and other services; and promote economic growth and enhance cross-institutional foundational workforce development in the water power sector, including in coastal, port, and fishing communities.

Hydropower Research, Development, and Demonstration

Directs the Secretary to carry out a RDD&CA program for hydropower technologies, including pumped storage. Outlines specific RDD&CA subject areas, which collectively focus on improving the capacity, efficiency, resilience, security, reliability, affordability, and environmental impact of hydropower systems.

Marine Energy Research, Development, and Demonstration

Directs the Secretary, in coordination with the Department of Defense, National Oceanic and Atmospheric Administration, and other relevant Federal agencies, to carry out a RDD&CA program for marine energy technologies, encompassing energy harnessed from waves, tides, currents, free-flowing waterways, and differentials in water temperature or salinity. Outlines specific RDD&CA subject areas, which prioritize improving marine energy technologies' capacity, efficiency, resilience, security, reliability, affordability, environmental impact, and novel applications. Authorizes a study of non-power sector applications for advanced marine energy technologies.

National Marine Energy Centers

Authorizes the Secretary to award grants, each up to $10 million per year, to existing and new National Marine Energy Centers (NMECs) to carry out marine energy RDD&CA programs that respond to industry and commercial needs; support in-water testing and demonstration; and collect and disseminate system best practices. Requires that institutions of higher education, or consortia thereof, manage NMECs.

Organization and Administration of the Programs

Ensures that in carrying out the Act, the Secretary collaborates with industry, National Laboratories, other relevant Federal agencies, institutions of higher education, NMECs, tribal entities, and international bodies with relevant expertise. Requires the results of projects supported by the Act to be publicly published to the extent practicable. Supports education and outreach activities to promote understanding of water power technologies and the water power workforce, including technical assistance and workforce development activities.

Finally, this section instructs the Secretary to create a strategic plan that addresses near and long-term planning for these programs, and also to provide a report to Congress at least every two years on the findings of research conducted and activities carried out under these programs and pursuant to the Strategic Plan.

Applicability of Other Laws

Makes clear that nothing in this section shall be construed as waiving, modifying, or superseding the applicability of any requirement under any environmental or other Federal or State law.

Authorization of Appropriations

Authorizes five years of funding for the activities and programs described in this section, which begins at $152.8 million for fiscal year 2021, including $112.6 million for marine energy and $40.2 million for hydropower, and increases to $173.6 million for fiscal year 2025, including $128.4 million for marine energy and $45.2 million for hydropower.

Sec. 2562. Conforming amendments.

Makes conforming amendments to the existing code pursuant to section 2561 content.

Subtitle F—Public Lands Renewable Energy Development

Sec. 2601-2612

Promotes wind, solar, and geothermal energy projects on public lands by creating priority areas for development and by giving the Department of the Interior more tools to speed up permitting. This subtitle has a number of provisions from H.R. 3794 (Gosar–AZ, Levin - CA) which was approved by the Committee on Natural Resources on November 20, 2019.

TITLE III—CARBON POLLUTION REDUCTION TECHNOLOGIES

Subtitle A—Fossil Energy Research and Development

Sec. 3101. Definitions.
Provides definitions for “Department” and “Secretary”.

Sec. 3102. Fossil energy objectives.
Adds five new objectives to the current list of objectives in statute for DOE’s fossil energy research activities. These additions expand the statutory scope of the Office of Fossil Energy by directing the Department to focus on improving conversion, use, and storage of carbon dioxide from fossil fuels, lowering greenhouse gas emissions across the fossil fuel lifecycle, preventing methane leaks, reducing water use, improving the separation and purification of helium from fossil fuel resources, and developing carbon removal and utilization technologies. Amends two objectives to focus on decreasing the cost and increasing the export of emissions control technologies.

Prioritizes technologies and strategies that have the potential to meet emissions reduction goals in the Paris Agreement.

Sec. 3103. Carbon capture technologies.
Directs the Secretary to conduct research, development, demonstration, and commercial application activities for carbon capture technologies. Authorizes and encourages support for large-scale pilot projects.

Authorizes the establishment of not less than three Carbon Capture Pilot Test Centers, which are intended to be public-private partnerships to enable the development and testing of carbon capture technologies with the necessary scale and modular capabilities to yield meaningful results for commercial application of these technologies on power and industrial systems.

Adds reforms and additional oversight to the establishment of new demonstration activities.

Directs the Government Accountability Office to examine the Department’s practices in carrying out demonstration projects for carbon capture technologies.

Authorizes five years of funding for the above activities beginning with $300 million in Fiscal Year 2021, with a 5% annual funding increase each year to account for inflation and growth.

Subsection (i) Includes a commercial demonstration program to improve the efficiency, effectiveness, costs, and environmental performance of carbon capture technologies for power, industrial, transportation, and other commercial applications. Authorizes $1.5 billion each year for FY 2021 through FY 2025 for first through fifth-of-its-kind projects.

Sec. 3104. Natural gas carbon capture research, development, and demonstration Program.
Establishes a program to conduct research, development, and demonstration of technologies to capture carbon dioxide produced during the generation of electricity from natural gas power systems.

Authorizes $50 million per year for five years for these activities.

Sec. 3105. Carbon storage validation and testing.
Reauthorizes research, development, and demonstration activities in carbon storage. Removes the current limitation of seven large-scale carbon sequestration demonstrations to allow for additional demonstrations as the Secretary sees fit. Directs the National Energy Technology Laboratory to act as the clearinghouse of information for the regional

sequestration partnerships. Directs DOE to submit a report to Congress detailing the progress and remaining challenges for carbon sequestration.

Authorizes a program for integrated storage projects focusing on the qualification of storage sites and the technical and commercial viability of these locations and geologic structures.

Authorizes five years of funding for these activities beginning with $620 million in Fiscal Year 2021, and increasing to $645.9 million in Fiscal Year 2025.

Sec. 3106. Carbon utilization.
Establishes a research, development, and demonstration program for carbon utilization. This section authorizes research to identify and evaluate novel uses for carbon.

Authorizes five years of funding for these activities beginning with $25 million in Fiscal Year 2021, with a 5% annual funding increase each year to account for inflation and growth.

Directs the National Academies to conduct a study examining the barriers and opportunities related to commercial application of carbon dioxide.

Sec. 3107. Advanced energy systems.
Authorizes a program of research, development, demonstration, and commercial application to lower emissions and improve the efficiency of fossil fuel power generation. This includes R&D activities related to high-efficiency turbines, supercritical and ultrasupercritical CO2, advanced combustion systems, fuel cell technologies, gasification systems, thermal cycling, and modular coal-fired technologies with carbon capture.

Authorizes five years of funding for these activities beginning with $150 million in Fiscal Year 2021, with a 5% annual funding increase each year to account for inflation and growth.

Sec. 3108. Rare earth elements.

Directs the Secretary to conduct research and development to separate and recover rare earth elements and strategic minerals from coal and coal byproduct streams, including research to assess and mitigate any environmental and public health impacts associated with these processes.

Authorizes five years of funding for these activities beginning with $23 million in Fiscal Year 2021, with a 5% annual funding increase each year to account for inflation and growth.

Sec. 3109. Methane hydrate research amendments.
Amends the Methane Hydrates Research and Development Act of 2000 to add further considerations of environmental impacts as the Department of Energy pursues this area of research. Authorizes $15 million per year for five years for these activities.

Sec. 3110. Carbon removal.
Establishes a research, development, and demonstration program to examine the methods, technologies, and strategies to remove carbon dioxide from the atmosphere at a large scale.

Establishes a pre-commercial air capture technology prize and a direct air capture test center.

Subsection (f) requires the Secretary of Energy, in consultation with the Administrator of the EPA, to establish a commercial direct air capture prize program for qualified facilities that capture CO_2 directly from the ambient air and capture more than 10,000 metric tons of CO_2 annually. Authorizes $200 million each year for FY 2021 through FY 2025, and $400 million each year for FY 2026 through FY 2030.

Authorizes five years of funding for all activities in this section, beginning with $260 million (not including one-year funding for the pre-commercial prize competition) in Fiscal Year 2021, and increasing to $272.9 million in Fiscal Year 2025. It also authorizes an additional $15 million in FY 2021 ($275 million total for activities pursuant to this Section) for the pre-commercial prize competition to develop direct air capture technologies.

Sec. 3111. Methane leak detection and mitigation.
Establishes a program at the Department of Energy, in coordination with the appropriate Federal agencies, to examine technologies and methods to detect and mitigate methane leaks. The section also authorizes the Department to develop cooperative agreements with State or local governments as well as private entities in order to provide technical assistance to prevent or respond to methane leaks and protect public health in the event of a major methane leak. The section directs DOE to create a publicly accessible resource for industry best practices to prevent methane leaks across the range of methane infrastructure and equipment.

Of the amounts authorized in Section 3, authorizes five years of funding for these activities beginning with $22 million in Fiscal Year 2021, with a 5% annual funding increase each year to account for inflation and growth.

Sec. 3112. Waste gas utilization.
Provides the Director of the National Energy Technology Laboratory (NETL) special hiring authority that would allow NETL to better recruit highly talented individuals for certain positions and add additional workforce flexibility to meet research needs. This authority allows the Director to hire employees for a term of three years without following the federal hiring process or the federal pay scale (with limitations to the latter). Along with these exceptions, the Director may also terminate the employee at any time due to performance or changing priorities. The subsection specifies that the special hiring authority be used for meeting specific project or research needs of the Department. The number of employees at the laboratory under special-hiring authority is capped at no more than ten at any given time.

The section also provides NETL with a discretionary budget, the amount of which is to be between 2 and 4 percent of the laboratory's overall budget. These funds can be used for research, technology transition, workforce development or minor infrastructure improvements or construction. The Secretary is required to submit an annual report to Congress on the use of this authority.

The final part of this section requires that the Secretary submit to Congress a review that includes an assessment of the quality of science and research at NETL relative to other national laboratories, an assessment of the new authorities authorized under this section, and recommendations for additional policy changes to better advance NETL's mission.

Sec. 3113. National energy technology laboratory reforms.
Provides the Director of the National Energy Technology Laboratory (NETL) special hiring authority that would allow NETL to better recruit highly talented individuals for certain positions and add additional workforce flexibility to meet research needs. This authority allows the Director to hire employees for a term of three years without following the federal hiring process or the federal pay scale (with limitations to the latter). Along with these exceptions, the Director may also terminate the employee at any time due to performance or changing priorities. The subsection specifies that the special hiring authority be used for meeting specific project or research needs of the Department. The number of employees at the laboratory under special-hiring authority is capped at no more than ten at any given time.

The section also provides NETL with a discretionary budget, the amount of which is to be between 2 and 4 percent of the laboratory's overall budget. These funds can be used for research, technology transition, workforce development or minor infrastructure improvements or construction. The Secretary is required to submit an annual report to Congress on the use of this authority.

The final part of this section requires that the Secretary submit to Congress a review that includes an assessment of the quality of science and research at NETL relative to other national laboratories, an assessment of the new authorities authorized under this section, and recommendations for additional policy changes to better advance NETL's mission.

Sec. 3114. Climate Solutions Challenges.
Establishes a prize competition for solutions to reduce greenhouse gas emissions associated with fossil-based energy production.

Subtitle B—Controlling Methane Leaks

Sec. 3201. Improving the natural gas distribution system.
Directs the Secretary of Energy to establish a program awarding grants to states to improve the performance of the natural gas distribution program. Sets requirements for state grant applications to the program. Describes eligible projects to be conducted by natural gas distribution companies and requires a company receiving funds through a state grant to use such funds only to offset the near-term incremental costs to low-income households. Sets priorities for grant funding. Directs the Secretary to establish auditing and reporting requirements for states. Defines terms used in the section. Authorizes $250 million each year for FY 2021 through 2025.

Subtitle C—Eminent Domain Reform

Sec. 3301. Modifications to exercise of the right of eminent domain by holder of a certificate of public convenience and necessity.
Amends the Natural Gas Act to prevent pipeline companies from using eminent domain until they have obtained all federal and state permits necessary for the construction and operation of a pipeline project and complied with all environmental conditions included in the certificate order. Prohibits use of eminent domain for pipelines attached to liquified natural gas facilities.

TITLE IV—NUCLEAR ENERGY

Subtitle A—Advanced Nuclear Fuel Availability

Sec. 4101. Program.
Requires the Secretary of Energy to establish and carry out, through the Office of Nuclear Energy, a program to support the availability of high-assay low-enriched uranium, or HA-LEU, for civilian domestic demonstration and commercial use.

Sec. 4102. Reports to Congress.
Requires the Nuclear Regulatory Commission (NRC) to submit a report to Congress not later than 12 months from the date of enactment of the Act which identifies updates to regulations, certifications, and other regulatory policies that the Commission determines are necessary in order for HA-LEU to be commercially available. Requires the Secretary of Energy to submit a report to relevant committees in Congress on the program authorized in section 4101, which will include schedule and cost estimates. Requires the Secretary of Energy to submit an advanced fuel material availability report, to detail nuclear material inventories at DOE other than that containing the uranium-235 isotope.

Sec. 4103. Authorization of appropriations.
Authorizes appropriations for this subtitle with five percent annual funding increases over five years, beginning with $31.5 million for FY 2021.

Sec. 4104. Definitions.
Defines terms used in the subtitle.

Subtitle B—Nuclear Energy Leadership Act

Sec. 4201. Definitions.
Amends the Energy Policy Act of 2005 by adding new definitions used in the subtitle.

Sec. 4202. Nuclear energy research, development, demonstration, and commercial application programs.
Reactor Concepts Research, Development, and Demonstration, and Commercial Application
Authorizes a light water sustainability program and specific technology goals. Authorizes an advanced reactor technologies program focused on proliferation-resistant and passively safe designs, and includes focus areas on materials, modeling and simulation, chemistry, instrumentation and controls, manufacturing, among other areas. Authorizes a hybrid energy systems research and development program, which includes applications such as desalination, hydrogen or other liquid and gaseous fuel or chemical production, heat for industrial processes, and carbon capture, use, utilization, and storage, among others. Authorization of appropriations are included as follows:

- Light water reactor sustainability program: 5% annual funding increases over 5 years, beginning with $55,000,000 in fiscal year 2021;
- Advanced reactor technologies program: $55,000,000 for each of fiscal years 2021 through 2025; and
- Hybrid energy systems program: 5% annual funding increases over 5 years, beginning with $52,500,000 in fiscal year 2021.

Fuel Cycle Research, Development, Demonstration, and Commercial Application
Authorizes a used nuclear fuel program that includes both open and closed fuel cycle technologies. Authorizes an advanced fuels program for both light water and advanced reactors, focusing on proliferation resistance and accident tolerance, and a report on these technologies and how they would impact reactor economics, safety, and the environment, among other areas. Authorization of appropriations are included as follows:

- Used nuclear fuel program: 5% annual funding increases over 5 years, beginning with $91,875,000 in fiscal year 2021; and
- Advanced fuel program: 5% annual funding increases over 5 years, beginning with $133,000,000 in fiscal year 2021.

Nuclear Science and Engineering Support
Reauthorizes nuclear educational research and development programs, including specific authorization of appropriations for radiological facilities management and support. Authorizes a nuclear energy apprenticeship program. Authorization of appropriations are included as follows:

- University nuclear leadership program: $15,000,000 for each of fiscal years 2021through 2030;
- Radiological facilities management: $20,000,000 for each of fiscal years 2021 through 2030;
- Nuclear energy apprenticeship program: $5,000,000 for each of fiscal years 2021 through 2030; and
- Nuclear energy university program: 20% of nuclear energy research and development programs funds annually.

Versatile Neutron Source
Authorizes appropriations for the versatile test reactor for five years as follows:

- $300,000,000 in fiscal year 2021;
- $550,000,000 in fiscal year 2022;
- $638,000,000 in fiscal year 2023;
- $765,000,000 in fiscal year 2024; and
- $763,000,000 in fiscal year 2025.

Advanced Nuclear Reactor Research, Development, Demonstration and Commercial Application Program
Authorizes a program that identifies technologies that the private sector is unable or unwilling to undertake and facilitates access of the private sector to work performed by the Federal government. Establishes research goals and

selection requirements for the demonstration projects. Authorizes appropriations for this program for five years, with $530,000,000 for fiscal year 2021, and $680,000,000 for each of fiscal years 2022 through 2025.

International Nuclear Energy Cooperation
Authorizes an international research, development, demonstration, and commercial application coordination effort on nuclear energy. Includes coordination goals and considerations.

Sec. 4203. Nuclear energy budget plan.
Amends the Energy Policy Act of 2005 to include a biennial budget plan update which shall be reported to relevant Congressional committees.

Sec. 4204. Organization and administration of programs.
Instructs the Secretary of Energy to coordinate cross-cutting programs among other relevant Federal agencies and national laboratories, collaborate with specific entities on programs, disseminate results of projects as practicable, create an education and outreach program to promote public understanding and support of nuclear energy, and establish a nuclear energy technical assistance program. It also instructs the Nuclear Energy Advisory Committee to perform an annual review of all programs.

TITLE V—ELECTRIC GRID AND CYBERSECURITY

Subtitle A—Electric Grid

PART 1—21ST CENTURY POWER GRID
Sec. 5101. 21st Century Power Grid.
Directs the Secretary of Energy to establish a program providing funding to eligible partners for projects that improve resiliency, performance, or efficiency of the electricity grid. Partnerships may include (a) a state or local government, a National Laboratory, an institution of higher education, an Indian Tribe, a federal power marketing administration, or an entity that develops or provides grid technology and (b) either an electric utility, a Regional Transmission Organization, or an Independent System Operator. Authorizes $700 million each year for FY 2021 through 2025.

PART 2—TRANSMISSION PLANNING
Sec. 5111. Interregional transmission planning report.
Requires FERC to review and report on its progress on encouraging deployment of transmission technologies that increase the capacity and efficiency of existing transmission infrastructure.

Sec. 5112. Interregional transmission planning rulemaking.
Requires FERC initiate a rulemaking to increase the effectiveness of the interregional transmission planning process.

Subtitle B—State Energy Security Plans

Sec. 5201. State energy security plans.
Amends EPCA to authorize states' use of federal financial assistance received through the State Energy Program (SEP) to implement, revise, and review, a State Energy Security Plan. The section also establishes requirements for the contents of a State Energy Security Plan. Also requires the governor of a state to submit a plan, revision to a plan, or certification of no revisions being necessary to a plan to the Secretary of Energy annually. The section authorizes $100 million each year for FY 2021 through 2025.

Subtitle C—Research and Development

PART 1—BETTER ENERGY STORAGE TECHNOLOGY

Sec. 5301. Energy storage.
This section authorizes a cross-cutting research and development program at the Department of Energy on energy storage, including instructing the Secretary to coordinate across relevant program offices in carrying out the program and to adopt long-term cost and performance targets for the program. Additionally, this section requires the Secretary to develop a 5-year strategic plan to identify goals and timelines for the research and development program. Furthermore, this section instructs the Secretary to develop testing and validation methodologies for a variety of energy storage technologies. This section also authorizes a technical assistance program to assist with interconnection of energy storage systems with the electric grid and assessment of technical and geographic characteristics in addition to an energy storage demonstration program. Lastly, this section authorizes the following amounts for appropriations: for research and development, $65.1 million in fiscal year 2021 with 5% annual increases through fiscal year 2025 and for a demonstration program, $50 million for each of fiscal years 2021 through 2025.

Sec. 5302. Critical mineral recycling and reuse research, development, and demonstration program.
This section authorizes a research, development, and demonstration program for the recycling of energy storage systems containing critical minerals, including technologies and processes to facilitate and promote recycling; mitigation of environmental impacts arising from recycling, including disposal of toxic byproducts; and analysis of non-technical barriers to improving the transportation of energy storage systems containing critical minerals. Further, this section requires a regular report summarizing the activities, findings, and progress of the program. Lastly, this section defines terms used in this Part.

PART 2—GRID MODERNIZATION RESEARCH AND DEVELOPMENT

Sec. 5321. Smart grid regional demonstration initiative.
Reauthorizes the smart grid demonstration program in the Energy Independence and Security Act of 2007 and adds the commercial application of distribution automation technologies to the goals of the program.

Sec. 5322. Smart grid modeling, visualization, architecture, and controls.
Authorizes a research, development, demonstration, and commercial application program on modeling emerging technologies and systems for secure and reliable design and planning of the grid; technologies to improve sensing, monitoring, and visualization of the grid; development of grid architectures for a modern grid; and operation and controls of the grid.

Sec. 5323. Hybrid energy systems.
Authorizes a research, development, and demonstration program to develop cost-effective hybrid energy systems incorporating a variety of technologies, including nuclear energy, renewable energy, storage, and carbon capture and directs the Secretary to submit a 10-year strategic plan on hybrid energy systems.

Sec. 5324. Grid integration research and development.
Authorizes research, development, and demonstration activities relating to integrating renewable energy, electric vehicles, and buildings onto the electric grid.

Sec. 5325. Industry alliance.
Directs the Secretary to establish an industry alliance that is broadly representative of the U.S. electric grid research and development, infrastructure, operations, and manufacturing expertise to assist the Secretary with identifying research and development needs, assessing progress on research and development activities, and updating technology roadmaps.

Sec. 5326. Coordination of efforts.

Directs the Secretary to coordinate with relevant entities on the activities authorized in this Act, including electric utilities, transmission organizations, distributions owners and operators, the national labs, among other entities.

Sec. 5327. Technical amendments; authorization of appropriations.
Makes technical amendments to existing statute and authorizes the following amounts for appropriations: for sections 5321, 5322, 5325, and 5326, $175 million in fiscal year 2021, with $5 million annual funding increases through fiscal year 2021; for section 5323, $21 million in fiscal year 2021, with 5% annual funding increases through fiscal year 2025; and for section 5324, $52.5 million in fiscal year 2021 with 5% annual funding increases through fiscal year 2025.

PART 3—GRID SECURITY RESEARCH AND DEVELOPMENT

Sec. 5341. Amendment to Energy Independence and Security Act of 2007.

Energy Sector Security Research, Development, and Demonstration Program
Authorizes DOE to support research, development, and demonstration activities to advance relevant cybersecurity technologies; authorizes NSF to support fundamental research to advance the cybersecurity of information systems and to support education and training for the information systems cybersecurity workforce; and authorizes DHS to identify and adapt cybersecurity tools used in the defense industry for application in the civilian energy sector.

Grid resilience and emergency response
This section authorizes a research, development, and demonstration program at DOE on methods, tools, and technologies to improve grid resilience, grid reliability, and emergency response, including technologies to detect sparks causing wildfires and assessments to determine necessary grid infrastructure upgrades. This section also authorizes a technical assistance program for eligible entities to develop plans for preventing and recovering from various power outage scenarios.

Best practices and guidance documents for energy cybersecurity research
This section authorizes DOE to work with stakeholders to update relevant cybersecurity roadmaps and reports; develop voluntary guidance on digital forensic analysis; and develop a mechanism to anonymize and share testing results from cybersecurity test beds. This section also authorizes NIST to work with stakeholders to develop consensus-based best practices to improve cybersecurity and to recommend cybersecurity requirements for the private sector to design and build cybersecurity into grid technologies.

Vulnerability testing and technical assistance to improve cybersecurity
Authorizes DOE to assist entities in developing cybersecurity testing capabilities; collaborate with stakeholders to evaluate cybersecurity issues and challenges in the energy sector and facilitate information sharing; and collaborate with tribal governments to improve the cybersecurity of energy assets within their jurisdiction.

Education and workforce training research and standards
Authorizes DOE to support the development of a cybersecurity workforce in collaboration with the private sector and other federal agencies, and to maintain a public database of cybersecurity education, training, and certification programs.

Interagency coordination and strategic plan for energy sector cybersecurity research
Directs DOE to develop an Interagency Strategic Plan to identify how the current work of federal agencies complements and advances the goals of the energy sector's cybersecurity research roadmap, and to make recommendations for future research.

Report to Congress
Directs DOE to submit a report to Congress that provides recommendations for additional research, development, demonstration, and commercial application activities to improve physical and cyber security of the energy sector, including the analysis of past physical- and cyber-attacks and common factors amongst attacks.

Definitions
Defines terms used in this section.

Authorization of appropriations
Authorizes 5% annual funding increases over 5 years for grid security research, development, and demonstration activities, beginning with $150 million in fiscal year 2021, to carry out this section.

Sec. 5342. Critical infrastructure research and construction.
Directs DOE to carry out a program of research, development, and demonstration of technologies and tools to help ensure the resilience and security of critical integrated grid infrastructures, and to establish and operate a critical infrastructure test facility that allows for scalable physical and cyber performance testing to be conducted on industry-scale critical infrastructure systems.

Sec. 5343. Conforming amendment.
Makes conforming amendments to existing statute.

Subtitle D—Tribal Energy

Sec. 5401. Indian energy.
Amends section 2601(2) of the EPACT 92 to include any land occupied by a majority of residents who are members of Alaskan Native Tribes in the definition of Indian Land. Also allows the Secretary of Energy to reduce any required cost share for energy projects funded through the Office of Indian Energy. Reauthorizes the program at $50 million annually for FY 2021 through 2025.

Sec. 5402. Report on electricity access and reliability.
Requires the Secretary of Energy to assess electricity access and reliability by Tribal communities and to produce a report based on the findings of the assessment. The Secretary must consult with Tribal governments in the design and conduct of the study and consult with the North American Electricity Reliability Council (NERC) and FERC in conducting the study.

TITLE VI—TRANSPORTATION

Subtitle A—Diesel Emissions Reduction

Sec. 6101. Reauthorization of diesel emissions reduction program.
Amends EPACT 05 section 797 to reauthorize the diesel emissions reduction program at $500 million each year for FY 2021 through 2025.

Subtitle B—Clean School Bus Program

Sec. 6201. Reauthorization of Clean School Bus Program.
Amends EPACT 05 section 741 to reauthorize EPA's clean school bus program. Adds or revises several definitions, including adding "electricity" as an "alternative fuel" and adding a definition for "zero-emission school bus." Authorizes the Administrator to award grants, rebates, or low-cost loans for up 100 percent of the replacement costs of a zero-

emission school bus and up to 60 percent of the replacement costs of other eligible clean school buses, and to include acquisition of charging and fueling infrastructure as eligible costs. Directs the Administrator to develop an outreach program to promote the grant program. Authorizes $130 million each year for FY 2021 through 2025 with $52 million designated for replacing or retrofitting buses to serve a community of color, indigenous community, or low-income community, or any community located in a designated non-attainment area.

Subtitle C—Clean Cities Coalition Program

Sec. 6301. Clean Cities Coalition Program.
Directs the Secretary of Energy to carry out a Clean Cities Coalition Program. Prescribes specific program elements and duties of the Secretary. Describes projects and activities that are eligible for awards and specific goals of the projects and activities. Requires each designated Clean Cities Coalition to submit an annual report to the Secretary. Defines terms used in the section. Authorizes $50 million for FY 2021, $60 million for FY 2022, $75 million for FY 2023, $90 million for FY 2024, and $100 million for FY 2025.

Subtitle D—Renewable Fuel Standard Integrity

Sec. 6401. Annual deadline for petitions by small refineries for exemptions from renewable fuel requirements.
Sets an annual deadline of June 1 for small refineries to petition EPA for an exemption from the upcoming year's Renewable Fuel Standard (RFS) blending requirements.

Sec. 6402. Information in petition subject to public disclosure.
Requires public disclosure of information included in a petition for an exemption from the annual blending requirements – specifically the name of the small refinery and number of gallons of renewable fuel waived – for calendar year 2021 or a subsequent calendar year.

Subtitle E—EV Infrastructure

Sec. 6501. Definitions.
Defines terms used throughout the subtitle.

Sec. 6502. Electric vehicle supply equipment rebate program.
Directs the Secretary of Energy to establish a program to provide rebates to eligible entities that install publicly accessible electric vehicle supply equipment.

Sec. 6503. Expanding access to electric vehicles in underserved communities.
Requires the Secretary to conduct an assessment and produce a report within one year of enactment on the availability, opportunities for additional deployment, and best practices to encourage deployment of electric vehicle charging infrastructure in underserved communities.

Sec. 6504. Ensuring program benefits for underserved and disadvantaged communities.
Directs the Secretary to ensure to the extent practicable that programs in the chapter consider the needs of underserved or disadvantaged communities and provide those communities access to electric vehicle infrastructure, access to clean transportation, and improved air quality.

Sec. 6505. Model building code for electric vehicle supply equipment.
Requires the Secretary to update model building codes for integrating electric vehicle supply equipment into multi-family buildings.

Sec. 6506. Electric vehicle supply equipment coordination.
Requires the Assistant Secretary for Electricity Delivery and Reliability to convene a group to assess the development of standards necessary to support expanded deployment of a nationwide electric vehicle charging network.

Sec. 6507. State consideration of electric vehicle charging.
Amends PURPA section 111(d) to require states to consider authorizing measures to encourage deployment of electric vehicle charging stations, authorizing recovery of capital investments in equipment to enable deployment of an electric vehicle charging network by utilities, and allowing other private or public entities that are not regulated electric utilities to sell electricity to the public only through electric vehicle chargers.

Sec. 6508. State energy plans.
Amends EPCA to authorize funding for State Energy Conservation plans and for preparation of State Energy Transportation plans by state energy offices. It also amends EPCA to allow the Secretary of Energy to provide funding to a state to develop an energy transportation plan as part of that state's energy conservation plan. The purpose of the plan is to promote electrification of the transportation system, reduce consumption of fossil fuels, and improve air quality.

Sec. 6509. Transportation electrification.
Amends the definition of a qualified electric transportation project in EISA section 131(a)(6) to include projects facilitating electrification of the transportation sector, projects involving ground support equipment at ports, and projects deploying plug-in electric vehicle charging infrastructure. Directs the Secretary to give priority to applicants that include written assurance that all laborers working on the project will be paid prevailing wages. Reauthorizes the program to provide $2 billion each year for FY 2021 through 2025 for the grants to state and local governments and private entities. Also provides $2.5 billion each year over the same period for large-scale projects to electrify the transportation sector.

Sec. 6510. Federal fleets.
Amends EPACT 92 section 303 to increase the percent of alternative fueled vehicles acquired in federal agencies' fleets and sets minimum requirements for the percentage of alternative fueled vehicles that must be zero-emission vehicles, including percentages for light-, medium-, and heavy-duty vehicles acquired by federal agencies. Amends EPCA to direct federal agencies to increase alternative fuel consumption and to reduce vehicle greenhouse gas pollution.

Sec. 6511. Domestic Manufacturing Conversion Grant Program.
Amends EPACT 05 to include plug-in electric vehicles and directs the Secretary of Energy to accelerate domestic manufacturing of batteries, power electronics, and other technologies for use in plug-in vehicles. Sets priorities for awards that would be provided to manufacturing facilities that have recently ceased operation or that will cease operation in the near term, as well as to applications that include assurance that laborers employed on a project will be paid prevailing wages. Includes a condition that the recipient of a grant must continue operations at the facility for a period of at least 10 years after construction completion. Authorizes $2.5 billion each year for FY 2021 through 2025.

Sec. 6512. Advanced technology vehicles manufacturing incentive program.
Amends EISA section 136 to modify and broaden the definition of an "Advanced Technology Vehicle" to include: ultra-efficient vehicles, which is revised to include hydrogen fuel cell electric vehicles; light-duty vehicles or medium-duty passenger vehicles that (A) are produced in model years 2021 through 2025 and meet the regulatory standards for such model years promulgated by the EPA Administrator on October 15, 2012 or (B) emit zero emissions of greenhouse gases; and heavy-duty vehicles that (A) comply early with and demonstrate achievement below the regulatory standards promulgated for model year 2027 for heavy-duty vehicles by the EPA Administrator on October 25, 2016 or (B) emit zero emissions of greenhouse gases. Revises the definition of qualifying components and adds a new subcategory of ultra-efficient components. This section also increases the federal cost-share of the facility funding awards from 30 percent to 50 percent, except that facility funding awards for ultra-efficient components may be up to 80 percent.

This section also strengthens labor standards for funded projects. It revises the selection criteria used by the Secretary to require the award recipient to have a reasonable prospect of repaying principal and interest on the loan. It limits the collection of fees and consultant costs from program applicants to $100,000 or 10 basis points of the loan. This section

also adds projects to manufacture zero-emission medium-duty passenger vehicles or heavy-duty vehicles and ultra-efficient components to the list of prioritized projects. In addition, this section directs the Secretary to implement an outreach program and to submit reports to Congress, to include data on jobs retained, restored, or created by financed projects. Authorizes $10 million each year for FY 2021 through 2025, with an additional $10 million for FY 2021, to remain available until expended, for administrative costs not covered by collected fees.

Subtitle F—Vehicles Used for Competition

Sec. 6601. Treatment of vehicles not registered and used solely for competition.

Clarifies that motor vehicles that are not registered for street or highway operation, can be modified into a vehicle used solely for competition and not driven on public roads.

TITLE VII—ADVANCED RESEARCH PROJECTS AGENCY—ENERGY

Sec. 7001. ARPA–E amendments.
Amends the America COMPETES Act (42 U.S.C. 16538(b)) to authorize ARPA-E to support projects addressing nuclear waste clean-up and management, and to improve the resilience, reliability, and security of our energy infrastructure, in addition to its existing missions.

Adds an annual reporting requirement on ARPA-E's scale-up, demonstration, and coordination activities.
Requires the Director of ARPA-E to produce and provide to Congress a strategic vision roadmap every four years.

Ensures that ARPA-E coordinates with other DOE programs to avoid unintentional duplication of RD&D activities across programs.

Ensures that ARPA-E does not provide funding for a project unless it demonstrates sufficient attempts to secure private financing or indicates lack of independent commercial viability.

Authorizes the Secretary to enter into a contract with the National Academies to conduct an evaluation of the program no later than three years after the date of enactment.

Authorizes annual funding increases over five years for ARPA-E, beginning with $497 million in 2021 and rising to $875 million in 2025, to carry out the Act.

TITLE VIII—TECHNOLOGY TRANSFER

Sec. 8001. Definitions.
This section defines terms used in this Title.

Subtitle A. National Clean Energy Technology Transfer Programs.

Sec. 8101. Regional Clean Energy Innovation Program.
This section authorizes a Regional Clean Energy Innovation Program to establish regional partnerships that promote the economic development of diverse geographic areas of the United States by supporting clean energy innovation. Specifically, it authorizes grants to be awarded to consortia consisting of a State, local, or tribal government in partnership with other entities such as institutions of higher education, workforce training providers, and economic development organizations, with special consideration given to applications from entities located in an economically distressed area. This section caps an award amount at $10 million over 5 years and requires a cost-share of 50% in years 3, 4, and 5, of the grant, with an optional renewal for an additional 5 years. This section also authorizes grants in the amount of $2 million for government entities, in partnership with other entities, to conduct planning activities for a

regional clean energy innovation partnership. Additionally, this section instructs the Secretary of Energy to develop metrics to measure the success of the program authorized under this section, in collaboration with program evaluation experts. This section also authorizes an evaluation of the program by the Comptroller General every three years. Finally, this section authorizes $50 million for each of fiscal years 2021 through 2025 to carry out this program.

Sec. 8102. National Clean Energy Incubator Program.
This section authorizes a program to support incubators that accelerate the commercial application of clean energy technologies by providing a physical workspace or support, such as business education and mentorship to clean energy technology startups or companies. Awards authorized under this section are limited to $4 million per state for one or more incubators, for a period of no longer than 5 years, with the option for a renewal of not more than 3 years. Additionally, this section instructs the Secretary to prioritize funding clean energy incubators that support the commercial application of technologies being developed by clean energy entrepreneurs from underrepresented backgrounds, among other criteria. This section also requires the Secretary to submit an evaluation every three years. Finally, this section authorizes $15 million for each of fiscal years 2021 through 2025 to carry out this program.

Sec. 8103. Clean Energy Technology University Prize Competition.
This section authorizes a prize competition for university students to develop a business model for furthering the commercial application of an innovative clean energy technology to encourage student interest in clean energy technology development in diverse regions of the U.S. This section authorizes the Secretary of Energy to fund training for students in commercial application and instructs the Secretary to prioritize funding entities that work with students at minority-serving institutions. This section requires the Secretary to report annually on the progress and implementation of the program, and to provide an evaluation of the program every three years. Finally, this section authorizes $1 million for each of fiscal years 2021 through 2025 to carry out this program.

Section 8104. Energy I-Corps.
This section authorizes an Energy I-Corps program to support commercial application education, training, and professional development for participants interested in the commercial application of clean energy and other technologies related to the missions of the Department of Energy. Participants of the program include employees at the national laboratories and researches, students, and clean energy entrepreneurs. This section encourages the Secretary of Energy to partner with existing organizations to broaden access to the Energy I-Corps program, and to coordinate with other federal agencies to share best practices. This section also requires the Secretary of Energy to provide an evaluation of the program every 3 years. Finally, this section authorizes $3 million for each of fiscal years 2021 through 2025 to carry out this program for national lab employees and $3 million for each of fiscal years 2021 through 2025 to carry out this program for researchers, students, and clean energy entrepreneurs.

Section 8104. Clean Energy Technology Transfer Coordination.
This section authorizes the Secretary of Energy to support the coordination of relevant technology transfer programs, including those authorized in sections 8101, 8102, 8103, 8202, and 8206 of this Act. Coordination activities described in this Section include information sharing, connecting entrepreneurs and startup companies to the variety of programs related to clean energy technology transfer under the Department of Energy, and the development of metrics to measure the impact of clean energy technology transfer programs. Finally, this section authorizes $3 million for each of fiscal years 2021 through 2025 to carry out activities under this section.

Subtitle B. Supporting Technology Development at the National Laboratories.

Section 8201. Lab Partnering Service Pilot Program.
This section authorizes a Lab Partnering Service Pilot Program to provide services that encourage and support partnerships between the national laboratories and public and private sector entities. The Secretary of Energy is directed to support the development of metrics to determine the effectiveness of the pilot program and to coordinate with Directors of the national laboratories to carry out this pilot program, including for matchmaking services for individual projects. The program is authorized to operate for 3 years, after which the Secretary is directed to support an

evaluation of the pilot program. Finally, this section authorizes $2 million for each of fiscal years 2021 through 2023 to support the pilot program and $1.7 million for each of fiscal years 2021 through 2023 to compensate national laboratory employees for providing services under this section.

Sec. 8202. Lab-embedded Entrepreneurship Program.
This section authorizes a program to provide entrepreneurial fellows with access to national laboratory research facilities, expertise, and mentorship to assist with the commercial application of research ideas. The Secretary of Energy is instructed to support the development of short-term and long-term metrics to assess the effectiveness of programs that receive a grant under this section, and to support an evaluation of the program every 3 years. Finally, this section authorizes $25 million for each of fiscal years 2021 through 2025 to carry out this program.

Sec. 8203. Small Business Voucher Program.
This section authorizes a program for the Secretary of Energy, in consultation with the Directors of the National Laboratories, to provide small businesses with vouchers to perform research, development, demonstration, technology transfer, or commercial application activities at the national laboratories. The Secretary is instructed to establish a streamlined approval process for financial agreements between small businesses that receive a voucher under this program and a national laboratory. This section also instructs the Secretary to report annually on the progress and implementation of this program. Finally, this section authorizes $25 million for each of fiscal years 2021 through 2025 to carry out this program.

Sec. 8204. Entrepreneurial Leave Program.
This section authorizes the Secretary of Energy to delegate to the Directors of the national laboratories the authority to carry out an entrepreneurial leave program, allowing national laboratory employees to take a leave of absence from their employment for up to 3 years to advance the commercial application of energy and related technologies relevant to the mission of the Department of Energy. This section requires the establishment of streamlined mechanisms for facilitating the licensing of technology that is the focus of an employee who participates in this program. This section also requires the Secretary to report annually on the number of employees that participate in this program and the number of employees that take a permanent leave from their employment as a result of the program.

Sec. 8205. National Laboratory Employee Outside Employment Authority.
This section authorizes the Secretary of Energy to delegate to the Directors of national laboratories the authority to allow their employees to engage in outside employment and consulting activities. This section requires that Directors who elect to use this authority mandate their employees to disclose such employment to their Director prior to engaging in it and requires Directors to establish appropriate conflict of interest protocols for employees who are approved to engage in such employment.

Sec. 8206. Technology Commercialization Fund.
This section reauthorizes the Technology Commercialization Fund established in Section 1001 (e) of the Energy Policy Act of 2005 by mandating cost-share in accordance with Section 988 of the Energy Policy Act of 2005, clarifying requirements for evaluating and selecting applications for funding, and requiring an annual report on the projects that the Secretary has funded each year. This section also requires an evaluation every 3 years on the long-term commercial success of projects that receive funding under this section. Finally, this section requires a report on how to improve the implementation and administration of the Fund, including how to spend funds optimally on technology areas with the greatest need for commercial application, rather than spending funds at the programmatic level under current funding restrictions.

Sec. 8207. Signature Authority.
This section requires the Secretary of Energy to delegate to the Directors of the national laboratories the authority to approve any agreements signed with the national laboratory that costs less than $1 million. The Director is required to submit to the Secretary any agreements signed using the authority under this section, after which point the Secretary may not require any additional review. This authority does not apply to any agreement with a foreign-controlled entity.

Finally, this section requires an evaluation every 3 years on the efficacy of reducing administrative burden for agreements signed using the authority granted under this section.

Subtitle C. Department of Energy Modernization.

Sec. 8301. Technology Transfer Program.
This section requires the Secretary of Energy to appoint a Chief Commercialization Officer to serve as the principal advisor to the Secretary on all matters relating to technology transfer and commercialization. This section also establishes and Office of Technology Transitions, the mission of which is to expand the commercial impact of the research investments of the Department and to advance the commercial application of technologies that reduce greenhouse gas emissions and other pollutants, improve energy efficiency, mitigate other negative environmental consequences, and support other missions of the Department of Energy. This section identifies goals for the Office and authorizes the Under Secretary for Science to appoint personnel using the special hiring authority authorized in Sec. 8306 of this Act to carry out activities under this section. Finally, this section requires the Secretary to report annually on the activities carried out under this Office and authorizes $20 million for each of fiscal years 2021 through 2025.

Sec. 8302. Management of Demonstration Projects.
This section requires the Secretary of Energy to establish a program to conduct project management and oversight of demonstration projects that receive greater than $50 million in funding from the Department of Energy. The purposes of the program are to conduct independent oversight of the execution of demonstration projects and ensure a balanced portfolio of investments in clean energy technology demonstration projects. This section authorizes the Under Secretary for Science to appoint personnel using the special hiring authority authorized in Sec. 8306 of this Title to carry out this program. The Secretary is also required to report annually on any demonstration projects being carried out under this section. Finally, this section authorizes an evaluation of the program by the Comptroller General after 3 years.

Sec. 8303. Streamlining Prize Competitions.
This section requires the Secretary of Energy to designate at least one full-time employee to serve as the central point of contact on prize competitions for the Department of Energy, to issue guidance on the design, development, and implementation of prize competitions, and provide training and prize competition design support, among other activities. This section also requires the Secretary to report annually on any prize competitions carried out under this authority.

Sec. 8304. Milestone-Based Demonstration Projects.
This section authorizes the Secretary of Energy to carry out milestone-based demonstration projects that require specific technical and financial milestones to be met in order for a participant to receive funding from the Department of Energy, with cost-share requirements in accordance with Section 988 of the Energy Policy Act of 2005. This section also requires the Secretary to report annually on any projects carried out using the authority granted under this section.

Sec. 8305. Cost-Share Waiver Extension.
This section extends the cost-share waiver pilot program for non-profit institutions and institutions of higher education granted in Section 108 of the Department of Energy Research and Innovation Act by 2 years, in addition to reporting requirements.

Sec. 8306. Special Hiring Authority for Scientific, Engineering, and Project Management Personnel.
This section authorizes the Under Secretary for Science to make appointments for scientific, engineering, and professional personnel, without regard to civil service laws for a term of not more than 3 years.

Sec. 8307. Technology Transfer Reports and Evaluation.
This section requires the Secretary of Energy to submit annual reports on the progress and implementation of sections 8103, 8203, 8204, 8207, 8301, 8302, 8303, and 8304 of this Title and to submit an evaluation every three years on the extent to which programs under sections 8102, 8103, 8104, and 8202 of this Title, as well as section 1001 (e) of the

Energy Policy Act of 2005, are achieving success on relevant short-term and long-term metrics. This section also requires the Secretary to work with the National Academies of Science, Engineering, and Medicine to submit to Congress a report on any programmatic gaps that exist to advance the commercial application of technologies developed at the National Laboratories.

Sec. 8308. Other Transaction Authority Extension.
This section extends the expiration date of the Other Transaction Authority granted under subsection 646(g)(10) of the Department of Energy Organization Act by 5 years.

TITLE IX—INDUSTRIAL INNOVATION AND COMPETITIVENESS

Subtitle A—Smart Manufacturing

Sec. 9101. Definitions.
Defines terms used in the subtitle.

Sec. 9102. Development of national smart manufacturing plan.
Requires DOE to 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.

Sec. 9103. Leveraging existing agency programs to assist small and medium manufacturers.
Expands the scope of technologies covered by the Industrial Assessment Centers of the Department of Energy to include smart manufacturing technologies and practices.

Sec. 9104. Leveraging smart manufacturing infrastructure at National Laboratories.
Requires a study on how DOE can increase access to existing high-performance computing resources in the National Laboratories, particularly for small and medium manufacturers.

Sec. 9105. State leadership grants.
Provides that the Secretary may make grants on a competitive basis to states for establishing programs to be used as models for supporting the implementation of smart manufacturing technologies.

Sec. 9106. Report.
Requires a report to Congress on the progress made in advancing smart manufacturing in the United States.

Subtitle B—American Innovation and Manufacturing Leadership

Sec. 9201. Definitions.
Defines terms used in this subtitle.

Sec. 9202. Listing of regulated substances.
Directs EPA to publish a list of hydrofluorocarbons (HFCs) that are subject to regulation under the legislation ("regulated substances") and includes an initial listing of such regulated substances. Section 9202 further provides EPA with authority to add HFCs to the list of regulated substances, provided they meet specified requirements.

Sec. 9203. Monitoring and reporting requirements.
Requires persons who produce, import, export, reclaim, destroy, use and entirely consume (except for trace quantities) in the manufacture of other chemicals, or use as a process agent, a regulated substance, to report such action to the Administrator. This section also requires persons subject to these reporting requirements to provide the Administrator with specified data relevant to establishing the baseline for the phase down of production and consumption of regulated substances. EPA must promulgate regulations to implement this section within 270 days of enactment.

Sec. 9204. Phasedown of regulated substances.
Subsection (a) establishes the formulas for calculating the baselines for the phase down of the production and consumption of regulated substances, based principally on production and consumption of regulated substances in 2011, 2012, and 2013.

Subsection (b) requires EPA to promulgate regulations establishing an allowance allocation and trading program to phase down production and consumption of regulated substances. It further requires EPA to establish annually a quantity of production allowances and consumption allowances that do not exceed specified percentages of the production and consumption baselines, respectively. The section then directs EPA to allocate production allowances and consumption allowances annually or for multiple years at a time. Beginning on January 1 of the year following promulgation of the required regulations, section 9204(b) makes it unlawful for any person to engage in the production or consumption of HFCs without a corresponding allowance that authorizes such production or consumption.

Subsection (c) requires that regulations issued under section 9204(b) ensure that transfers of allowances will result in a greater reduction in production or consumption, as applicable, than would have occurred absent the transfers. It further limits transfers as allowed only between persons subject to the phase down of regulated substances.

Subsection(d) authorizes the EPA Administrator to consider petitions to accelerate the phase down schedule and sets out requirements for the petition and its consideration and directs EPA to make the petition publicly available. An accelerated schedule would have to be applied uniformly to allocated production allowances and consumption allowances. This section prohibits EPA from accelerating the phase down schedule prior to 2024.

Subsection (e) authorizes essential use exceptions to the phase down beginning in 2034, when production and consumption will be limited to 20 percent of respective baseline levels. Limited additional allowances in excess of the phase down limits may be allocated for up to five years if EPA finds that such excess allowances are exclusively for an application for which there is no substitute available and the available supply of the requisite regulated substance is insufficient.

Subsection (f) authorizes EPA to issue additional production allowances to produce, at a domestic facility, additional regulated substances solely for export and use in a foreign country. The legislation prohibits, beginning on January 1, 2033, any person from exporting a regulated substance to a foreign country not identified by EPA as having implemented a phase down of HFCs akin to this legislation.

Sec. 9205. Management of regulated substances.
Requires EPA to promulgate regulations within 24 months of enactment to maximize reclaiming of regulated substances, minimize releases of regulated substances from equipment, and ensure safety of technicians and consumers. The section authorizes EPA to include in such regulations minimum standards and training requirements for technicians. The section directs EPA to consider using any authorities granted by the legislation to increase opportunities for reclaiming regulated substances. In addition, section 9205 mandates that any regulated substance that is recovered be reclaimed before it can be sold or transferred to a new owner. Finally, it clarifies that this section does not apply to a regulated substance or substitute thereof that is contained in a foam.

Sec. 9206. Technology transitions.
Grants EPA authority to prohibit or restrict the use of a regulated substance in specific sectors or subsectors. It directs EPA to consider exercising this authority in accordance with codified negotiated rulemaking procedures found in the Negotiated Rulemaking Act of 1990. It allows any person to petition EPA to promulgate regulations pursuant to this section and directs EPA to make the petition publicly available. It further directs EPA to evaluate the availability of substitutes to regulated substances.

Sec. 9207. Rulemaking authority.
Authorizes EPA to issue regulations as necessary to implement the legislation. It authorizes the Administrator to delegate authority under this legislation to any officer or employee of EPA. It also mandates that whenever the legislation requires or authorizes the EPA Administrator to act by regulation, the requirements of section 307(d) of the Clean Air Act shall apply.

Sec. 9208. Relationship to other laws.
Applies four sections of the Clean Air Act to the bill as if it were included in title VI of the Act: sections 113 (relating to federal enforcement), 114 (relating to inspections, monitoring, and entry), 304 (relating to citizen enforcement), and 307 (relating to administrative proceedings and judicial review).

Subtitle C—Clean Industrial Technology

Sec. 9301. Purpose.
This section outlines the purposes of this subtitle, which are to encourage the development and evaluation of technologies that increase the technological and economic competitiveness of U.S. industry and manufacturing and decrease the emissions of the industrial sector.

Sec. 9302. Industrial emissions reduction technology development program.
This section establishes a cross-cutting research, development, demonstration, and commercial application program to further the development and commercialization of economic and competitive technologies that reduce emissions from the industrial sector. The program focuses on several areas, including reducing emissions from production processes for iron, steel, aluminum, cement, and chemical production processes; reducing emissions from high temperature heat generation; smart manufacturing; sustainable manufacturing; energy efficiency; alternative materials; net-zero emissions fuels; shipping, aviation, and long-distance transportation; carbon capture; and high-performance computing. This section authorizes $20,000,000 for fiscal year 2021, $80,000,000 for fiscal year 2022, $100,000,000 for fiscal year 2023, $150,000,000 for fiscal year 2024, and $150,000,000 for fiscal year 2025 in funding for demonstration projects.

Sec. 9303. Industrial Technology Innovation Advisory Committee.
This section authorizes a Federal Advisory Committee comprised of members from relevant federal agencies, labor groups, academia, national labs, nonprofit organizations, and industry. The advisory committee is directed to work with the Secretary to develop missions and goals of the program established in section 9302, as well as to develop industry-specific roadmaps to reduce emissions from the industrial sectors and processes identified in section 9302.

Sec. 9304. Technical assistance program to implement industrial emissions reduction.
This section authorizes a program to provide technical assistance to eligible entities to promote the commercial application of technologies that reduce emissions from industrial sectors.

Sec. 9305. Coordination of research and development of energy efficient technologies for industry.
This section updates references in the American Energy Manufacturing Technical Corrections Act to reflect the current organization of the Department of Energy.

Subtitle D—Combined Heat and Power Support

Sec. 9401. CHP Technical Assistance Partnership Program.
Redesignates DOE's Clean Energy Application Centers as the CHP Technical Assistance Partnership Program. Encourages deployment of combined heat and power (CHP), heat to power, and efficient district energy technologies. Provides project specific support to building and industrial professionals through economic and engineering assessments and advisory activities. Authorizes $12 million per year from FY 2021 through 2025.

TITLE X—CRITICAL MATERIALS

Sec. 10101. Definitions.

Defines terms used in this title.

Subtitle A—Energy Critical Materials

Sec. 10121. Energy critical materials program.
Authorizes in the Department of Energy (DOE) a program to assure the long-term, secure, and sustainable supply of energy critical materials to satisfy our national security, economic well-being, and industrial production needs, as well as specifies that this program may be carried out primarily by DOE's Critical Materials Energy Innovation Hub.

Directs the Secretary of Energy to:

1) identify and test alternative materials that may be substituted for these materials;
2) engineer and test diverse applications that accelerate recycling and use of these recycled materials;
3) support new or significantly improved processes and technologies to reduce the energy intensity and environmental impact of the extraction and processing of these materials;
4) encourage multidisciplinary collaborations and or opportunities for college and university students;
5) submit an implementation plan to Congress within 180 days and every two years thereafter; and
6) establish a Critical Materials Consortium to expand the capabilities and activities of the current Critical Materials Hub to better address these issues, and better coordinate critical materials research activities supported by various DOE programs.

Authorizes $135 million for each of five years of funding from Fiscal Year 2021 through 2025.

Sec. 10122. Critical materials research database and information center.
Establishes a Critical Materials Information Center and database to, in coordination with the DOE Office of Scientific and Technical Information, catalogue, disseminate, and archive information on energy critical elements.

Sec. 10123. Critical materials interagency subcommittee.
This section directs the Critical Minerals Subcommittee of the National Science and Technology Council to coordinate federal science and technology efforts to ensure secure, reliable, and environmentally sustainable supplies of critical materials to the United States.

Subtitle B—National Materials and Minerals Policy, Research, and Development

Sec. 10141. Amendments to National Materials and Minerals Policy, Research and Development Act of 1980.
Amends the *National Materials and Minerals Policy, Research and Development Act of 1980* to: (1) instruct the Director of the Office of Science and Technology Policy to coordinate federal materials research and development through the National Science and Technology Council (instead of, as currently required, the Federal Coordinating Council for Science, Engineering, and Technology, which no longer exists) and (2) update the reporting and assessment duties of the relevant federal agencies in this area.

Sec. 10142. Conforming repeal.
This section repeals the *National Critical Materials Act of 1984*. This Act established the National Critical Materials Council to promote research and development of critical and advanced materials, but the Council's duties have since been carried out by the Critical Minerals Subcommittee of the National Science and Technology Council, as reflected in this bill.

TITLE XI—ENVIRONMENTAL JUSTICE

Sec. 11001. Definitions.
Defines terms used in this subtitle.

Sec. 11002. Environmental justice community technical assistance grants.
Establishes a grant program for communities impacted by hazardous air pollutants to participate in the regulatory decisions impacting the health and safety of their communities.

Sec. 11003. Interagency Federal working group on environmental justice.
Codifies the interagency working group established under Executive Order 12898 on environmental justice to coordinate federal efforts to alleviate disproportionate impacts of pollution.

Sec. 11004. Federal agency actions to address environmental justice.
Codifies the requirements under Executive Order 12898, requiring relevant federal agencies to integrate environmental justice into their respective missions.

Sec. 11005. Training of employees of Federal agencies.
Requires all DOE and EPA employees to complete an environmental justice training.

Sec. 11006. Environmental justice basic training program.
Establishes a basic training program, in coordination with nongovernmental environmental justice organizations, to increase the capacity for environmental justice communities to identify and address disproportionately adverse human health or environmental effects through appropriate training and education. Authorizes $10 million annually to carry out the section from FY 2021 through 2025.

Sec. 11007. Justice clearinghouse.
Establishes a public internet-based Environmental Justice Clearinghouse containing information on EPA activities, training materials for individuals and employees, links to webpages that describe environmental justice activities of other federal agencies, and directories for non-profits and technical experts.

Sec. 11008. Public meetings.
Requires biennial public meetings on environmental justice issues in each EPA region to gather public input on implementation and updating environmental justice strategies and efforts of the agency.

Sec. 11009. National environmental justice advisory council.
Codifies the National Environmental Justice Advisory Council within the Federal Advisory Committee Act.

Sec. 11010. Environmental justice grant programs.
Authorizes the environmental justice grant programs currently implemented by EPA. Authorizes $10 million for each of fiscal years 2021 through 2030 for those programs.

Sec. 11011. Environmental justice community solid waste disposal technical assistance grants.
Authorizes technical assistance grants to empower communities on the fence line of current and potential solid waste disposal facilities to participate, with the help of independent experts, in the regulation and monitoring of these sites.

Sec. 11012. Environmental justice community, State, and Tribal grant programs.
Establishes a program to provide grants to assist non-governmental eligibility entities, states, tribal governments to build capacity to address environmental justice related issues. Authorizes $25 million for each of fiscal years 2021 through 2025 to carry out the program. Also establishes a community-based participatory research grant program to provide not more than 25 multiyear grants to eligible entities to carry out participatory research related to environmental justice and authorizes $10 million for each of fiscal years 2021 through 2025 for the program.

Sec. 11013. Protections for environmental justice communities against harmful federal actions.
Establishes additional protections under the National Environmental Policy Act (NEPA) relating to federal actions effecting environmental justice communities in recognition of the disproportionate burden of adverse human health or environmental effects faced by such communities.

Sec. 11014. Prohibited discrimination.
Amends section 601 of the Civil Rights Act of 1964 adding discrimination based on disparate impact.

Sec. 11015. Right of action.
Amends section 602 of the Civil Rights Act of 1964 ensuring that any person impacted by the failure to comply with this title may file suit in any district court.

Sec. 11016. Rights of recovery.
Amends Title VI of the Civil Rights Act of 1964 to allow for the retrieval of some legal relief, attorney's fees, and costs of action based on intentional discrimination or discrimination based on disparate impact.

TITLE XII—OTHER MATTERS

Subtitle A—Blue Collar to Green Collar Jobs Development

PART 1—OFFICE OF ECONOMIC IMPACT, DIVERSITY, AND EMPLOYMENT

Sec. 12101. Name of office.
Amends the Department of Energy Organization Act to redesignate the DOE's Office of Minority Economic Impact as the Office of Economic Impact, Diversity, and Employment.

Sec. 12102. Energy workforce development programs.
Amends section 211 of the Department of Energy Organization Act to direct the Secretary of Energy and the Director of the Office of Economic Impact, Diversity, and Employment to carry out the workforce development and grant programs in sections 12111 and 12112 of this Act.

Sec. 12103. Authorization.
Authorizes $100 million each year for FY 2021 through 2025.

PART 2—ENERGY WORKFORCE DEVELOPMENT

Sec. 12111. Energy workforce development.
Requires the Secretary to encourage underrepresented groups to enter science, technology, engineering, and mathematics (STEM) fields, increase national education and training for energy-related industries, and carry out DOE's Minorities in Energy Initiative. Directs the Secretary to provide direct assistance and resources for energy-related job training programs, publish a report on job creation in energy-related industries, and conduct outreach to minority-serving institutions and displaced energy workers regarding emerging energy related jobs.

Sec. 12112. Energy workforce grant program.
Directs the Secretary to establish and carry out a program to provide grants for eligible businesses to pay the wages of new and existing employees during the time period that such employees receive training to work in the renewable energy sector. Requires the Secretary to give priority to eligible businesses that recruit employees from underrepresented groups, veterans, or individuals transitioning from fossil energy sector jobs.

Sec. 12113. Definitions.
Defines terms used in this section.

Subtitle B—Buy American and Wage Rate Requirements

Sec. 12201. Use of American iron, steel, and manufactured goods.
Mandates that any project funded under the Act to construct, alter, maintain, or repair a public building or public work use only iron, steel, and manufactured goods produced in the United States. Provides for certain exceptions, including if compliance would be inconsistent with the public interest, when materials are not readily available in the United States, or if compliance would increase overall project cost by more than 25 percent.

Sec. 12202. Wage rate requirements.
Mandates that all laborers and mechanics employed by contractors or subcontractors on projects fully or partially funded by the Act be paid wages no less than the local prevailing wage for similar projects. Allows federal agencies to require the use of project labor agreements by contractors, on a case-by-case basis, when awarding contracts under provisions of the Act. In doing so, agencies may require that every contractor or subcontractor on a project agree to negotiate (or become party to a project labor agreement) with the relevant labor organization(s).

Subtitle C—Natural Resources

Sec. 12301. Offshore Wind Career Training Grant Program.
Authorizes $25 million a year for a new grant program at the Department of the Interior to help institutions of higher education and labor unions provide training opportunities for jobs in the offshore wind industry. This section is similar to H.R. 3068 (Keating–MA), which was approved by the Committee on Natural Resources on January 15, 2020.

Sec. 12302. Data preservation.
Reauthorizes the National Geological and Geophysical Data Preservation Program through Fiscal Year 2025.

Subtitle D—Clean Energy and Sustainability Accelerator

Sec. 12401. Clean Energy and Sustainability Accelerator.
Amends Title XVI of EPACT05 to establish a nonprofit Clean Energy and Sustainability Accelerator. Defines terms used in this section. Authorizes the Accelerator to provide financing to help rapidly commercialize and deploy technologies and processes to reduce emissions in the United States. The Accelerator will mobilize public and private investment to provide financing for low- and zero-emissions energy technologies; renewable energy generation; building efficiency and electrification; industrial decarbonization; grid modernization; agriculture projects; clean transportation; and climate-resilient infrastructure.

Authorizes the Accelerator's finance and investment division to provide financing through debt, credit enhancements, aggregation and warehousing, equity capital, and other financial products approved by its Board of Directors. Establishes a Startup Division to provide technical assistance and startup operating funds to launch new state and local green banks where they do not yet exist. Further establishes a loan program to support schools, metropolitan planning organizations, or nonprofit organizations seeking financing for zero-emissions vehicle fleets and related infrastructure.

Requires the Accelerator to prioritize investments in "climate-impacted communities," defined as those that are disproportionately affected by the impacts of climate change, including frontline, rural, low-income, and environmental justice communities. The Accelerator must ensure that at least 20 percent of its investment activity is directed to serve these communities. Requires all investments to be accompanied by strong labor protections, including prevailing wage standards and project labor agreements for projects with capital costs greater than $100 million.

Outlines the structure and composition of the Accelerator's Board of Directors, including provisions regarding the Board's bylaws and describing qualifications for its members. Authorizes $10 billion for the fiscal year in which the Accelerator is established and $2 billion for each of the five succeeding years.

Subtitle E—Scientific Integrity

Sec. 12501. Sense of Congress.
Provides a Sense of Congress regarding the need for Federal scientific integrity policies and the goals of such policies.

Sec. 12502. Amendment to America COMPETES Act.
Strikes and replaces Section 1009 of the *America COMPETES Act* to require every federal agency that funds, conducts or oversees scientific research to develop, adopt, and enforce a scientific integrity policy in accordance with the requirements in the Act.

Describes the requirements of such policies, including prohibited behaviors and actions by those who conduct and oversee research, including both Federal employees and contractors, as well as the rights of those same individuals.

Describes the requirements for implementation of such policies, including that such policies must be enforced uniformly across the agency and made publicly available.

Requires each agency to appoint a Scientific Integrity Officer (SIO) who must be a career employee of the agency and have experience with scientific research.

Requires each agency to establish administrative processes, including appeal for dispute resolution; requires agencies to implement a training program for all employees to provide regular scientific integrity and ethics training and to ensure that all employees are aware of their rights and responsibilities under the agency's scientific integrity policy.

Requires SIOs to report annually on scientific misconduct cases at the agency.

Requires all scientific integrity policies to be made public.

Requires OSTP to publish all agency policies on its own website and to annually convene all SIOs to discuss best practices for implementing scientific integrity policies.

Provides definitions for the Act.

Sec. 12503. Existing policies; clarification.
States that existing agency scientific integrity policies may satisfy the requirements of this Act provided the agency head certifies such and the Director of OSTP approves. Further clarifies that nothing in this Act shall affect the application of copyright law.

Subtitle F—Other Matters

Sec. 12601. Authorization.
Amends section 112(a)(1)(B) of the Uranium Mill Tailings Radiation Control Act of 1978 to authorize the operation of the Cheney disposal cell through September 30, 2031.

Sec. 12602. Addressing insufficient compensation of employees and other personnel of the Federal Energy Regulatory Commission.
Amends section 401 of the Department of Energy Organization Act to enable the FERC Chairman to fix the compensation for certain FERC employees or other personnel. Authorizes the Chairman to fix compensation if the Chairman publicly certifies that compensation is insufficient to retain or attract employees or other personnel. Specifies that the authority is limited to compensation for employees or other personnel who conduct work of a scientific, technological, engineering, or mathematical nature.

Sec. 12603. Office of Public Participation.

Amends FPA section 319 to facilitate communication with the public relating to, and participation by the public in, matters under FERC's jurisdiction. Requires the Office of Public Participation to advocate for, and act as a liaison with, environmental justice communities on matters under FERC's jurisdiction. Specifies that Office funding shall be derived from fees and charges collected under section 3401 of the Omnibus Budget Reconciliation Act of 1986.

Sec. 12604. Background ozone research.
Directs the EPA Administrator to work with the NASEM to conduct a study on background ozone. The study shall propose a framework of standard terms and definitions to standardize research on ground-level ozone. It will also examine the science of current trends in background ozone and how it contributes to ground-level ozone. Additionally, the study shall examine current challenges in quantifying sources of background and ground-level ozone and outline a plan for a research and development program to support analysis and demonstration of background ozone trends. A report on the results of the study is to be sent to Congress no later than 24 months after the date on which such agreement is finalized.

Authorizes $1,200,000 to be appropriated to carry out this study.

Sec. 12605. Smoke planning and research.
Requires the EPA Administrator to establish four research centers at universities to carry out research relating to the effects of wildland fires on public health, and how communities can respond to the impacts of emissions from wildland fires. Authorizes $10 million each year for FY 2021 through 2025.

Sec. 12606. Budgetary effects.
States that for the purpose of complying with the Statutory Pay-As-You-Go Act of 2010, the budgetary effect of this Act shall be determined by reference to the latest statement titled "Budgetary Effects of PAYGO Legislation" for this Act.