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(Original Signature of Member)

116TH CONGRESS
2D SESSION

H. R. _____

To advance clean power technology development and use through innovation and clean energy standards, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

Mr. MCKINLEY introduced the following bill; which was referred to the Committee on _____

A BILL

To advance clean power technology development and use through innovation and clean energy standards, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE; PURPOSES.**

4 (a) **SHORT TITLE.**—This Act may be cited as the
5 “Clean Energy Future Through Innovation Act of 2020”.

6 (b) **PURPOSES.**—The purposes of this Act are—

7 (1) to further develop, demonstrate, and deploy
8 a broad range of advanced low- and zero-carbon

1 power technologies, including technologies related to
2 the generation, storage, transmission, security, resil-
3 ience, and efficient use of electric power; and

4 (2) to build a competitive market for advanced
5 low- and zero-carbon technologies and a robust
6 workforce, supply chain, and related legal, commer-
7 cial, and physical infrastructure.

8 **SEC. 2. DEFINITIONS; TABLE OF CONTENTS.**

9 (a) DEFINITIONS.—Except as otherwise provided, in
10 this Act:

11 (1) SECRETARY.—The term “Secretary” means
12 the Secretary of Energy.

13 (2) DEPARTMENT.—The term “Department”
14 means the Department of Energy.

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

- Sec. 1. Short title; purposes.
- Sec. 2. Definitions; table of contents.

TITLE I—CARBON CAPTURE, UTILIZATION, AND STORAGE

Subtitle A—Research, Development, and Demonstration for Carbon Capture,
Utilization, and Storage Technologies

- Sec. 111. Fossil energy objectives.
- Sec. 112. Carbon capture technologies.
- Sec. 113. Carbon storage validation and testing.
- Sec. 114. Carbon utilization.
- Sec. 115. Advanced energy systems.

Subtitle B—Deployment of Carbon Capture, Utilization, and Storage With
Commercial-Scale Electricity Generation Facilities

- Sec. 121. Deployment of carbon capture, utilization, and storage technology
with commercial-scale electricity generation facilities.

Subtitle C—Federal Support for Commercial Deployment of Carbon Capture,
Utilization, and Storage

- Sec. 131. Enhancement of carbon dioxide sequestration credit.
- Sec. 132. Reform of loan guarantee program.
- Sec. 133. Private activity bonds for carbon dioxide capture facilities.
- Sec. 134. Extension of publicly traded partnership ownership structure.
- Sec. 135. Production tax credit for certain electricity generation using carbon capture utilization and storage.
- Sec. 136. Elective payment of credit.

Subtitle D—Support for Carbon Dioxide Transportation and Sequestration
Infrastructure

- Sec. 141. Securing geologic reservoirs for carbon dioxide.
- Sec. 142. Financial assistance for carbon dioxide sequestration infrastructure development.
- Sec. 143. Geologic carbon dioxide sequestration utilities.
- Sec. 144. Coordinated federal permitting for carbon dioxide pipeline and sequestration facilities.
- Sec. 145. Interagency task force on carbon dioxide pipelines.

TITLE II—INNOVATION IN RENEWABLE ENERGY, ENERGY
EFFICIENCY, AND STORAGE

- Sec. 201. Establishment of technology performance and cost targets.
- Sec. 202. Advanced innovation and commercialization program.
- Sec. 203. Updating mobile homes.
- Sec. 204. Investment tax credits for energy battery storage, offshore wind, and certain hydropower technologies.
- Sec. 205. Extension of production tax credit for solar and on-shore wind.
- Sec. 206. Renewal of qualifying advanced energy project credit.
- Sec. 207. Performance-based tax credits for commercial and residential buildings.
- Sec. 208. Extension of publicly traded partnership ownership structure to renewable energy projects.
- Sec. 209. Manufacturer credit for high-efficiency heat pumps and heat pump water heaters.
- Sec. 210. Other authorizations of appropriations.

TITLE III—EXISTING AND ADVANCED NUCLEAR POWER PLANTS

- Sec. 301. Zero-emissions credit program.
- Sec. 302. Investment tax credit for nuclear energy property.
- Sec. 303. Expanding Federal clean electricity purchasing requirements.
- Sec. 304. Modernizing the Nuclear Regulatory Commission.
- Sec. 305. Demonstration and early deployment of advanced nuclear reactors.
- Sec. 306. Advanced nuclear fuel security program.
- Sec. 307. Authorization of appropriations for loan guarantees for advanced nuclear facilities.
- Sec. 308. Expanding the production tax credit for nuclear power.
- Sec. 309. Authorizations of appropriations for innovation in nuclear power.

TITLE IV—CLEAN ELECTRICITY STANDARD

- Sec. 401. Certification of cost-effective market penetration of clean electricity technologies.
- Sec. 402. Federal clean electricity standard.
- Sec. 403. Regional clean electricity planning models.
- Sec. 404. Stand-by emission performance standards.

1 **TITLE I—CARBON CAPTURE,**
2 **UTILIZATION, AND STORAGE**
3 **Subtitle A—Research, Develop-**
4 **ment, and Demonstration for**
5 **Carbon Capture, Utilization,**
6 **and Storage Technologies**

7 **SEC. 111. FOSSIL ENERGY OBJECTIVES.**

8 Section 961 of the Energy Policy Act of 2005 (42
9 U.S.C. 16291) is amended—

10 (1) in subsection (a), by adding at the end the
11 following:

12 “(8) Improving the conversion, use, and storage
13 of carbon dioxide produced from fossil fuels.

14 “(9) Lowering greenhouse gas emissions for all
15 fossil fuel production, generation, delivery, and utili-
16 zation in electricity generation and other industry, to
17 the maximum extent possible.

18 “(10) Preventing, predicting, monitoring, and
19 mitigating the unintended leaking of carbon dioxide
20 or other fossil fuel-related emissions into the atmos-
21 phere.

22 “(11) Developing carbon utilization tech-
23 nologies, products, and methods, including carbon
24 use and reuse for commercial application.

1 “(12) Developing carbon capture technologies,
2 including direct air capture technologies.”;

3 (2) in subsection (b), by striking paragraphs
4 (1) through (3) and inserting the following:

5 “(1) \$2,200,000,000 for fiscal year 2021;

6 “(2) \$2,200,000,000 for fiscal year 2022;

7 “(3) \$2,200,000,000 for fiscal year 2023;

8 “(4) \$2,200,000,000 for fiscal year 2024; and

9 “(5) \$2,200,000,000 for fiscal year 2025.”; and

10 (3) by striking subsections (c) through (e) and
11 inserting the following:

12 “(c) LIMITATION.—None of the funds authorized
13 under this section may be used for Fossil Energy Environ-
14 mental Restoration or Import/Export Authorization.”.

15 **SEC. 112. CARBON CAPTURE TECHNOLOGIES.**

16 (a) CARBON CAPTURE PROGRAM.—Section 962 of
17 the Energy Policy Act of 2005 (42 U.S.C. 16292) is
18 amended to read as follows:

19 **“SEC. 962. CARBON CAPTURE TECHNOLOGIES.**

20 “(a) IN GENERAL.—The Secretary shall conduct a
21 program of research, development, demonstration, and
22 commercial application of carbon capture technologies.
23 The program shall advance the development and use of—

1 “(1) carbon capture technologies in conjunction
2 with coal and natural gas utilization in power sys-
3 tems and industry;

4 “(2) innovations to improve the efficiency of,
5 and decrease emissions at, existing power plants;

6 “(3) advanced separation technologies and di-
7 rect air capture technologies; and

8 “(4) carbon capture technologies used in con-
9 junction with the production from fossil fuel of hy-
10 drogen or ammonia to be used in power systems.

11 “(b) COAL APPLICATIONS.—In conducting the pro-
12 gram under subsection (a), the Secretary shall devote sub-
13 stantial resources to carbon capture technologies for coal
14 applications.

15 “(c) LARGE-SCALE PILOTS.—

16 “(1) IN GENERAL.—In supporting technology
17 development activities under this section, the Sec-
18 retary is encouraged to support large-scale pilot
19 projects that test carbon capture technologies on
20 power systems. Support for such large-scale pilot
21 projects shall be subject to the cost sharing require-
22 ments in section 988(b).

23 “(2) DEFINITION.—For purposes of this sec-
24 tion, the term ‘large-scale pilot project’ means a
25 pilot project that—

1 “(A) represents the scale of technology de-
2 velopment beyond laboratory development and
3 bench scale testing, but not yet advanced to the
4 point of being tested under operational condi-
5 tions at commercial scale;

6 “(B) represents the scale of technology
7 necessary to gain the operational data needed
8 to understand the technical and performance
9 risks of the technology before the application of
10 that technology at commercial scale or in com-
11 mercial-scale demonstration; and

12 “(C) is large enough—

13 “(i) to validate scaling factors; and

14 “(ii) to demonstrate the interaction
15 between major components so that control
16 philosophies for a new process can be de-
17 veloped and enable the technology to ad-
18 vance from large-scale pilot plant applica-
19 tion to commercial-scale demonstration or
20 application.

21 “(d) COST AND PERFORMANCE GOALS.—In carrying
22 out the development, demonstration, and commercial ap-
23 plication activities under subsection (a), the Secretary
24 shall consider cost and performance goals, in order to ad-
25 vance development and deployment of carbon capture

1 technologies that can become cost competitive in commer-
2 cial applications.

3 “(e) CARBON CAPTURE PILOT TEST CENTERS.—

4 “(1) IN GENERAL.—Not later than 1 year after
5 the date of the enactment of the Clean Energy Fu-
6 ture Through Innovation Act of 2020, the Secretary
7 shall award grants to one or more entities for the
8 operation of Carbon Capture Test Centers (in this
9 subsection referred to as the ‘Centers’) to provide
10 unique testing capabilities for innovative power sys-
11 tem technologies to capture carbon dioxide or other-
12 wise produce a carbon dioxide stream suitable for
13 utilization or storage.

14 “(2) PURPOSE.—The Centers shall—

15 “(A) advance research, development, dem-
16 onstration, and commercial application of car-
17 bon capture technologies for power systems;
18 and

19 “(B) test technologies that represent the
20 scale of technology development beyond labora-
21 tory testing, but not yet advanced to testing
22 under operational conditions at commercial
23 scale.

24 “(3) APPLICATION.—An entity seeking to oper-
25 ate a Center under this subsection shall submit to

1 the Secretary an application at such time and in
2 such manner as the Secretary may require.

3 “(4) CRITERIA.—In evaluating applications to
4 operate the Centers under this subsection, the Sec-
5 retary shall prioritize grants to applicants that meet
6 one or more of the following criteria:

7 “(A) The applicant has access to existing
8 or planned research facilities with modular
9 technology capabilities.

10 “(B) The applicant is an institution of
11 higher education with established expertise in
12 engineering and design for carbon capture tech-
13 nologies, or has a partnership with such an in-
14 stitution.

15 “(C) The applicant has access to existing
16 research and test facilities for precombustion,
17 postcombustion, or oxy-combustion technologies.

18 “(D) The applicant has capability to test
19 integration of carbon capture technologies with
20 utility-scale power plants.

21 “(E) Commercial market participants, in-
22 cluding equipment and technology suppliers and
23 power generators, are involved in the proposed
24 Center.

1 “(5) CONSIDERATIONS.—In awarding grants
2 for the operation of the Centers under this sub-
3 section, the Secretary shall ensure that—

4 “(A) the Centers support pilot testing ap-
5 propriate to diverse regions and resource char-
6 acteristics; and

7 “(B) each Center receiving such a grant
8 demonstrates unique research capabilities,
9 unique regional benefits, or new technology de-
10 velopment opportunities.

11 “(6) SCHEDULE.—Each grant to operate a
12 Center under this subsection shall be awarded for a
13 term of not more than 5 years, subject to the avail-
14 ability of appropriations. The Secretary may renew
15 such 5-year term without limit, subject to a rigorous
16 merit review.

17 “(7) COST SHARING.—The Secretary shall re-
18 quire cost sharing under this subsection in accord-
19 ance with section 988(b).

20 “(8) TERMINATION.—The Secretary may elimi-
21 nate a Center during any 5-year term described in
22 paragraph (6) if such Center is found to be under-
23 performing.

24 “(f) DEMONSTRATION PROJECTS.—

1 “(1) IN GENERAL.—The Secretary may fund
2 commercial-scale demonstration projects for power
3 systems that test the scale of technology necessary
4 for commercial operation, in accordance with this
5 subsection.

6 “(2) ENGINEERING AND DESIGN STUDIES.—
7 The Secretary is authorized to fund engineering and
8 design studies for commercial-scale demonstration
9 projects for power systems in addition to, or in ad-
10 vance of, issuing an award for a demonstration
11 project under this subsection.

12 “(3) APPLICATION.—An entity seeking an
13 award to conduct a demonstration project under this
14 subsection shall submit to the Secretary an applica-
15 tion at such time and in such manner as the Sec-
16 retary may require.

17 “(4) LIMITATIONS.—The Secretary may only
18 provide an award under this subsection after review-
19 ing each application regarding—

20 “(A) the financial strength of the appli-
21 cant;

22 “(B) the construction schedule for the pro-
23 posed demonstration project;

24 “(C) the market risk faced by the tech-
25 nology to be demonstrated; and

1 “(D) the experience of the applicant and
2 construction contractor with similar projects.

3 “(5) REQUIREMENTS.—A demonstration project
4 funded under this subsection shall—

5 “(A) utilize technologies that have com-
6 pleted pilot-scale testing or the equivalent, as
7 determined by the Secretary;

8 “(B) secure and maintain agreements for
9 the utilization or sequestration of captured car-
10 bon dioxide; and

11 “(C) upon completion, demonstrate carbon
12 capture technologies on a power system.

13 “(6) COST SHARING.—The Secretary shall re-
14 quire cost sharing under this subsection in accord-
15 ance with section 988.

16 “(g) DEFINITION OF POWER SYSTEM.—In this sec-
17 tion, the term ‘power system’ means any electricity gener-
18 ating unit that utilizes fossil fuels to generate electricity
19 provided to the electric grid or directly to a consumer.

20 “(h) AUTHORIZATION OF APPROPRIATIONS.—For ac-
21 tivities under this section, there are authorized to be ap-
22 propriated to the Secretary—

23 “(1) \$600,000,000 for fiscal year 2021;

24 “(2) \$600,000,000 for fiscal year 2022;

25 “(3) \$600,000,000 for fiscal year 2023;

1 “(4) \$600,000,000 for fiscal year 2024; and

2 “(5) \$600,000,000 for fiscal year 2025.”.

3 (b) GAO STUDY.—

4 (1) IN GENERAL.—The Comptroller General of
5 the United States shall conduct a study of the De-
6 partment’s successes, failures, practices, and im-
7 provements in carrying out demonstration projects
8 for carbon capture technologies for power systems.
9 In conducting the study, the Comptroller General
10 shall consider, at a minimum—

11 (A) applicant and contractor qualifications;

12 (B) project management practices at the
13 Department;

14 (C) economic or market changes and other
15 factors impacting project viability;

16 (D) completion of third-party agreements,
17 including power purchase agreements and car-
18 bon dioxide offtake agreements;

19 (E) regulatory challenges; and

20 (F) construction challenges.

21 (2) REPORT.—Not later than 3 years after the
22 date of enactment of this Act, the Comptroller Gen-
23 eral of the United States shall submit to Congress
24 a report on the results of the study required under
25 paragraph (1).

1 (3) CONSIDERATION.—The Secretary shall con-
2 sider any relevant recommendations, as determined
3 by the Secretary, provided in the study required
4 under paragraph (1), and shall adopt such rec-
5 ommendations as the Secretary considers appro-
6 priate.

7 (4) POWER SYSTEM DEFINED.—In this section,
8 the term “power system” means any electricity gen-
9 erating unit that utilizes fossil fuels to generate elec-
10 tricity provided to the electric grid or directly to a
11 consumer.

12 **SEC. 113. CARBON STORAGE VALIDATION AND TESTING.**

13 Section 963 of the Energy Policy Act of 2005 (42
14 U.S.C. 16293) is amended to read as follows:

15 **“SEC. 963. CARBON STORAGE VALIDATION AND TESTING.**

16 “(a) CARBON STORAGE.—The Secretary shall carry
17 out a program of research, development, and demonstra-
18 tion for carbon storage. The program shall—

19 “(1) in coordination with relevant Federal agen-
20 cies, develop and maintain mapping tools and re-
21 sources that assess the capacity of geologic storage
22 formations in the United States;

23 “(2) develop monitoring tools, modeling of geo-
24 logic formations, and analyses to predict and verify

1 carbon dioxide containment and account for seques-
2 tered carbon dioxide in geologic storage sites;

3 “(3) research potential environmental, safety,
4 and health impacts in the event of a leak to the at-
5 mosphere or to an aquifer, and any corresponding
6 mitigation actions or responses to limit harmful con-
7 sequences;

8 “(4) evaluate the interactions of carbon dioxide
9 with formation solids and fluids, including the pro-
10 pensity of injections to induce seismic activity;

11 “(5) assess and ensure the safety of operations
12 related to geologic sequestration of carbon dioxide;

13 “(6) determine the fate of carbon dioxide con-
14 current with and following injection into geologic
15 formations; and

16 “(7) provide information to State, local, and
17 Tribal governments, the Environmental Protection
18 Agency, and other appropriate entities, to support
19 development of a regulatory framework for commer-
20 cial-scale sequestration operations that ensure the
21 protection of human health and the environment.

22 “(b) GEOLOGIC SETTINGS.—In carrying out research
23 activities under this section, the Secretary shall consider
24 a variety of candidate geologic settings, including—

25 “(1) operating oil and gas fields;

1 “(2) depleted oil and gas fields;

2 “(3) residual oil zones;

3 “(4) unconventional reservoirs and rock types;

4 “(5) unmineable coal seams;

5 “(6) deep saline formations;

6 “(7) deep geologic systems that may be used as
7 engineered reservoirs to extract economical quan-
8 tities of brine from geothermal resources of low per-
9 meability or porosity;

10 “(8) deep geologic systems containing in situ
11 carbon dioxide mineralization formations; and

12 “(9) offshore geologic formations.

13 “(c) REGIONAL CARBON SEQUESTRATION PARTNER-
14 SHIPS.—

15 “(1) IN GENERAL.—The Secretary shall carry
16 out large-scale carbon sequestration demonstrations
17 for geologic containment of carbon dioxide to collect
18 and validate information on the cost and feasibility
19 of commercial deployment of technologies for the
20 geologic containment of carbon dioxide. The Sec-
21 retary may fund new demonstrations or expand the
22 work completed at one or more of the existing re-
23 gional carbon sequestration partnerships.

24 “(2) DEMONSTRATION COMPONENTS.—Each
25 demonstration described in paragraph (1) shall in-

1 clude longitudinal tests involving carbon dioxide in-
2 jection and monitoring, mitigation, and verification
3 operations.

4 “(3) CLEARINGHOUSE.—The National Energy
5 Technology Laboratory shall act as a clearinghouse
6 of shared information and resources for the regional
7 carbon sequestration partnerships and any new dem-
8 onstrations funded under this section.

9 “(4) REPORT.—Not later than 1 year after the
10 date of enactment of the Clean Energy Future
11 Through Innovation Act of 2020, the Secretary shall
12 provide to Congress a report that—

13 “(A) assesses the progress of all regional
14 carbon sequestration partnerships;

15 “(B) identifies the remaining challenges in
16 achieving carbon sequestration that is reliable
17 and safe for the environment and public health;
18 and

19 “(C) creates a roadmap to integrate geo-
20 logic sequestration sites and carbon utilization
21 with large sources of carbon dioxide in the
22 United States economy.

23 “(5) LARGE-SCALE CARBON SEQUESTRATION
24 DEMONSTRATION.—For purposes of this subsection,
25 ‘large-scale carbon sequestration demonstration’

1 means the injection of more than 1,000,000 tons of
2 carbon dioxide annually or injection at a scale that
3 demonstrates the ability to inject and sequester sev-
4 eral million metric tons carbon dioxide for at least
5 10 years.

6 “(d) INTEGRATED STORAGE PROJECTS.—The Sec-
7 retary may carry out a program for purposes of
8 transitioning the large-scale storage demonstrations under
9 subsection (c) into integrated, commercial storage com-
10 plexes. The program shall focus on—

11 “(1) qualifying geologic storage sites in order to
12 accept large volumes of carbon dioxide acceptable for
13 commercial contracts;

14 “(2) understanding the technical and commer-
15 cial viability of storage sites;

16 “(3) developing the qualification processes that
17 will be necessary for a diverse range of geologic stor-
18 age sites to commercially accept carbon dioxide; and

19 “(4) any other activities the Secretary deems
20 necessary to transition the large-scale demonstration
21 storage projects into commercial ventures.

22 “(e) COST SHARING.—The Secretary shall require
23 cost sharing under this section in accordance with section
24 988.

1 “(f) FEDERAL DATA COLLECTION.—The Secretary,
2 in coordination with other Federal agencies including the
3 United States Geological Survey, shall continue and ex-
4 pand ongoing Federal data collection and analysis activi-
5 ties related to carbon dioxide storage, economics, and spa-
6 tial relationships on a local and regional scale, in coordina-
7 tion with State and regional entities.

8 “(g) AUTHORIZATION OF APPROPRIATIONS.—For ac-
9 tivities under this section, there are authorized to be ap-
10 propriated to the Secretary—

11 “(1) \$250,000,000 for fiscal year 2021;

12 “(2) \$250,000,000 for fiscal year 2022;

13 “(3) \$250,000,000 for fiscal year 2023;

14 “(4) \$250,000,000 for fiscal year 2024; and

15 “(5) \$250,000,000 for fiscal year 2025.”.

16 **SEC. 114. CARBON UTILIZATION.**

17 (a) PROGRAM.—Subtitle F of title IX of the Energy
18 Policy Act of 2005 (42 U.S.C. 16291 et seq.) is amended
19 by adding at the end the following:

20 **“SEC. 969. CARBON UTILIZATION.**

21 “(a) IN GENERAL.—The Secretary shall carry out a
22 program of research, development, and demonstration for
23 carbon utilization. The program shall—

24 “(1) assess and monitor potential changes in
25 life cycle carbon dioxide emissions, and other envi-

1 ronmental safety indicators of new technologies,
2 practices, processes, or methods, used in enhanced
3 hydrocarbon recovery;

4 “(2) identify and evaluate novel uses for car-
5 bon, including the conversion of carbon dioxide for
6 commercial and industrial products, such as—

7 “(A) chemicals;

8 “(B) plastics;

9 “(C) building materials;

10 “(D) fuels;

11 “(E) cement; or

12 “(F) products of coal utilization in power
13 systems (as such term is defined in section
14 962(e)), or other applications; and

15 “(3) identify and develop alternative uses for
16 coal, including products derived from carbon engi-
17 neering, carbon fiber, and coal conversion methods.

18 “(b) AUTHORIZATION OF APPROPRIATIONS.—For ac-
19 tivities under this section, there are authorized to be ap-
20 propriated to the Secretary—

21 “(1) \$75,000,000 for fiscal year 2021;

22 “(2) \$75,000,000 for fiscal year 2022;

23 “(3) \$75,000,000 for fiscal year 2023;

24 “(4) \$75,000,000 for fiscal year 2024; and

25 “(5) \$75,000,000 for fiscal year 2025.”.

1 (b) STUDY.—No later than one year following the
2 date of enactment of the Clean Energy Future Through
3 Innovation Act of 2020, the Secretary shall enter into an
4 agreement with the National Academies to conduct a
5 study assessing the barriers and opportunities related to
6 commercializing the utilization of carbon dioxide in the
7 United States. Such study shall—

8 (1) analyze the technical feasibility and related
9 challenges to commercial utilization of carbon diox-
10 ide, including—

11 (A) creating a national system of carbon
12 dioxide pipelines;

13 (B) mitigating environmental impacts; and

14 (C) regional economic challenges and op-
15 portunities;

16 (2) identify potential markets, industries, or
17 sectors that may benefit from greater access to com-
18 mercial carbon dioxide;

19 (3) assess the current state of infrastructure
20 and any necessary updates to allow for the integra-
21 tion of safe and reliable carbon dioxide transpor-
22 tation, utilization, and storage;

23 (4) estimate the economic impact of a well-inte-
24 grated national carbon dioxide pipeline system;

1 (5) assess the global status and progress of car-
2 bon utilization technologies (both chemical and bio-
3 logical) in practice today that utilize waste carbon
4 (including carbon dioxide, carbon monoxide, meth-
5 ane, and biogas) from power generation, biofuels
6 production, and other industrial processes;

7 (6) identify emerging technologies and ap-
8 proaches for carbon utilization that show promise
9 for scale-up, demonstration, deployment, and com-
10 mercialization;

11 (7) analyze the factors associated with making
12 carbon utilization technologies viable at a commer-
13 cial scale, including carbon waste stream availability,
14 economics, market capacity, energy, and lifecycle re-
15 quirements;

16 (8) assess the major technical challenges associ-
17 ated with increasing the commercial viability of car-
18 bon reuse technologies, and identify the research and
19 development questions that will address those chal-
20 lenges;

21 (9) assess current research efforts, including
22 basic, applied, engineering, and computational, that
23 are addressing these challenges and identify gaps in
24 the current research portfolio; and

1 (10) develop a comprehensive research agenda
2 that addresses both long- and short-term research
3 needs and opportunities.

4 **SEC. 115. ADVANCED ENERGY SYSTEMS.**

5 Subtitle F of title IX of the Energy Policy Act of
6 2005 (42 U.S.C. 16291 et seq.) is further amended by
7 adding at the end the following:

8 **“SEC. 969A. ADVANCED ENERGY SYSTEMS.**

9 “(a) IN GENERAL.—The Secretary shall carry out a
10 program of research, development, demonstration, and
11 commercial application of technologies that represent a
12 significant change in the methods used to generate elec-
13 tricity from fuels and that will enable a step change in
14 performance, efficiency, and cost of electricity, and that
15 reduce emissions from fossil fuel power generation in the
16 following areas:

17 “(1) High-efficiency turbines for any advanced
18 power system that will lead to natural gas turbine
19 combined cycle efficiency of 67 percent or combus-
20 tion turbine efficiency of 50 percent.

21 “(2) Supercritical carbon dioxide, with an em-
22 phasis on developing directly fired and indirectly
23 fired cycles in the next 10 years.

24 “(3) Advanced combustion systems, including
25 oxy-combustion systems and chemical looping.

1 “(4) Gasification systems to enable carbon cap-
2 ture, improve efficiency, and reduce capital and op-
3 erating costs.

4 “(5) Thermal cycling with ramping or rapid
5 black start capabilities that do not compromise effi-
6 ciency or environmental performance.

7 “(6) Small-scale and modular technologies with
8 reduced carbon outputs or carbon capture that can
9 support incremental power generation capacity
10 needs.

11 “(7) Turbines and other technology for the use
12 of hydrogen and ammonia generated from fossil
13 fuels for power generation.

14 “(b) PRIORITY.—In carrying out the program under
15 subsection (a), the Secretary shall give priority to poten-
16 tially transformational technologies that would enable very
17 substantial improvements in performance, efficiency, or
18 cost of electricity as compared to the technology in exist-
19 ence on the date of enactment of this section.

20 “(c) AUTHORIZATION OF APPROPRIATIONS.—For ac-
21 tivities under this section, there are authorized to be ap-
22 propriated to the Secretary \$1,275,000,000 for each of fis-
23 cal years 2021 through 2025.”.

1 **Subtitle B—Deployment of Carbon**
2 **Capture, Utilization, and Stor-**
3 **age With Commercial-Scale**
4 **Electricity Generation Facilities**

5 **SEC. 121. DEPLOYMENT OF CARBON CAPTURE, UTILIZA-**
6 **TION, AND STORAGE TECHNOLOGY WITH**
7 **COMMERCIAL-SCALE ELECTRICITY GENERA-**
8 **TION FACILITIES.**

9 (a) IN GENERAL.—Subtitle B of title IV of the En-
10 ergy Policy Act of 2005 (42 U.S.C. 15971 et seq.) is
11 amended by adding after section 417 the following:

12 **“SEC. 418. FEDERAL SUPPORT FOR DEPLOYMENT OF CAR-**
13 **BON CAPTURE, UTILIZATION, AND STORAGE**
14 **WITH ELECTRICITY GENERATION.**

15 “(a) IN GENERAL.—Subject to the limitations in sub-
16 section (b), the Secretary shall provide support for deploy-
17 ment and use of carbon capture, utilization, and storage
18 at commercial-scale electricity generation facilities by en-
19 tering into a contract for differences, which may not ex-
20 ceed a term of more than 30 years, to provide price cer-
21 tainty for the sale of the electricity generated by, or carbon
22 dioxide captured by, an eligible power system to a third
23 party.

24 “(b) LIMITATIONS.—

1 “(1) INITIAL CAP.—Except as provided in para-
2 graph (2), the Secretary may not provide support
3 described in subsection (a)—

4 “(A) for eligible power systems with more
5 than 3 gigawatt of cumulative electricity gener-
6 ating capacity; or

7 “(B) in a cumulative amount projected to
8 have a value exceeding \$10,000,000,000.

9 “(2) ADDITIONAL SUPPORT REQUIRED.—If the
10 Secretary determines, based on the study under-
11 taken pursuant to subsection (c), that additional
12 support for the commercial-scale deployment of car-
13 bon capture, utilization, and storage at electricity
14 generation facilities beyond that provided under
15 paragraph (1) is required to establish the market vi-
16 ability of carbon capture, utilization and storage
17 consistent with the purposes of this title, the Sec-
18 retary may provide support under subsection (a) for
19 additional eligible power systems with not more than
20 8 gigawatts of additional cumulative electricity gener-
21 ating capacity.

22 “(c) STUDY.—The Secretary shall conduct a study to
23 evaluate whether the support provided under subsection
24 (a), combined with other Federal programs and policies
25 and with commercial technology deployments, has estab-

1 lished the market viability of using carbon capture, utiliza-
2 tion, and storage at commercial-scale electricity gener-
3 ating facilities consistent with the purposes of this title.

4 The study shall be initiated no later than the earlier of—

5 “(1) the date the Secretary reaches the initial
6 cap on support for eligible power systems in sub-
7 section (b)(1); or

8 “(2) the date that is 7 years after the date of
9 enactment of this section.

10 “(d) APPLICATION.—

11 “(1) IN GENERAL.—An entity seeking support
12 provided under subsection (a) shall submit to the
13 Secretary an application at such time and in such
14 manner as the Secretary may require.

15 “(2) CRITERIA.—In evaluating such an applica-
16 tion, the Secretary shall consider technical, financial,
17 and other factors that the Secretary determines ap-
18 propriate.

19 “(e) CONSIDERATIONS.—In implementing subsection
20 (a), the Secretary shall seek to support the use of carbon
21 capture, utilization, and storage with projects covering di-
22 verse fuel types and technologies, including first-of-its-
23 kind technology for carbon capture, utilization, and stor-
24 age capacity.

25 “(f) DEFINITIONS.—In this section:

1 “(1) POWER SYSTEM.—The term ‘power sys-
2 tem’ means an electricity generating unit that uti-
3 lizes fossil fuels to generate electricity that is pro-
4 vided to the electric grid or directly to a consumer.

5 “(2) ELIGIBLE POWER SYSTEM.—The term ‘eli-
6 gible power system’ means a power system that—

7 “(A) is equipped with carbon capture tech-
8 nology, or otherwise produces a separate carbon
9 dioxide stream that is suitable for utilization or
10 storage;

11 “(B) is designed to capture carbon dioxide
12 that would otherwise be emitted by the power
13 system; and

14 “(C) will utilize or store the captured car-
15 bon dioxide, or has contracted with one or more
16 other entities to utilize or store the captured
17 carbon dioxide.”.

18 (b) TABLE OF CONTENTS AMENDMENT.—The table
19 of contents for the Energy Policy Act of 2005 is amended
20 by adding after the item relating to section 417 the fol-
21 lowing:

 “Sec. 418. Federal support for deployment of carbon capture, utilization, and
 storage with electricity generation.”.

1 **Subtitle C—Federal Support for**
2 **Commercial Deployment of Car-**
3 **bon Capture, Utilization, and**
4 **Storage**

5 **SEC. 131. ENHANCEMENT OF CARBON DIOXIDE SEQUES-**
6 **TRATION CREDIT.**

7 (a) **EXTENSION OF CREDIT PERIOD.**—Section
8 45Q(a) of the Internal Revenue Code of 1986 is amend-
9 ed—

10 (1) by striking “12-year” in paragraph (3)(A)
11 and inserting “20-year”; and

12 (2) by striking “12-year” in paragraph (4)(A)
13 and inserting “20-year”.

14 (b) **EXTENSION OF QUALIFIED FACILITY CONSTRUC-**
15 **TION BEGINNING DATE.**—Section 45Q(d)(1) of such Code
16 is amended by striking “January 1, 2024” and inserting
17 “January 1, 2033”.

18 **SEC. 132. REFORM OF LOAN GUARANTEE PROGRAM.**

19 Section 1703 of the Energy Policy Act of 2005 (42
20 U.S.C. 16513) is amended—

21 (1) by striking subsection (e) and inserting the
22 following:

23 “(e) **QUALIFICATION OF FACILITIES RECEIVING TAX**
24 **CREDITS OR FINANCIAL ASSISTANCE.**—Notwithstanding
25 any other provision of law, a project that receives tax cred-

1 its or other financial assistance for clean coal technology
2 shall not be disqualified from receiving a guarantee under
3 this subchapter.”; and

4 (2) by inserting the following new subsection
5 after subsection (e):

6 “(f) IMPLEMENTATION.—In implementing the authority
7 under this section with respect to loan guarantees issued
8 after the date of enactment of the Clean Energy Future
9 Through Innovation Act of 2020, the Secretary shall—

10 “(1) adjust fees and application requirements to
11 the scale of a project to ensure that the costs of pre-
12 paring and submitting an application are not an
13 undue barrier to participation by smaller, lower risk
14 projects;

15 “(2) ensure that program credit rating require-
16 ments do not, as applied, act as an obstacle to par-
17 ticipation in the loan guarantee program by first-of-
18 a-kind projects, consistent with the purpose of the
19 loan guarantee program to enable debt financing for
20 first-of-a-kind projects that would not otherwise have
21 access to commercial debt markets; and

22 “(3) for first-of-a-kind projects, cover the cost
23 of the guarantee with appropriated funds rather
24 than requiring the borrower to pay some or all of
25 the cost of the guarantee under section 1702(b).”.

1 **SEC. 133. PRIVATE ACTIVITY BONDS FOR CARBON DIOXIDE**
2 **CAPTURE FACILITIES.**

3 (a) IN GENERAL.—Section 142(a) of the Internal
4 Revenue Code of 1986 is amended by striking “or” at the
5 end of paragraph (14), by striking the period at the end
6 of paragraph (15) and inserting “, or”, and by adding at
7 the end the following new paragraph:

8 “(16) qualified carbon dioxide capture facili-
9 ties.”.

10 (b) QUALIFIED CARBON DIOXIDE CAPTURE FACIL-
11 ITY.—Section 142 of such Code is amended by adding at
12 the end the following new subsection:

13 “(n) QUALIFIED CARBON DIOXIDE CAPTURE FACIL-
14 ITY.—

15 “(1) IN GENERAL.—For purposes of subsection
16 (a)(16), the term ‘qualified carbon dioxide capture
17 facility’ means the eligible components of an indus-
18 trial carbon dioxide facility.

19 “(2) DEFINITIONS.—For purposes of this sub-
20 section—

21 “(A) ELIGIBLE COMPONENT.—The term
22 ‘eligible component’ means, with respect to any
23 industrial carbon dioxide facility, any compo-
24 nent installed in such facility that—

25 “(i) satisfies the requirements under
26 paragraph (3), and

1 “(ii)(I) is used for the purpose of cap-
2 ture, treatment and purification, compres-
3 sion, transportation, or on-site storage of
4 carbon dioxide produced by such facility,
5 or

6 “(II) is integral or functionally related
7 and subordinate to a process described in
8 section 48B(c)(2) (determined by sub-
9 stituting ‘carbon dioxide’ for ‘carbon mon-
10 oxide’).

11 “(B) INDUSTRIAL CARBON DIOXIDE FACIL-
12 ITY.—

13 “(i) IN GENERAL.—The term ‘indus-
14 trial carbon dioxide facility’ means a facil-
15 ity that emits carbon dioxide (including
16 from any fugitive emissions source) that is
17 created as a result of any of the following
18 processes:

19 “(I) Fuel combustion for elec-
20 tricity generation or other purposes.

21 “(II) Gasification for electricity
22 generation or other purposes.

23 “(III) Bioindustrial.

24 “(IV) Fermentation.

1 “(V) Any manufacturing industry
2 described in section 48B(c)(7).

3 “(ii) EXCEPTIONS.—Such term shall
4 not include—

5 “(I) any geological gas facility, or

6 “(II) any air separation unit that
7 does not qualify as gasification equip-
8 ment or is not a necessary component
9 of an oxy-fuel combustion process, a
10 supercritical carbon dioxide process,
11 or other advanced power system.

12 “(iii) GEOLOGICAL GAS FACILITY.—
13 The term ‘geological gas facility’ means a
14 facility that—

15 “(I) produces a raw product con-
16 sisting of gas or mixed gas and liquid
17 from a geological formation,

18 “(II) transports or removes im-
19 purities from such product, or

20 “(III) separates such product
21 into its constituent parts.

22 “(3) CAPTURE AND STORAGE REQUIREMENT.—
23 For purposes of this subsection—

24 “(A) IN GENERAL.—Except as provided in
25 subparagraph (B), a component shall not be

1 treated as meeting the requirements of this
2 paragraph with respect to an industrial carbon
3 dioxide facility unless such component has a
4 capture and storage percentage that is at least
5 65 percent.

6 “(B) EXCEPTION.—In the case of an in-
7 dustrial carbon dioxide facility with a capture
8 and storage percentage that is less than 65 per-
9 cent, a component with respect to such facility
10 shall not be treated as meeting the require-
11 ments of this paragraph unless the percentage
12 of the cost of such component that is financed
13 by tax-exempt bonds is not greater than such
14 capture and storage percentage.

15 “(C) CAPTURE AND STORAGE PERCENT-
16 AGE.—

17 “(i) IN GENERAL.—The capture and
18 storage percentage shall be an amount, ex-
19 pressed as a percentage, equal to the
20 quotient of—

21 “(I) the total metric tons of car-
22 bon dioxide annually captured, trans-
23 ported, and injected into a facility for
24 geologic storage, or an enhanced oil or

1 gas recovery well followed by geologic
2 storage, divided by

3 “(II) the total metric tons of car-
4 bon dioxide which would otherwise be
5 released into the atmosphere each
6 year as industrial emission of green-
7 house gas if the component were not
8 installed in the industrial carbon diox-
9 ide facility.

10 “(ii) LIMITED APPLICATION OF ELIGI-
11 BLE COMPONENTS.—In the case of eligible
12 components that are designed to capture
13 carbon dioxide solely from specific sources
14 of emissions or portions thereof within an
15 industrial carbon dioxide facility, the cap-
16 ture and storage percentage under this
17 subparagraph shall be determined based
18 only on such specific sources of emissions
19 or portions thereof.”.

20 (c) VOLUME CAP.—Section 146(g)(4) of such Code
21 is amended by striking “paragraph (11) of section 142(a)
22 (relating to high-speed intercity rail facilities)” and insert-
23 ing “paragraph (11) or (16) of section 142(a)”.

1 (d) CLARIFICATION OF PRIVATE BUSINESS USE.—
2 Section 141(b)(6) of such Code is amended by adding at
3 the end the following new subparagraph:

4 “(C) CLARIFICATION RELATING TO QUALI-
5 FIED CARBON DIOXIDE CAPTURE FACILITIES.—
6 For purposes of this subsection, the sale of car-
7 bon dioxide produced by a qualified carbon di-
8 oxide capture facility (as defined in section
9 142(n)) which is owned by a governmental unit
10 shall not constitute private business use.”.

11 (e) EFFECTIVE DATE.—The amendments made by
12 this section shall apply to obligations issued after the date
13 of enactment of this Act.

14 **SEC. 134. EXTENSION OF PUBLICLY TRADED PARTNERSHIP**
15 **OWNERSHIP STRUCTURE.**

16 (a) IN GENERAL.—Section 7704(d)(1)(E) of the In-
17 ternal Revenue Code of 1986 is amended—

18 (1) by striking “income and gains derived from
19 the exploration” and inserting “income and gains
20 derived from any of the following:

21 “(i) The exploration”; and

22 (2) by inserting a period after “40A(d)(1)” and
23 inserting thereafter the following:

24 “(ii) The production, storage, or
25 transportation of any fuel which—

1 “(I) uses carbon dioxide captured
2 from an anthropogenic source or the
3 atmosphere as its primary feedstock,
4 and

5 “(II) is determined by the Sec-
6 retary, in consultation with the Sec-
7 retary of Energy and the Adminis-
8 trator of the Environmental Protec-
9 tion Agency, to achieve a reduction of
10 not less than a 60 percent in lifecycle
11 greenhouse gas emissions (as defined
12 in section 211(o)(1)(H) of the Clean
13 Air Act) compared to baseline lifecycle
14 greenhouse gas emissions (as defined
15 in section 211(o)(1)(C) of such Act).

16 This clause shall not apply to any fuel
17 which uses as its primary feedstock carbon
18 dioxide which is deliberately released from
19 naturally-occurring subsurface springs.

20 “(iii) The production of any product
21 or the generation of electric power from a
22 project—

23 “(I) which meets the require-
24 ments of subparagraphs (A) and (B)
25 of section 48B(c)(1), and

1 “(II) not less than 75 percent of
2 the total carbon dioxide emissions of
3 which is qualified carbon oxide (as de-
4 fined in section 45Q(c)) which is dis-
5 posed of or utilized as provided in
6 paragraph (6).

7 “(iv) The generation or storage of
8 electric power (including associated income
9 from the sale or marketing of energy, ca-
10 pacity, resource adequacy, and ancillary
11 services) produced from any power genera-
12 tion facility which is, or from any power
13 generation unit within, a qualified facility
14 under section 45Q(d) and not less than 50
15 percent (30 percent in the case of a facility
16 or unit placed in service before January 1,
17 2017) of the total carbon dioxide emissions
18 of which is qualified carbon oxide which is
19 disposed of or utilized as provided in para-
20 graph (7).

21 “(v) The sale of any good or service
22 from any facility (other than a power gen-
23 eration facility) which is a qualified facility
24 described in section 45Q(c) and the cap-
25 tured qualified carbon oxide (as so defined)

1 of which is disposed of as provided in para-
2 graph (6).”.

3 (b) DISPOSAL AND UTILIZATION OF CAPTURED CAR-
4 BON DIOXIDE.—Section 7704(d) of such Code is amended
5 by adding at the end the following new paragraph:

6 “(6) DISPOSAL AND UTILIZATION OF CAPTURED
7 CARBON DIOXIDE.—For purposes of clauses (iii)(II)
8 and (iv)(II) of paragraph (1)(E), carbon dioxide is
9 disposed of or utilized as provided in this paragraph
10 if such carbon dioxide is—

11 “(A) placed into secure geological storage
12 (as determined under section 45Q(f)(2)),

13 “(B) used as a tertiary injectant (as de-
14 fined in section 45Q(e)(3)) in a qualified en-
15 hanced oil or natural gas recovery project (as
16 defined in section 45Q(e)(2)) and placed into
17 secure geological storage (as so determined),

18 “(C) fixed through photosynthesis or
19 chemosynthesis (including through the growing
20 of algae or bacteria),

21 “(D) chemically converted to a material or
22 chemical compound in which it is securely
23 stored, or

24 “(E) used for any other purpose which the
25 Secretary determines has the potential to

1 strengthen or significantly develop a competitive
2 market for carbon dioxide captured from man-
3 made sources.”.

4 (c) **EFFECTIVE DATE.**—The amendments made by
5 this section shall take effect on the date of the enactment
6 of this Act, in taxable years ending after such date.

7 **SEC. 135. PRODUCTION TAX CREDIT FOR CERTAIN ELEC-**
8 **TRICITY GENERATION USING CARBON CAP-**
9 **TURE UTILIZATION AND STORAGE.**

10 (a) **IN GENERAL.**—Subpart D of part IV of sub-
11 chapter A of chapter 1 of the Internal Revenue Code of
12 1986 is amended by adding at the end the following new
13 section:

14 **“SEC. 45U. ELECTRICITY PRODUCED USING CARBON CAP-**
15 **TURE UTILIZATION AND STORAGE TECH-**
16 **NOLOGY.**

17 “(a) **GENERAL RULE.**—For purposes of section 38,
18 the carbon capture production credit for any taxable year
19 is an amount equal to—

20 “(1) in the case of a qualified facility using fos-
21 sil fuels, the product of—

22 “(A) the megawatt hours of electricity—

23 “(i) produced by the taxpayer at a
24 qualified facility during the 20-year period

1 beginning on the date the facility was
2 originally placed in service, and

3 “(ii) sold by the taxpayer to an unre-
4 lated person during the taxable year, mul-
5 tiplied by

6 “(B)(i) \$30 per megawatt hour in the case
7 of a qualified facility storing carbon in secure
8 geological storage, or

9 “(ii) \$24 per megawatt hour in the case of
10 a qualified facility using captured carbon oxide
11 as a tertiary injectant in a qualified enhanced
12 oil or natural gas recovery project, multiplied by

13 “(C) the discount factor,

14 “(2) in the case of electricity generation facili-
15 ties using exclusively qualified hydrogen, qualified
16 ammonia, or qualified blends, the product of—

17 “(A) the megawatt hours of electricity—

18 “(i) produced by the taxpayer at a
19 qualified facility during the 20-year period
20 beginning on the date the facility was
21 originally placed in service, and

22 “(ii) sold by the taxpayer to an unre-
23 lated person during the taxable year, mul-
24 tiplied by

25 “(B) \$100 per megawatt hour.

1 “(b) DEFINITIONS.—For purposes of this section:

2 “(1) DISCOUNT FACTOR.—The term ‘discount
3 factor’ means an amount equal to 90 divided by the
4 annual carbon dioxide emissions rate expressed in
5 pounds per megawatt-hour for a qualified facility,
6 except that—

7 “(A) if the annual carbon dioxide emis-
8 sions rate for a qualified facility is less than 90
9 pounds per megawatt-hour, the discount factor
10 is equal to 1, and

11 “(B) if the annual carbon dioxide emis-
12 sions rate for a qualified facility is greater 180
13 pounds per megawatt-hour, the discount factor
14 is equal to 0.

15 “(2) QUALIFIED AMMONIA.—The term ‘quali-
16 fied ammonia’ means ammonia fuel produced with
17 less than 17.5 pounds of carbon dioxide emissions
18 per million Btu of gross fuel heating value.

19 “(3) QUALIFIED BLEND.—The term ‘qualified
20 blend’ means a blend of qualified hydrogen or quali-
21 fied ammonia with fossil fuel in which the fossil fuel
22 provides no more than 30 percent of the heating
23 value input.

1 “(4) QUALIFIED FACILITY.—The term ‘quali-
2 fied facility’ means an electricity generation plant
3 that—

4 “(A) is equipped with carbon capture
5 equipment, the construction of which com-
6 menced before January 1, 2033,

7 “(B) captures carbon oxide using carbon
8 capture equipment,

9 “(C) stores captured carbon oxide in se-
10 cure geological storage or uses captured carbon
11 oxide as a tertiary injectant in a qualified en-
12 hanced oil or natural gas recovery project, and

13 “(D) has not been the basis for a credit re-
14 ceived under section 45Q.

15 “(5) QUALIFIED HYDROGEN.—The term ‘quali-
16 fied hydrogen’ means hydrogen fuel produced with
17 less than 17.5 pounds of carbon dioxide emissions
18 per million Btu of gross fuel heating value.”.

19 (b) PART OF GENERAL BUSINESS CREDIT.—Section
20 38(B) of such Code is amended by striking “plus” at the
21 end of paragraph (32), by striking the period at the end
22 of paragraph (33) and inserting “, plus”, and by adding
23 at the end the following new paragraph:

24 “(34) the carbon capture production credit
25 under section 45U(a).”.

1 (c) CLERICAL AMENDMENT.—The table of sections
2 for subpart D of part IV of subchapter A of chapter 1
3 is amended by adding at the end the following new item:

“Sec. 45U. Electricity produced using carbon capture utilization and storage
technology.”.

4 (d) EFFECTIVE DATE.—The amendments made by
5 this section shall apply with respect to electricity sold and
6 produced after the date of the enactment of this Act.

7 **SEC. 136. ELECTIVE PAYMENT OF CREDIT.**

8 (a) Subchapter B of chapter 65 of the Internal Rev-
9 enue Code is amended by adding at the end the following
10 new section:

11 **“SEC. 6431. ELECTIVE PAYMENT OF CREDITS RELATING TO**
12 **CARBON OXIDE SEQUESTRATION.**

13 “(a) ELECTION.—In the case of a taxpayer making
14 an election (at such time and in such manner as the Sec-
15 retary may provide) under this section with respect to any
16 portion of an applicable credit, such taxpayer shall be
17 treated as making a payment against the tax imposed by
18 subtitle A for the taxable year equal to the amount of such
19 portion.

20 “(b) DEFINITIONS AND SPECIAL RULES.—For pur-
21 poses of this section—

22 “(1) GOVERNMENTAL ENTITIES TREATED AS
23 TAXPAYERS.—In the case of an election under this
24 section—

1 “(A) any State or local government, or a
2 political subdivision thereof, or

3 “(B) an Indian Tribal government
4 shall be treated as a taxpayer for purposes of this
5 section and determining any applicable credit.

6 “(2) APPLICABLE CREDIT.—The term ‘applica-
7 ble credit’ means each of the following credits that
8 would (without regard to this section) be determined
9 with respect to the taxpayer:

10 “(A) A carbon oxide sequestration credit
11 under section 45Q.

12 “(B) A carbon capture production credit
13 under section 45U.

14 “(3) INDIAN TRIBAL GOVERNMENT.—The term
15 ‘Indian Tribal government’ shall have the meaning
16 given such term by section 139E.

17 “(4) TIMING.—The payment described in sub-
18 section (a) shall be treated as made on—

19 “(A) in the case of any government, or po-
20 litical subdivision, to which paragraph (1) ap-
21 plies and for which no return is required under
22 section 6011 or 6033(a), the later of the date
23 that a return would be due under section
24 6033(a) if such government or subdivision were
25 described in that section or the date on which

1 such government or subdivision submits a claim
2 for credit or refund (at such time and in such
3 manner as the Secretary shall provide), and

4 “(B) in any other case, the later of the due
5 date of the return of tax for the taxable year
6 or the date on which such return is filed.

7 “(5) WAIVER OF SPECIAL RULES.—In the case
8 of an election under this section, the determination
9 of any applicable credit shall be without regard to
10 paragraphs (3) and (4)(A)(i) of section 50(b).

11 “(c) EXCLUSION FROM GROSS INCOME.—Gross in-
12 come of the taxpayer shall be determined without regard
13 to this section.

14 “(d) DENIAL OF DOUBLE BENEFIT.—Solely for pur-
15 poses of section 38, in the case of a taxpayer making an
16 election under this section, the applicable credit b)(4) shall
17 be reduced by the amount of the portion of such credit
18 with respect to which the taxpayer makes such election.”.

19 (b) CLERICAL AMENDMENT.—The table of sections
20 for subchapter B of chapter 65 is amended by adding at
21 the end the following new item:

 “Sec. 6432. Elective payment of credits related to carbon oxide sequestration.”.

1 **Subtitle D—Support for Carbon Di-**
2 **oxide Transportation and Se-**
3 **questration Infrastructure**

4 **SEC. 141. SECURING GEOLOGIC RESERVOIRS FOR CARBON**
5 **DIOXIDE.**

6 (a) IN GENERAL.—Subtitle B of title IV of the En-
7 ergy Policy Act of 2005 (42 U.S.C. 15971 et seq.) is fur-
8 ther amended by adding after section 418 (as added by
9 this Act) the following new section:

10 **“SEC. 419. SECURING GEOLOGIC RESERVOIRS FOR STOR-**
11 **AGE OF CARBON DIOXIDE.**

12 “(a) IN GENERAL.—The Secretary shall establish a
13 program to—

14 “(1) identify geological formations that are ca-
15 pable of storing, cumulatively, at least 250,000,000
16 tons of carbon dioxide with a target storage cost of
17 less than \$10 per ton;

18 “(2) assess the cost of developing and operating
19 a carbon dioxide sequestration facility at the geologi-
20 cal formations identified under paragraph (1); and

21 “(3) support the development of such carbon di-
22 oxide sequestration facility by providing grants or
23 other appropriate financial assistance to storage fa-
24 cility developers to—

1 “(A) secure property rights that are nec-
2 essary to enable carbon dioxide storage in such
3 geologic formations; and

4 “(B) obtain necessary permits and ap-
5 proval to enable carbon dioxide storage in such
6 geologic formations.

7 “(b) GEOGRAPHIC DIVERSITY.—The Secretary shall
8 carry out subsection (a) with the goal of supporting devel-
9 opment of carbon dioxide sequestration facilities that are
10 capable of storing significant volumes of carbon dioxide
11 at reasonable cost in each of the regions covered by the
12 regional carbon sequestration partnerships established
13 pursuant to section 963.

14 “(c) APPLICATION.—An entity seeking a grant or
15 other appropriate financial assistance provided under this
16 section shall submit to the Secretary an application at
17 such time and in such manner as the Secretary may re-
18 quire.

19 “(d) COST SHARING.—The Secretary shall consider
20 the activities described under subsection (a)(3) to be sub-
21 ject to the cost share requirement for demonstration and
22 commercial application activities under section 988(c).”.

23 “(b) TABLE OF CONTENTS AMENDMENT.—The table
24 of contents for the Energy Policy Act of 2005 is further

1 amended by adding after the item relating to section 418
2 (as added by this Act) the following:

“Sec. 419. Securing geologic reservoirs for carbon dioxide.”.

3 **SEC. 142. FINANCIAL ASSISTANCE FOR CARBON DIOXIDE**
4 **SEQUESTRATION INFRASTRUCTURE DEVEL-**
5 **OPMENT.**

6 (a) IN GENERAL.—Subtitle B of title IV of the En-
7 ergy Policy Act of 2005 (42 U.S.C. 15971 et seq.) is fur-
8 ther amended by adding after section 419 (ass added by
9 this Act) the following new section:

10 **“SEC. 420. CARBON DIOXIDE SEQUESTRATION INFRA-**
11 **STRUCTURE DEVELOPMENT.**

12 “(a) IN GENERAL.—The Secretary shall establish a
13 program to provide grants to support—

14 “(1) the development of carbon dioxide pipeline
15 infrastructure that is necessary to support the trans-
16 portation of the volumes of carbon dioxide that are
17 expected to be captured at electricity generation fa-
18 cilities to appropriate sites for long term sequestra-
19 tion, giving priority to pipeline projects of significant
20 length and significant throughput capacity; and

21 “(2) the development of geologic sequestration
22 facilities that are necessary to support long-term se-
23 questration of the volumes of carbon dioxide that are
24 expected to be captured at electricity generation fa-
25 cilities.

1 “(b) APPLICATION.—Applications for a grant pro-
2 vided under this section shall be submitted at such time
3 and in such manner as the Secretary may require.

4 “(c) COST SHARING.—The Secretary shall consider
5 support for the development of carbon dioxide pipeline in-
6 frastructure or the development of geologic sequestration
7 facility under subsection (a) to be subject to the cost share
8 requirement for demonstration and commercial application
9 activities under section 988(c).

10 “(e) AUTHORIZATION OF APPROPRIATIONS.—There
11 are authorized to be appropriated to the Secretary to carry
12 out this section \$2,000,000,000 for each of fiscal years
13 2021 through 2025.”.

14 (b) TABLE OF CONTENTS AMENDMENT.—The table
15 of contents for the Energy Policy Act of 2005 is further
16 amended by adding after the item relating to section 419
17 (as added by this Act) the following:

“Sec. 420. Carbon dioxide sequestration infrastructure development.”.

18 **SEC. 143. GEOLOGIC CARBON DIOXIDE SEQUESTRATION**
19 **UTILITIES.**

20 (a) IN GENERAL.—The Secretary, in collaboration
21 with the Secretary of Transportation and the Adminis-
22 trator of the Environmental Protection Agency, as appro-
23 priate, may provide technical assistance to a State that
24 is seeking to—

1 (1) establish a government-owned carbon diox-
2 ide sequestration utility; or

3 (2) regulate a privately owned carbon dioxide
4 sequestration utility.

5 (b) TECHNICAL ASSISTANCE.—Technical assistance
6 provided under subsection (a) may include—

7 (1) with respect to a government-owned carbon
8 dioxide sequestration utility—

9 (A) conducting engineering studies to sup-
10 port the development of a geologic sequestration
11 facility; and

12 (B) identifying potential carbon dioxide
13 pipeline routes; and

14 (2) with respect to State regulation of a pri-
15 vately owned carbon dioxide sequestration utility—

16 (A) helping with the development of a
17 State permitting system for a privately owned
18 carbon dioxide sequestration utility; and

19 (B) assisting with the developing regula-
20 tions for services provided by a privately owned
21 carbon dioxide sequestration utility and the set-
22 ting of rates charged for such services.

23 (c) REPORT.—Not later than 1 year of the date of
24 enactment of this section, the Secretary shall submit to
25 Congress a report that—

1 (1) characterizes Federal, State, and local regu-
2 lations that apply to carbon dioxide pipeline and se-
3 questration facility development and operation;

4 (2) identifies any gaps in applicable regulations
5 or standards that need to be addressed to ensure
6 that carbon dioxide pipeline and sequestration facili-
7 ties are operated in a safe and effective manner;

8 (3) evaluates whether regulation of the rates or
9 terms of service for carbon dioxide transportation
10 services or geologic sequestration services are nec-
11 essary to ensure fair access to such services;

12 (4) evaluates whether eminent domain authority
13 is necessary to enable development of carbon dioxide
14 infrastructure in the public interest; and

15 (5) provides recommended changes to Federal
16 law that would support the development and use of
17 carbon dioxide pipeline and geologic sequestration
18 facilities in the public interest.

19 **SEC. 144. COORDINATED FEDERAL PERMITTING FOR CAR-**
20 **BON DIOXIDE PIPELINE AND SEQUESTRA-**
21 **TION FACILITIES.**

22 Section 41001(6)(A) of the FAST Act (42 U.S.C.
23 4370m note(6)(A)) is amended by striking “pipelines” and
24 inserting “pipelines (including pipelines for the transpor-

1 tation of carbon dioxide), facilities for the geologic seques-
2 tration of carbon dioxide”.

3 **SEC. 145. INTERAGENCY TASK FORCE ON CARBON DIOXIDE**
4 **PIPELINES.**

5 (a) IN GENERAL.—Not later than 90 days after the
6 date of enactment of this section, the Secretary shall es-
7 tablish an interagency task force (in this section referred
8 to as the “Task Force”) to assess the potential for a na-
9 tional system of carbon dioxide pipelines.

10 (b) MEMBERSHIP.—The Task Force shall include
11 representatives from each of the following:

12 (1) The Department.

13 (2) The Department of the Interior.

14 (3) The Environmental Protection Agency.

15 (4) The Department of Transportation.

16 (5) The Federal Energy Regulatory Commis-
17 sion.

18 (6) State, local, and Tribal governments.

19 (7) Any other Federal agency that the Sec-
20 retary determines has a significant interest or role
21 in development of a national system of carbon diox-
22 ide pipelines.

23 (c) DUTIES.—The Task Force shall—

24 (1) conduct annual public workshops to discuss
25 the potential of, and progress towards, an accessible

1 and functioning national system of carbon dioxide
2 pipelines;

3 (2) provide to the public notice of such work-
4 shops not less than 60 days before the date on which
5 each such workshop is conducted;

6 (3) submit to Congress annual reports that
7 summarize the activities and progress of the Task
8 Force; and

9 (4) as soon as practical, but not later than 5
10 years after the date on which the Task Force is es-
11 tablished, submit to Congress a report that provides
12 a plan to establish a national carbon dioxide pipeline
13 system, which shall include—

14 (A) information and recommendations re-
15 lated to engineering, building, siting, con-
16 structing, and maintaining a national carbon di-
17 oxide pipeline system;

18 (B) recommendations for how to stream-
19 line the permitting process for new carbon diox-
20 ide pipelines;

21 (C) information on how to integrate new
22 carbon dioxide pipelines into existing carbon di-
23 oxide pipeline infrastructure;

24 (D) a determination on whether incentives
25 or other policies are needed to encourage the

1 utilization of the advanced leak detection and
2 mitigation technology and monitoring capabili-
3 ties for the national carbon dioxide pipeline sys-
4 tem;

5 (E) recommendations for how to regulate
6 the national carbon dioxide pipeline system to
7 ensure safety and mitigate environmental im-
8 pacts; and

9 (F) an identification of other Federal and
10 State policy challenges related to the develop-
11 ment of a national system of carbon dioxide
12 pipelines.

13 (d) SUNSET.—This section shall cease to be effective
14 on the date that is 5 years after the date on which the
15 Task Force is established.

16 **TITLE II—INNOVATION IN RE-**
17 **NEWABLE ENERGY, ENERGY**
18 **EFFICIENCY, AND STORAGE**

19 **SEC. 201. ESTABLISHMENT OF TECHNOLOGY PERFORM-**
20 **ANCE AND COST TARGETS.**

21 (a) IN GENERAL.—Not later than one year after the
22 date of enactment of this section, the Secretary shall es-
23 tablish technology performance and cost targets for three
24 5-year periods to address existing gaps in technology, with
25 the first such period starting on the date of enactment

1 of this section and the last such period ending on the date
2 that is 15 years following enactment.

3 (b) TARGETS.—Technology and performance cost
4 targets shall be established for each of the following tech-
5 nology categories:

6 (1) Advanced renewable power technologies,
7 which include—

8 (A) large-scale, novel renewable power
9 plants;

10 (B) renewable hydrogen power plants, in-
11 cluding plants for which the hydrogen comes
12 from renewable natural gas or biogas;

13 (C) on-shore or off-shore wind power;

14 (D) thermal or photovoltaic solar power;

15 (E) hydropower;

16 (F) geothermal power;

17 (G) biomass power; and

18 (H) advanced renewable energy manufac-
19 turing techniques.

20 (2) Mechanical, chemical, and thermal energy
21 storage technologies, which include—

22 (A) advanced grid-scale energy storage
23 technologies with storage durations in the range
24 of 10 to 50 hours; and

1 (B) grid-scale energy storage projects that
2 can economically balance electricity supply and
3 demand across seasons.

4 (3) Electricity transmission technologies, which
5 include underground high-voltage direct current elec-
6 tricity transmission.

7 (4) Commercial, industrial, and residential en-
8 ergy efficiency technologies, which include—

9 (A) retrofit packages that reduce the en-
10 ergy used by an average single-family home by
11 at least 50 percent at a cost of no more than
12 \$25,000 per such home;

13 (B) smart heating, ventilation, and air con-
14 ditioning control technologies that—

15 (i) can be used in commercial build-
16 ings that have between 5,000 and 30,000
17 square feet of floor area;

18 (ii) can reduce heating, ventilation,
19 and air conditioning energy consumption
20 by an average of at least 20 percent com-
21 pared to average commercial buildings;

22 (iii) yield energy cost savings that can
23 provide at least a 50 percent annual return
24 on the original investment; and

1 (iv) may include a cloud-based infor-
2 mation technology;

3 (C) those technologies that the Secretary
4 identifies as having the ability to improve en-
5 ergy efficiency or reduce emissions in heavy in-
6 dustries, which include those that produce or
7 refine aluminum, steel, cement, oil, or fertilizer;
8 and

9 (D) flexible load technology improvements
10 to reduce peak demand.

11 (5) Industrial process and building electrifica-
12 tion technologies, which include—

13 (A) heat pump space heaters;

14 (B) heat pump water heaters;

15 (C) induction stoves; and

16 (D) advanced industrial process heat tech-
17 nologies.

18 (e) AUTHORIZATION OF APPROPRIATIONS.—There
19 are authorized to be appropriated to carry out this section
20 the following:

21 (1) With respect to the advanced renewable en-
22 ergy technologies projects described in subparagraph
23 (b)(1), \$2,000,000,000 for each of fiscal years 2021
24 through 2025.

1 (2) With respect to the energy storage tech-
2 nologies projects described in subparagraph (b)(2),
3 \$400,000,000 for each of fiscal years 2021 through
4 2025.

5 (3) With respect to the transmission tech-
6 nologies and projects described in subparagraph
7 (b)(3), \$600,000,000 for each of fiscal years 2021
8 through 2025.

9 **SEC. 202. ADVANCED INNOVATION AND COMMERCIALIZA-**
10 **TION PROGRAM.**

11 (a) **IN GENERAL.**—The Secretary, in collaboration
12 with the National Laboratories, other Federal agencies,
13 and private sector and university partners as the Secretary
14 determines necessary, shall establish a program, to be
15 known as the “Advanced Innovation and Commercializa-
16 tion Program”, to carry out research, development, and
17 demonstration of technology that meets the targets estab-
18 lished for those technologies identified in section 201(b).

19 (b) **EARLY DEPLOYMENT.**—

20 (1) **IN GENERAL.**—The Secretary shall establish
21 a program to provide grants for early deployment of
22 the technologies demonstrated under the Advanced
23 Innovation and Commercialization program under
24 this section.

1 (2) AUTHORIZATION OF APPROPRIATIONS.—

2 There is authorized to be appropriated to carry out
3 this subsection \$3,000,000,000 for each of fiscal
4 years 2021 through 2025.

5 (c) FEDERAL PROCUREMENT.—

6 (1) IN GENERAL.—The Secretary, in collabora-
7 tion with the Secretary of Defense and the Adminis-
8 trator of the General Services Administration, shall
9 establish Federal procurement goals and deadlines
10 for achieving such goals for those technologies iden-
11 tified in section 201(b)(1) through (5).

12 (2) FEDERAL ENERGY AND ADVANCED TECH-
13 NOLOGY ENERGY PROCUREMENT.—The Secretary, in
14 collaboration with the Secretary of Defense and the
15 Administrator of General Services, shall—

16 (A) through administrative and regulatory
17 actions, improve Federal procurement of the
18 technologies described in paragraph (1);

19 (B) identify and report on barriers to im-
20 proving Federal procurement of energy and
21 technologies that require legislative changes;
22 and

23 (C) take due regard of the recommenda-
24 tions from the 2016 report entitled “Secretary

1 of Energy Advisory Board Report of the Task
2 Force on Federal Energy Management”.

3 **SEC. 203. UPDATING MOBILE HOMES.**

4 (a) UPDATING MOBILE HOMES.—Not later than one
5 year after the date of enactment of this section, the Sec-
6 retary shall establish a program to provide grants and
7 technical assistance to individuals or businesses to facili-
8 tate the replacement of energy-inefficient mobile homes
9 with highly efficient zero-energy modular homes.

10 (b) AUTHORIZATION.—There are authorized to be ap-
11 propriated to carry out this section \$2,500,000,000 for
12 each of fiscal years 2021 through 2025, to remain avail-
13 able until expended.

14 **SEC. 204. INVESTMENT TAX CREDITS FOR ENERGY BAT-**
15 **TERY STORAGE, OFFSHORE WIND, AND CER-**
16 **TAIN HYDROPOWER TECHNOLOGIES.**

17 (a) IN GENERAL.—Section 48(a)(3)(A) of the Inter-
18 nal Revenue Code of 1986, as amended by section 121,
19 is amended by striking “or” at the end of clause (vii), and
20 by adding at the end the following new clauses:

21 “(ix) equipment which generates wind
22 energy from an offshore facility,
23 “(x) energy storage equipment,

1 “(xi) equipment which makes a non-
2 hydroelectric dam capable of generating
3 hydropower, or

4 “(xii) equipment which generates geo-
5 thermal electricity through an enhanced
6 geothermal system.”.

7 (b) ALLOWANCE OF 30 PERCENT CREDIT.—

8 (1) IN GENERAL.—Section 48(a)(2)(A)(i)(II) of
9 the Internal Revenue Code of 1986 is amended by
10 striking “paragraph (3)(A)(i)” and inserting “clause
11 (i), (ix), (x), (xi), or (xii) of paragraph (3)(A)”.

12 (2) PHASEOUT.—Section 48(a)(6) of such Code
13 is amended—

14 (A) by striking “solar energy” in the head-
15 ing and inserting “certain”, and

16 (B) by striking “paragraph (3)(A)(i)” both
17 places it appears and inserting “clause (i), (ix),
18 (x), (xi), or (xii) of paragraph (3)(A)”.

19 (c) DEFINITIONS.—

20 (1) ENERGY CREDIT.—Section 48(c) of the In-
21 ternal Revenue Code of 1986 is amended by adding
22 at the end the following new paragraphs:

23 “(5) QUALIFIED OFFSHORE WIND PROPERTY.—

1 “(A) IN GENERAL.—The term ‘qualified
2 offshore wind property’ means an offshore facil-
3 ity using wind to produce electricity.

4 “(B) OFFSHORE FACILITY.—The term
5 ‘offshore facility’ means any facility located in
6 the inland navigable waters of the United
7 States, including the Great Lakes, or in the
8 coastal waters of the United States, including
9 the territorial seas of the United States, the ex-
10 clusive economic zone of the United States, and
11 the outer Continental Shelf of the United
12 States.

13 “(6) ENERGY STORAGE EQUIPMENT.—The term
14 ‘energy storage equipment’ means equipment which
15 receives, stores, and delivers energy using batteries,
16 compressed air, pumped hydropower, hydrogen stor-
17 age (including hydrolysis and electrolysis), thermal
18 energy storage, regenerative fuel cells, flywheels, ca-
19 pacitors, superconducting magnets, or other tech-
20 nologies identified by the Secretary in consultation
21 with the Secretary of Energy, and which has a ca-
22 pacity of not less than 5 kilowatt hours.

23 “(7) NONHYDROELECTRIC DAM.—The term
24 ‘nonhyrdoelectric dam’ means a nonhydroelectric
25 dam that—

1 “(A) is licensed by the Federal Energy
2 Regulatory Commission and meets all other ap-
3 plicable environmental, licensing, and regulatory
4 requirements,

5 “(B) was placed in service before the date
6 of the enactment of this paragraph and oper-
7 ated for flood control, navigation, or water sup-
8 ply purposes and did not produce hydroelectric
9 power on the date of the enactment of this
10 paragraph,

11 “(C) is operated so that the water surface
12 elevation at any given location and time that
13 would have occurred in the absence of the hy-
14 droelectric project is maintained, subject to any
15 license requirements imposed under applicable
16 law that change the water surface elevation for
17 the purpose of improving environmental quality
18 of the affected waterway, and

19 “(D) includes one more hydroelectric
20 projects which have been certified by the Sec-
21 retary, after consultation with the Federal En-
22 ergy Regulatory Commission, as meeting the re-
23 quirements of clause (iii).

24 “(8) ENHANCED GEOTHERMAL SYSTEM.—The
25 term ‘enhanced geothermal system’ means a system

1 to extract heat by creating a subsurface fracture
2 system to which water can be added through injection
3 wells.”.

4 (2) QUALIFYING ADVANCED ENERGY PROJECT
5 CREDIT.—Section 48C(c)(1)(A)(i)(IV) of the Internal
6 Revenue Code of 1986 is amended by inserting
7 “, including through direct air capture or carbon di-
8 oxide removal” after “emissions”.

9 (d) EFFECTIVE DATE.—The amendments made by
10 this section shall apply to property placed in service after
11 December 31, 2019.

12 (e) COORDINATION WITH FEDERAL POWER ACT.—
13 Nothing in this section, or the amendments made by this
14 section, shall affect the standards under which the Federal
15 Energy Regulatory Commission issues licenses for and
16 regulates hydropower projects under part I of the Federal
17 Power Act.

18 **SEC. 205. EXTENSION OF PRODUCTION TAX CREDIT FOR**
19 **SOLAR AND ON-SHORE WIND.**

20 (a) WIND.—Section 45(d)(1) of the Internal Revenue
21 Code of 1986 is amended by striking “January 1, 2021”
22 and inserting “January 1, 2031”.

23 (b) SOLAR.—Section 45(d)(4)(A) of such Code is
24 amended by striking “placed in service before January 1,

1 2006” and inserting “construction of which begins before
2 January 1, 2031”.

3 (c) APPLICATION OF PHASEOUT PERCENTAGE TO
4 WIND FACILITIES.—Section 45(b)(5)(D) of such Code is
5 amended by striking “January 1, 2021” and inserting
6 “January 1, 2031”.

7 (d) EFFECTIVE DATE.—The amendments made by
8 this section shall apply to facilities the construction of
9 which begins after December 31, 2020.

10 **SEC. 206. RENEWAL OF QUALIFYING ADVANCED ENERGY**
11 **PROJECT CREDIT.**

12 (a) IN GENERAL.—Section 48C(d)(2)(A) of the In-
13 ternal Revenue Code of 1986 is amended by striking “dur-
14 ing the 2-year period beginning on the date the Secretary
15 establishes the program under paragraph (1)”.

16 (b) EFFECTIVE DATE.—The amendment made by
17 this section shall apply to applications received after the
18 date of the enactment of this Act.

19 **SEC. 207. PERFORMANCE-BASED TAX CREDITS FOR COM-**
20 **MERCIAL AND RESIDENTIAL BUILDINGS.**

21 (a) The Internal Revenue Code of 1986 is amended
22 by inserting the following after section 45U (as added by
23 this Act):

1 **“SEC. 45V. DEEP RETROFITS AND ZERO-ENERGY COMMERCIAL AND RESIDENTIAL BUILDINGS.**

2
3 “(a) DEFINITIONS.—In this section:

4 “(1) BTU.—The term ‘Btu’ means British
5 Thermal Unit.

6 “(2) BUILDING ENERGY.—The term ‘building
7 energy’ means energy consumed at the building site
8 as measured at the site boundary, which includes
9 heating, cooling, ventilation, domestic hot water, in-
10 door and outdoor lighting, plug loads, process en-
11 ergy, elevators and conveying systems, and
12 intrabuilding transportation systems.

13 “(3) DEEP ENERGY RETROFIT.—The term
14 ‘deep energy retrofit’ means a project that uses en-
15 ergy efficiency measures and renewable energy re-
16 sources to reduce the energy use of an existing
17 building by at least 50 percent on an annual basis
18 relative to the most recent 12 month period in which
19 the building was fully occupied prior to the project,
20 provided that energy efficiency measures must ac-
21 count for at least 80 percent of the reduction in en-
22 ergy use.

23 “(4) DELIVERED ENERGY.—The term ‘delivered
24 energy’ means any type of energy that could be
25 bought or sold as building energy, including elec-
26 tricity, steam, hot or chilled water, natural gas,

1 biogas, landfill gas, coal, coke, propane, petroleum
2 and its derivatives, residual fuel oil, alcohol-based
3 fuels, wood, biomass, and any other material con-
4 sumed as fuel.

5 “(5) EXPORTED ENERGY.—The term ‘exported
6 energy’ means on-site renewable energy supplied
7 through the site boundary and used outside the site
8 boundary.

9 “(6) HIGH RISE COMMERCIAL BUILDING.—The
10 term ‘high rise commercial building’ means a com-
11 mercial building of four or more above grade stories.

12 “(7) HIGH RISE RESIDENTIAL BUILDING.—The
13 term ‘high rise residential building’ means a multi-
14 family building with four or more above grade sto-
15 ries.

16 “(8) KWH.—The term ‘kWh’ means Kilowatt
17 Hour.

18 “(9) LOW RISE RESIDENTIAL BUILDING.—The
19 term ‘low rise residential building’ means a single-
20 family home or multifamily building with no more
21 than three above grade stories.

22 “(10) ON-SITE RENEWABLE ENERGY.—The
23 term ‘on-site renewable energy’ means any renewable
24 energy collected and generated within the site
25 boundary that is used for building energy, and the

1 excess renewable energy exported outside the site
2 boundary, provided that any renewable energy cer-
3 tificates associated with the on-site renewable energy
4 must be retained or retired by the building owner or
5 lessee to be claimed as on-site renewable energy.

6 “(11) RENEWABLE ENERGY.—The term ‘renew-
7 able energy’ means energy generated by biomass,
8 hydro, geothermal, solar, wind, ocean thermal, wave
9 action, or tidal action resources.

10 “(12) RENEWABLE ENERGY CERTIFICATE.—
11 The term ‘renewable energy certificate’ means a cer-
12 tificate or credit that represents and conveys the en-
13 vironmental, social, or other nonpower qualities of
14 one megawatt hour of renewable energy, and can be
15 sold separately from the underlying physical elec-
16 tricity associated with the renewable energy re-
17 source.

18 “(13) SITE BOUNDARY.—The term ‘site bound-
19 ary’ means the limits of the building site across
20 which delivered energy and exported energy are
21 measured.

22 “(14) SOURCE ENERGY.—The term ‘source en-
23 ergy’ means building energy plus the energy losses
24 in thermal combustion in electricity generation re-

1 sources; and energy losses in transmission and dis-
2 tribution to the building site.

3 “(15) ZERO-ENERGY BUILDING.—The term
4 ‘zero-energy building’ means a building for which, on
5 a source energy basis, the actual annual delivered
6 energy is less than or equal to the on-site renewable
7 exported energy, provided that energy purchased
8 from off-site and renewable energy generated on-site
9 and then sold off-site shall be valued at 6000 Btu/
10 kWh.

11 “(16) ZERO-ENERGY-READY BUILDING.—The
12 term ‘zero-energy-ready building’ means a building
13 that—

14 “(A) if it is a commercial building or high-
15 rise residential building—

16 “(i) is in compliance with Standard
17 90.1-2019 published by the American Soci-
18 ety of Heating, Refrigerating, and Air
19 Conditioning Engineers;

20 “(ii) is in compliance with Appendix
21 CA (Solar-Ready Zone) of the 2021 Inter-
22 national Energy Conservation Code; and

23 “(iii) demonstrates that its energy
24 consumption is at least 30 percent below
25 the maximum permitted under American

1 Society of Heating, Refrigerating, and Air
2 Conditioning Engineers Standard 90.1-
3 2019, as calculated using the methodology
4 in Appendix G of such standard; and

5 “(B) if it is a low-rise residential build-
6 ing—

7 “(i) has an Energy Rating Index of
8 40 or less as calculated using the proce-
9 dures in Chapter 3 of the residential sec-
10 tion of the 2012 International Energy
11 Conservation Code but excluding any re-
12 newable energy resources in the calcula-
13 tion, provided that certification of compli-
14 ance with the Energy Rating Index re-
15 quirement shall be made by a registered
16 architect or engineer by another profes-
17 sional authorized by the Secretary of En-
18 ergy by rule;

19 “(ii) is in compliance with Appendix
20 RA (Solar-Ready Zone) of the 2021 Inter-
21 national Energy Conservation Code; and

22 “(iii) is certified under—

23 “(I) the Zero Energy Ready
24 Homes program administered by the
25 Department of Energy; or

1 “(II) the Passive House speci-
2 fications of the Passive Institute US
3 or the International Passive House
4 Institute.

5 “(b) ELIGIBILITY FOR TAX CREDIT.—To be eligible
6 to receive a tax credit under this section, the builder or
7 owner of a building must demonstrate that—

8 “(1) the building is located in the United
9 States;

10 “(2) the building is at least 50 percent occupied
11 when the tax credit is claimed;

12 “(3) if the building has implemented a deep en-
13 ergy retrofit, the project has been completed and
14 certified as a deep energy retrofit by a registered ar-
15 chitect or engineer, or by another professional au-
16 thorized by the Secretary of Energy by rule; and

17 “(4) if the building is a zero-energy building,
18 the building has been zero-energy over a span of 12
19 continuous months with at least 50 percent occu-
20 pancy as verified—

21 “(A) through certification by the Living
22 Buildings Institute Zero Energy Certification
23 Program;

1 “(B) through certification by the LEED
2 Zero Energy Certification Program Verification;
3 or

4 “(C) by another professional authorized by
5 the Secretary of Energy by rule.

6 “(c) TAX CREDIT AMOUNTS.—

7 “(1) ZERO-ENERGY-READY BUILDINGS.—The
8 following tax credit amounts shall be awarded for
9 certified zero-energy-ready buildings—

10 “(A) for a residential building with no
11 more than four dwelling units, \$5,000 per
12 dwelling unit;

13 “(B) for a residential building with five or
14 more dwelling units, \$3,500 per dwelling unit;
15 and

16 “(C) for a commercial building, \$3 per
17 square foot of floor area.

18 “(2) ZERO-ENERGY BUILDINGS.—The following
19 tax credit amounts shall be awarded for certified
20 zero-energy buildings—

21 “(A) for a residential building with no
22 more than four dwelling units, \$5,000 per
23 dwelling unit;

1 “(B) for a residential building with five or
2 more dwelling units, \$3,500 per dwelling unit;
3 and

4 “(C) for a commercial building that is a
5 zero-energy building for a period of 12 contin-
6 uous months starting after the building is at
7 least 50 percent occupied, \$3 per square foot of
8 floor area, provided that a zero-energy building
9 may also receive the zero-energy-ready building
10 incentive if it meets the criteria for this incen-
11 tive.

12 “(3) DEEP ENERGY RETROFITS.—The following
13 tax credit amounts shall be awarded to buildings
14 upon completion of a deep energy retrofit—

15 “(A) for a residential building, \$10,000
16 per dwelling unit, up to a maximum of
17 \$1,000,000 per building; and

18 “(B) for a commercial building, \$25 per
19 square foot of floor area, up to a maximum of
20 \$2,000,000 per building.

21 “(d) TAX CREDIT RECIPIENT.—

22 “(1) IN GENERAL.—The person eligible to re-
23 ceive a tax credit under this section shall be—

24 “(A) for a new residential building, the
25 builder;

1 “(B) for an existing residential building
2 that has undergone a deep energy retrofit, the
3 builder;

4 “(C) for a new commercial building, the
5 building owner; and

6 “(D) for an existing commercial building
7 that has undergone a deep energy retrofit, the
8 building owner.

9 “(2) TRANSFER OF CREDIT.—A building owner
10 who is eligible to receive a tax credit under subpara-
11 graphs (C) and (D) of paragraph (1) may transfer
12 such tax credit to the architect, builder, or con-
13 tractor.

14 “(e) EXCLUSIONS.—A building project is not eligible
15 for tax credits under this section if the owner or builder
16 has used another Federal tax incentive for the same
17 project, including incentives under sections 25C, 25D, and
18 179D of this title.

19 “(f) SUNSET OF TAX CREDIT AUTHORITY.—The tax
20 credit authority under this section shall terminate—

21 “(1) for zero-energy and zero-energy-ready resi-
22 dential buildings, one year after the Secretary of En-
23 ergy determines by rule that such buildings ac-
24 counted for at least 20 percent of new residential
25 buildings in the most recent calendar year;

1 “(2) for zero-energy and zero-energy-ready com-
2 mercial buildings, one year after the Secretary of
3 Energy determines by rule that such buildings ac-
4 counted for at least 20 percent of new commercial
5 building construction in the most recent calendar
6 year;

7 “(3) for deep energy retrofits to residential
8 buildings, one year after the Secretary of Energy de-
9 termines by rule that at least 10 percent of units at
10 residential buildings have undergone such retrofits;
11 and

12 “(4) for deep energy retrofits to commercial
13 buildings, one year after the Secretary of Energy de-
14 termines by rule that at least 10 percent of the floor
15 area of commercial buildings has undergone such
16 retrofits.

17 “(g) RULEMAKING.—Not later than one year after
18 enactment of this section, the Secretary, in coordination
19 with the Secretary of Energy, shall promulgate rules to
20 implement this section.

21 “(h) REPORT TO CONGRESS.—Not later than two
22 years after enactment of this section, and each calendar
23 year thereafter, the Secretary shall report to Congress on
24 the use of tax credits under this section broken down by

1 the categories in subsection (c), which report shall in-
2 clude—

3 “(1) the dollar value of tax credits awarded to
4 date and in the prior calendar year; and

5 “(2) the number of units at residential build-
6 ings and the number of square feet of floor area in
7 commercial buildings for which tax credits were
8 awarded to date and in the prior year calendar
9 year.”.

10 (i) TABLE OF CONTENTS.—The table of contents of
11 the Internal Revenue Code of 1986 is further amended
12 by inserting after the item relating to section 45U (as
13 added by this Act) the following:

“Sec. 45V. Deep energy retrofits and zero-energy commercial and residential
buildings.”.

14 **SEC. 208. EXTENSION OF PUBLICLY TRADED PARTNERSHIP**
15 **OWNERSHIP STRUCTURE TO RENEWABLE EN-**
16 **ERGY PROJECTS.**

17 (a) IN GENERAL.—Section 7704(d)(1)(E) of the In-
18 ternal Revenue Code of 1986, as amended by section 134
19 of this Act, is further amended by adding after clause (v)
20 the following:

21 “(vi) The generation of electric power
22 (including the leasing of tangible personal
23 property used for such generation) exclu-
24 sively utilizing any resource described in

1 section 45(c)(1) or energy property de-
2 scribed in section 48 (determined without
3 regard to any termination date) or, in the
4 case of a facility described in paragraph
5 (3) or (7) of section 45(d) (determined
6 without regard to any placed in service
7 date or date by which construction of the
8 facility is required to begin), the accepting
9 or processing of such resource.

10 “(vii) The sale of electric power, ca-
11 pacity, resource adequacy, demand re-
12 sponse capabilities, or ancillary services
13 that is produced or made available from
14 any equipment or facility (operating as a
15 single unit or as an aggregation of units)
16 the principal function of which is to—

17 “(I) use mechanical, chemical,
18 electrochemical, hydroelectric, or ther-
19 mal processes to store energy that was
20 generated at one time for conversion
21 to electricity at a later time, or

22 “(II) store thermal energy for di-
23 rect use for heating or cooling at a
24 later time in a manner that avoids the

1 need to use electricity at that later
2 time.

3 “(viii) The generation, storage, or dis-
4 tribution of thermal energy exclusively uti-
5 lizing property described in section
6 48(c)(3) (determined without regard to
7 subparagraphs (B) and (D) thereof and
8 without regard to any placed in service
9 date).

10 “(ix) The generation, storage, or dis-
11 tribution of thermal energy exclusively
12 using any resource described in section
13 45(c)(1) or energy property described in
14 clause (i) or (iii) of section 48(a)(3)(A).

15 “(x) The use of recoverable waste en-
16 ergy, as defined in section 371(5) of the
17 Energy Policy and Conservation Act (42
18 U.S.C. 6341(5)).”.

19 (b) EFFECTIVE DATE.—The amendment made by
20 this section shall apply to taxable years beginning after
21 December 31, 2020.

1 **SEC. 209. MANUFACTURER CREDIT FOR HIGH-EFFICIENCY**
2 **HEAT PUMPS AND HEAT PUMP WATER HEAT-**
3 **ERS.**

4 (a) IN GENERAL.—The Internal Revenue Code of
5 1986 is further amended by adding after section 45V (as
6 added by this Act) the following new section:

7 **“SEC. 45W. MANUFACTURER CREDIT FOR HIGH-EFFI-**
8 **CIENCY HEAT PUMPS AND HEAT PUMP**
9 **WATER HEATERS.**

10 “(a) CREDIT AMOUNTS.—

11 “(1) IN GENERAL.—For purposes of section 38,
12 the energy efficient heat pump credit determined
13 under this section for any taxable year is an amount
14 equal to the sum of the credit amounts determined
15 under paragraph (2) for each type of qualified en-
16 ergy efficient heat pump produced by the taxpayer
17 during the calendar year ending with or within the
18 taxable year.

19 “(2) CALCULATION OF CREDITS.—The credit
20 amount determined for any type of qualified energy
21 efficient appliance is—

22 “(A) the applicable amount determined
23 under subsection (b) with respect to such type,
24 multiplied by

25 “(B) the eligible production for such type
26 under subsection (c).

1 “(b) APPLICABLE AMOUNT.—For purposes of sub-
2 section (a):

3 “(1) CONSUMER HEAT PUMP WATER HEAT-
4 ERS.—The applicable amount is \$600 in the case of
5 a consumer heat pump water heater that is manu-
6 factured in calendar years 2022 through 2030 and
7 that has a Uniform Energy Factor of 3.3 or more
8 for electric water heaters and 1.3 or more for gas
9 water heaters.

10 “(2) COMMERCIAL HEAT PUMP WATER HEAT-
11 ERS.—The applicable amount is \$600 in the case of
12 a commercial heat pump water heater manufactured
13 in calendar years 2022 through 2030 and that has
14 a Coefficient of Performance of 3.0 or more for elec-
15 tric water heaters and 1.3 or more for gas water
16 heaters.

17 “(3) CONSUMER UNITARY HEAT PUMPS.—The
18 applicable amount is \$800 in the case of a consumer
19 unitary heat pump that—

20 “(A) is manufactured in calendar years
21 2022 through 2030,

22 “(B) in the case of an electric heat pump
23 meets either—

24 “(i) the most recent requirements of
25 the Energy Star Most Efficient Specifica-

1 tion promulgated by the United States En-
2 vironmental Protection Agency before the
3 date of enactment of this section, or

4 “(ii) the most recent Cold Climate
5 Air-Source Heat Pump Specification pro-
6 mulgated by Northeast Energy Efficiency
7 Partnerships before the date of enactment
8 of this section, and

9 “(C) in the case of a gas heat pump, has
10 an Annual Fuel Utilization Efficiency of 140
11 percent or more.

12 “(4) COMMERCIAL HEAT PUMPS.—The applica-
13 ble amount is \$24 per thousand British Thermal
14 Units of heating capacity measured at a 17 degree
15 Fahrenheit ambient temperature in the case of a
16 commercial heat pump that is manufactured in cal-
17 endar years 2022 through 2030 and that has a Co-
18 efficient of Performance of 2.3 or more at a 17 de-
19 gree F ambient temperature for electric heat pumps,
20 and 1.2 or more at a 17 degree F ambient tempera-
21 ture for gas heat pumps.

22 “(5) INDUSTRIAL HEAT PUMPS.—The applica-
23 ble amount is \$36 per thousand British Thermal
24 Units of heating capacity for heat pumps with a
25 heating capacity of 2,400 thousand British Thermal

1 Units or less and \$18 per thousand British Thermal
2 Units of heating capacity for heat pumps with a
3 heating capacity above 2,400 thousand British Ther-
4 mal Units in the case of an industrial heat pump
5 that is manufactured and installed in an industrial
6 facility in calendar years 2022 through 2030 and
7 that has a Coefficient of Performance of 2.0 or
8 more.

9 “(c) ELIGIBLE PRODUCTION.—The eligible produc-
10 tion in a calendar year with respect to each type of energy
11 efficient heat pump is—

12 “(1) the number of heat pumps of such type
13 that are produced by the taxpayer in the United
14 States during such calendar year, less

15 “(2) the average number of heat pumps of such
16 type that were produced by the taxpayer (or any
17 predecessor) in the United States during the pre-
18 ceding 2-calendar year period.

19 “(d) TYPES OF ENERGY EFFICIENT HEAT PUMPS.—
20 For purposes of this section, the types of energy efficient
21 heat pumps are—

22 “(1) consumer heat pump water heaters de-
23 scribed in subsection (b)(1),

24 “(2) commercial heat pump water heaters de-
25 scribed in subsection (b)(2),

1 “(3) consumer unitary heat pumps described in
2 subsection (b)(3),

3 “(4) commercial heat pumps described in sub-
4 section (b)(4), and

5 “(5) industrial heat pumps described in sub-
6 section (b)(5).

7 “(e) LIMITATIONS.—

8 “(1) AGGREGATE CREDIT AMOUNT ALLOWED.—

9 The aggregate amount of credit allowed under sub-
10 section (a) with respect to a taxpayer for any tax-
11 able year shall not exceed \$250,000,000, reduced by
12 the amount of the credit allowed under subsection
13 (a) to the taxpayer (or any predecessor) for all prior
14 taxable years beginning after December 31, 2021.

15 “(2) LIMITATION BASED ON GROSS RE-
16 CEIPTS.—The credit allowed under subsection (a)
17 with respect to a taxpayer for the taxable year shall
18 not exceed an amount equal to 4 percent of the aver-
19 age annual gross receipts of the taxpayer for the 3
20 taxable years preceding the taxable year in which
21 the credit is determined.

22 “(3) GROSS RECEIPTS.—For purposes of this
23 subsection, the rules of paragraphs (2) and (3) of
24 section 448(c) shall apply.

1 “(f) ADJUSTMENT OF ENERGY EFFICIENCY CRI-
2 TERIA.—No later than Dec. 31, 2022, and every two years
3 thereafter, the Secretary, in consultation with the Sec-
4 retary of Energy, shall review the efficiency levels in sec-
5 tion (b) and revise these levels upward if necessary to in-
6 clude only the most efficient commercially available heat
7 pumps of each type, while ensuring that at least three
8 manufacturers are represented in each type across a range
9 of product heating capacities.

10 “(g) TEST PROCEDURES.—

11 “(1) The Department of Energy shall develop
12 test procedures to determine Coefficient of Perform-
13 ance for—

14 “(A) gas commercial heat pump water
15 heaters,

16 “(B) gas commercial heat pumps, and

17 “(C) industrial heat pumps.

18 “(2) Such test procedures shall build upon the
19 foundation of relevant current American National
20 Standard Institute and International Organization
21 of Standard test procedures.

22 “(h) DEFINITIONS.—For purposes of this section:

23 “(1) QUALIFIED ENERGY EFFICIENT HEAT
24 PUMP.—The term ‘qualified energy efficient heat
25 pump’ means—

1 “(A) any consumer heat pump water heat-
2 er described in subsection (b)(1),

3 “(B) any commercial heat pump water
4 heater described in subsection (b)(2),

5 “(C) any consumer unitary heat pump de-
6 scribed in subsection (b)(3),

7 “(D) any commercial heat pump described
8 in subsection (b)(4), and

9 “(E) any industrial heat pump described in
10 subsection (b)(5).

11 “(2) CONSUMER HEAT PUMP WATER HEAT-
12 ER.—The term ‘consumer heat pump water heater’
13 means a water heater that uses a heat pump to heat
14 water and has an electric input of 12 kiloWatt or
15 less or a gas input of 75,000 British Thermal Units
16 per hour or less, measured in accordance with appli-
17 cable Department of Energy test procedures.

18 “(3) COMMERCIAL HEAT PUMP WATER HEAT-
19 ERS.—The term ‘commercial heat pump water heat-
20 er’ means a water heater that uses a heat pump to
21 heat water and has an electric input of more than
22 12 kiloWatt or a gas input of more than 75,000
23 British Thermal Units per hour, measured in ac-
24 cordance with applicable Department of Energy test
25 procedures.

1 “(4) CONSUMER UNITARY HEAT PUMP.—The
2 term ‘consumer unitary heat pump’ means a heat
3 pump designed to provide space heating and cooling
4 with a cooling capacity of 65,000 British Thermal
5 Units per hour or less, measured in accordance with
6 the applicable Department of Energy test proce-
7 dures.

8 “(5) COMMERCIAL HEAT PUMP.—The term
9 ‘commercial heat pump’ means a heat pump de-
10 signed to provide space heating and cooling with a
11 cooling capacity of more than 65,000 British Ther-
12 mal Units per hour, measured in accordance with
13 the applicable Department of Energy test proce-
14 dures.

15 “(6) INDUSTRIAL HEAT PUMP.—The term ‘in-
16 dustrial heat pump’ means a heat pump that up-
17 grades industrial waste heat to a higher temperature
18 such that the delivered heat is produced and sup-
19 plied to the facility more efficiently than conven-
20 tional heating methods, such as a steam or electric
21 resistance boiler.

22 “(7) PRODUCED.—The term ‘produced’ in-
23 cludes manufactured.

24 “(8) UNIFORM ENERGY FACTOR.—The term
25 ‘Uniform Energy Factor’ is a metric used to meas-

1 ure the efficiency of consumer water heaters, with
2 details specified in applicable Department of Energy
3 test procedures.

4 “(9) COEFFICIENT OF PERFORMANCE.—The
5 term ‘Coefficient of Performance’ means the ratio of
6 heat output to energy input, with details specified in
7 applicable Department of Energy test procedures.
8 For gas commercial heat pump water heaters, until
9 there is a Department of Energy test procedure,
10 American National Standards Institute and Amer-
11 ican Society of Heating, Refrigerating and Air-Con-
12 ditioning Engineers Standard 118.1 shall be used.
13 For gas commercial heat pumps, until there is a De-
14 partment of Energy test procedure, American Na-
15 tional Standards Standard Z21.40.4 shall be used.
16 For industrial heat pumps, until there is a Depart-
17 ment Energy test procedure, manufacturers may use
18 their own tests, provided they publicly post the test
19 conditions and assumptions they used in developing
20 their stated Coefficient of Performance values.

21 “(i) SPECIAL RULES.—For purposes of this section:

22 “(1) IN GENERAL.—Rules similar to the rules
23 of subsections (c), (d), and (e) of section 52 shall
24 apply.

25 “(2) CONTROLLED GROUP.—

1 “(A) IN GENERAL.—All persons treated as
2 a single employer under subsection (a) or (b) of
3 section 52 or subsection (m) or (o) of section
4 414 shall be treated as a single producer.

5 “(B) INCLUSION OF FOREIGN CORPORA-
6 TIONS.—For purposes of subparagraph (A), in
7 applying subsections (a) and (b) of section 52
8 to this section, section 1563 shall be applied
9 without regard to subsection (b)(2)(C) thereof.

10 “(3) VERIFICATION.—No amount shall be al-
11 lowed as a credit under subsection (a) with respect
12 to which the taxpayer has not submitted such infor-
13 mation or certification as the Secretary, in consulta-
14 tion with the Secretary of Energy, determines nec-
15 essary.

16 “(4) PRODUCTION IN UNITED STATES.—The re-
17 quirement for production in the United States in
18 section (c) does not take effect until January 1,
19 2024.”.

20 (b) CLERICAL AMENDMENT.—The table of sections
21 for subpart D of part IV of subchapter A of chapter 1
22 is further amended by adding at after the item relating
23 to section 45V the following new item:

 “Sec. 45W. Manufacturer credit for high-efficiency heat pumps and heat pump
 water heaters.”.

1 **SEC. 210. OTHER AUTHORIZATIONS OF APPROPRIATIONS.**

2 (a) AMENDMENT TO AMERICA COMPETES ACT.—

3 Section 5012(o)(2) of the America COMPETES Act (42
4 U.S.C. 16538(o)(2)) is amended—

5 (1) in subparagraph (D), by striking “; and”
6 and inserting “;”;

7 (2) in subparagraph (E), by striking “2013.”
8 and inserting “2013;”;

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

10 “(F) \$569,000,000 for fiscal year 2021;

11 “(G) \$713,000,000 for fiscal year 2022;

12 “(H) \$856,000,000 for fiscal year 2023;

13 and

14 “(I) \$1,000,000,000 for fiscal year 2024.”.

15 (b) REGIONAL INNOVATION MODELS.—There are au-
16 thorized to be appropriated to the Secretary for purposes
17 of developing regional innovation models—

18 (1) \$100,000,000 for fiscal year 2021;

19 (2) \$200,000,000 for fiscal year 2022;

20 (3) \$300,000,000 for fiscal year 2023; and

21 (4) \$500,000,000 for fiscal year 2024.

22 (c) GRID MODERNIZATION.—There are authorized to
23 be appropriated to the Secretary for purposes of research,
24 development, demonstration, analysis, technology valida-
25 tion, market transformation, and technical assistance to
26 support grid modernization—

- 1 (1) \$238,000,000 for fiscal year 2021;
- 2 (2) \$375,000,000 for fiscal year 2022;
- 3 (3) \$513,000,000 for fiscal year 2023; and
- 4 (4) \$650,000,000 for fiscal year 2024.

5 (d) ADVANCED LAND-BASED AND OFFSHORE WIND
6 POWER.—There are authorized to be appropriated to the
7 Secretary for the purposes of research, development, dem-
8 onstration, analysis, technology validation, market trans-
9 formation, and technical assistance to support advanced
10 land-based and offshore wind power—

- 11 (1) \$178,000,000 for fiscal year 2021;
- 12 (2) \$252,000,000 for fiscal year 2022;
- 13 (3) \$326,000,000 for fiscal year 2023; and
- 14 (4) \$400,000,000 for fiscal year 2024.

15 (e) ADVANCED SOLAR POWER.—There are author-
16 ized to be appropriated to the Secretary for the purposes
17 of research, development, demonstration, analysis, tech-
18 nology validation, market transformation, and technical
19 assistance to support advanced solar power—

- 20 (1) \$360,000,000 for fiscal year 2021;
- 21 (2) \$440,000,000 for fiscal year 2022;
- 22 (3) \$520,000,000 for fiscal year 2023; and
- 23 (4) \$600,000,000 for fiscal year 2024.

24 (f) MECHANICAL, CHEMICAL, AND THERMAL STOR-
25 AGE TECHNOLOGY.—There are authorized to be appro-

1 priated to the Secretary for the purposes of research, de-
2 velopment, demonstration, analysis, technology validation,
3 market transformation, and technical assistance to sup-
4 port mechanical, chemical, and thermal storage tech-
5 nology—

6 (1) \$150,000,000 for fiscal year 2021;

7 (2) \$150,000,000 for fiscal year 2022;

8 (3) \$150,000,000 for fiscal year 2023; and

9 (4) \$150,000,000 for fiscal year 2024.

10 (g) BUILDINGS.—There are authorized to be appro-
11 priated to the Secretary for the purposes of research, de-
12 velopment, demonstration, analysis, technology validation,
13 market transformation, and technical assistance to sup-
14 port technologies that improve the energy efficiency of
15 building equipment, the building envelope, building con-
16 trols, and that improve information sharing between the
17 building and the grid, which technologies may include en-
18 ergy efficiency, demand response and electrification tech-
19 nologies in residential, commercial and industrial build-
20 ings—

21 (1) \$381,000,000 for fiscal year 2021;

22 (2) \$478,000,000 for fiscal year 2022;

23 (3) \$574,000,000 for fiscal year 2023; and

24 (4) \$670,000,000 for fiscal year 2024.

1 (h) INDUSTRY.—There are authorized to be appro-
2 priated to the Secretary for the purposes of research, de-
3 velopment, demonstration, analysis, technology validation,
4 market transformation, and technical assistance to sup-
5 port technologies to reduce emissions in industrial and
6 manufacturing processes, including such technologies re-
7 lating to energy efficiency and electrification—

8 (1) \$381,000,000 for fiscal year 2021;

9 (2) \$478,000,000 for fiscal year 2022;

10 (3) \$574,000,000 for fiscal year 2023; and

11 (4) \$840,000,000 for fiscal year 2024.

12 (i) ENHANCED GEOTHERMAL TECHNOLOGIES.—
13 There are authorized to the Secretary for the purposes
14 of research, development, and demonstration of enhanced
15 geothermal technologies an increase in the amount from
16 fiscal year 2019 appropriations by \$100,000,000 for each
17 year until fiscal year 2025, of which—

18 (1) \$70,000,000 is authorized for the Secretary
19 to use each year to establish a supercritical en-
20 hanced geothermal system demonstration program;
21 and

22 (2) \$30,000,000 is authorized for the Secretary
23 to use each year in collaboration with the National
24 Laboratories for supercritical enhanced geothermal
25 systems research and development.

1 **TITLE III—EXISTING AND AD-**
2 **VANCED NUCLEAR POWER**
3 **PLANTS**

4 **SEC. 301. ZERO-EMISSIONS CREDIT PROGRAM.**

5 (a) ESTABLISHMENT.—Not later than 2 years after
6 the date of enactment of this section, the Secretary shall
7 establish a program to be known as the “Zero-Emissions
8 Credit Program”.

9 (b) ISSUANCE OF CREDITS.—Not later than March
10 1 of each calendar year beginning after the date on which
11 the Zero-Emissions Credit Program is established, under
12 the Zero-Emissions Credit Program the Secretary shall
13 issue an amount of zero-emissions credits to each owner
14 or operator of a qualified nuclear power plant in the quan-
15 tity that is equal to the amount of the megawatt hours
16 of electricity sold by such owner or operator to an orga-
17 nized power market in the prior year.

18 (c) PAYMENT FOR RECEIPT OF CREDITS.—

19 (1) IN GENERAL.—Except as provided in para-
20 graphs (2), (3), and (4), under the Zero-Emissions
21 Credit Program the Secretary shall pay an owner or
22 operator of a qualified nuclear power plant \$13.25
23 for each zero-emissions credit an owner or operator
24 submits to the Secretary.

1 (2) ADJUSTMENTS FOR INFLATION.—Each
2 year, the Secretary shall adjust the amount to be
3 paid under the Zero-Emissions Credit Program for
4 each zero-emissions credit to account for the effects
5 of inflation.

6 (3) REDUCTION IN VALUE OF CREDIT.—If the
7 price for the sale of electricity increases such that
8 payments for zero-emissions credits are no longer
9 needed to prevent the retirement of a qualified nu-
10 clear power plant, the Secretary shall reduce the
11 amount to be paid for each zero-emissions credit for
12 such qualifying nuclear power plant in accordance
13 with such change in price.

14 (4) OFFSET FOR VALUE OF CLEAN ELEC-
15 TRICITY CREDITS.—The Secretary shall reduce the
16 payment to a qualified nuclear power plant for a
17 zero-emissions credit by the value of any clean elec-
18 tricity credits issued to the plant for the same quan-
19 tity of megawatt hours pursuant to the Federal
20 Clean Electricity Standard program established
21 under section 611 of the Public Utility Regulatory
22 Policies Act of 1978.

23 (d) TERMINATION DATE.—The Zero-Emissions
24 Credit Program shall terminate on the date that is 5 years
25 after the program effective date of the Federal Clean Elec-

1 tricity Standard established under section 611 of the Pub-
2 lic Utility Regulatory Policies Act of 1978.

3 (e) DEFINITIONS.—In this section:

4 (1) ORGANIZED POWER MARKET.—The term
5 “organized power market” means any market—

6 (A) for the wholesale sale of electricity;
7 and

8 (B) that is controlled by a regional trans-
9 mission organization or an independent system
10 operator as defined in section 3 of the Federal
11 Power Act (16 U.S.C. 796).

12 (2) QUALIFIED NUCLEAR POWER PLANT.—

13 (A) IN GENERAL.—The term “qualified
14 nuclear power plant” means any nuclear power
15 plant that the Secretary determines, based on
16 an application submitted by such plant to the
17 Secretary, is not financially viable or will other-
18 wise be required to retire if it does not receive
19 zero-emissions credits under the Zero-Emissions
20 Credit Program.

21 (B) EXCLUSION.—The term “qualified nu-
22 clear power plant” does not include a nuclear
23 power plant that receives a tax credit under sec-
24 tion 48 of the Internal Revenue Code of 1986.

1 (3) ZERO-EMISSIONS CREDIT.—The term “zero-
2 emissions credit” means a credit issued by the Sec-
3 retary under the Zero-Emissions Credit Program
4 that represents 1 megawatt of electricity sold by the
5 owner or operator of a qualified nuclear power plant
6 to an organized power market.

7 (f) RULEMAKING.—Not later than one year after the
8 date of enactment of this section, the Secretary shall final-
9 ize rules for—

10 (1) the application and decision process for
11 qualified nuclear power plants; and

12 (2) the schedule and process for issuance of
13 credits and periodic review and adjustment of
14 issuances.

15 **SEC. 302. INVESTMENT TAX CREDIT FOR NUCLEAR ENERGY**

16 **PROPERTY.**

17 (a) IN GENERAL.—Section 48(a)(3)(A) of the Inter-
18 nal Revenue Code of 1986 is amended—

19 (1) in clause (vi), by striking “or”;

20 (2) in clause (vii), by inserting “or” at the end;

21 and

22 (3) by adding at the end the following new
23 clause:

24 “(viii) qualified nuclear energy prop-
25 erty.”.

1 (b) ELIGIBLE FOR 30-PERCENT CREDIT.—Section
2 48(a)(2)(A)(i) of such Code is amended by striking “and”
3 in subclause (III) and by adding at the end the following
4 new subclause:

5 “(V) energy property described in
6 paragraph (3)(A)(viii) but only with
7 respect to property placed in service
8 before January 1, 2024, and”.

9 (c) QUALIFIED NUCLEAR ENERGY PROPERTY.—Sec-
10 tion 48(c) of such Code is amended by adding at the end
11 the following new paragraph:

12 “(5) QUALIFIED NUCLEAR ENERGY PROP-
13 ERTY.—

14 “(A) IN GENERAL.—The term ‘qualified
15 nuclear energy property’ means any amounts
16 paid or incurred for the refueling of, and any
17 other expenditures described in section 263(a)
18 with respect to, a qualifying nuclear power
19 plant.

20 “(B) QUALIFYING NUCLEAR POWER
21 PLANT.—The term ‘qualifying nuclear power
22 plant’ means a nuclear power plant which—

23 “(i) submitted an application for li-
24 cense renewal to the Nuclear Regulatory
25 Commission in accordance with part 54 of

1 title 10, Code of Federal Regulations, be-
2 fore January 1, 2026, or

3 “(ii) certified to the Secretary (at
4 such time and in such form and in such
5 manner as the Secretary prescribes) that
6 such plant will submit an application for li-
7 cense renewal to the Nuclear Regulatory
8 Commission in accordance with part 54 of
9 title 10, Code of Federal Regulations, be-
10 fore January 1, 2026.

11 “(C) SPECIAL RULES.—

12 “(i) BASIS.—For purposes of sub-
13 section (a), the cumulative amounts paid
14 or incurred by the taxpayer during the tax-
15 able year with respect to a qualifying nu-
16 clear power plant, which are properly
17 chargeable to capital account, shall be
18 treated as the basis of the qualified nuclear
19 energy property placed in service for that
20 taxable year.

21 “(ii) PLACED IN SERVICE.—For pur-
22 poses of subsection (a), qualified nuclear
23 energy property shall be treated as having
24 been placed in service on the last day of
25 the taxable year in which the taxpayer

1 pays or incurs such amounts described in
2 clause (i).

3 “(iii) RECAPTURE.—The Secretary
4 shall, by regulations, provide for recap-
5 turing the benefit of any credit allowable
6 under subsection (a) to any qualifying nu-
7 clear power plant which made a certifi-
8 cation pursuant to subparagraph (B) but
9 does not file an application of license re-
10 newal to the Nuclear Regulatory Commis-
11 sion in accordance with part 54 of title 10,
12 Code of Federal Regulations, before Janu-
13 ary 1, 2026.”.

14 (d) PHASEOUT OF 30-PERCENT CREDIT RATE FOR
15 NUCLEAR ENERGY PROPERTY.—Section 48(a) of such
16 Code is amended by adding at the end the following new
17 paragraph:

18 “(7) PHASEOUT FOR QUALIFIED NUCLEAR EN-
19 ERGY PROPERTY.—In the case of qualified nuclear
20 energy property, the energy percentage determined
21 under paragraph (2) shall be equal to—

22 “(A) in the case of any property placed in
23 service after December 31, 2023, and before
24 January 1, 2025, 26 percent, and

1 “(B) in the case of any property placed in
2 service after December 31, 2022, and before
3 January 1, 2026, 22 percent.”.

4 (e) COORDINATION WITH CREDIT FOR PRODUCTION
5 FROM ADVANCED NUCLEAR POWER FACILITIES.—The
6 last sentence of section 48(a)(3) of such Code is amended
7 by inserting “or 45J” after “section 45”.

8 (f) TRANSFER OF CREDIT BY CERTAIN PUBLIC EN-
9 TITIES.—

10 (1) IN GENERAL.—Section 48 of such Code is
11 amended by adding at the end the following new
12 subsection:

13 “(e) SPECIAL RULE FOR QUALIFIED NUCLEAR EN-
14 ERGY PROPERTY.—

15 “(1) IN GENERAL.—In the case of any qualified
16 nuclear energy property, if, with respect to a credit
17 under subsection (a) for any taxable year—

18 “(A) the taxpayer would be a qualified
19 public entity, and

20 “(B) such entity elects the application of
21 this subsection for such taxable year with re-
22 spect to all (or any portion specified in such
23 election) of such credit, the eligible project part-
24 ner specified in such election (and not the
25 qualified public entity) shall be treated as the

1 taxpayer for purposes of this title with respect
2 to such credit (or such portion thereof).

3 “(2) DEFINITIONS.—For purposes of this sub-
4 section:

5 “(A) QUALIFIED PUBLIC ENTITY.—The
6 term ‘qualified public entity’ means—

7 “(i) a Federal, State, or local govern-
8 ment entity, or any political subdivision,
9 agency, or instrumentality thereof,

10 “(ii) a mutual or cooperative electric
11 company described in section 501(e)(12) or
12 section 1381(a)(2), or

13 “(iii) a not-for-profit electric utility
14 which has or had received a loan or loan
15 guarantee under the Rural Electrification
16 Act of 1936.

17 “(B) ELIGIBLE PROJECT PARTNER.—The
18 term ‘eligible project partner’ means—

19 “(i) any person responsible for oper-
20 ating, maintaining, or repairing the quali-
21 fying nuclear power plant to which the
22 credit under subsection (a) relates,

23 “(ii) any person who participates in
24 the provision of the nuclear steam supply
25 system to the qualifying nuclear power

1 plant to which the credit under subsection
2 (a) relates,

3 “(iii) any person who participates in
4 the provision of nuclear fuel to the quali-
5 fying nuclear power plant to which the
6 credit under subsection (a) relates, or

7 “(iv) any person who has an owner-
8 ship interest in such facility.

9 “(3) SPECIAL RULES.—

10 “(A) APPLICATION TO PARTNERSHIPS.—In
11 the case of a credit under subsection (a) which
12 is determined with respect to qualified nuclear
13 energy property at the partnership level—

14 “(i) for purposes of paragraph (1)(A),
15 a qualified public entity shall be treated as
16 the taxpayer with respect to such entity’s
17 distributive share of such credit, and

18 “(ii) the term ‘eligible project partner’
19 shall include any partner of the partner-
20 ship.

21 “(B) TAXABLE YEAR IN WHICH CREDIT
22 TAKEN INTO ACCOUNT.—In the case of any
23 credit (or portion thereof) with respect to which
24 an election is made under subsection (e), such
25 credit shall be taken into account in the first

1 taxable year of the eligible project partner end-
2 ing with, or after, the qualified public entity's
3 taxable year with respect to which the credit
4 was determined.

5 “(C) TREATMENT OF TRANSFER UNDER
6 PRIVATE USE RULES.—For purposes of section
7 141(b)(1), any benefit derived by an eligible
8 project partner in connection with an election
9 under this subsection shall not be taken into ac-
10 count as a private business use.”.

11 (2) SPECIAL RULE FOR PROCEEDS OF TRANS-
12 FERS FOR MUTUAL OR COOPERATIVE ELECTRIC
13 COMPANIES.—Section 501(c)(12) of such Code is
14 amended by adding at the end the following new
15 subparagraph:

16 “(I) In the case of a mutual or cooperative
17 electric company described in this paragraph or
18 an organization described in section 1381(a)(2),
19 income received or accrued in connection with
20 an election under section 48(e) shall be treated
21 as an amount collected from members for the
22 sole purpose of meeting losses and expenses.”.

23 (g) CONFORMING AMENDMENT.—Section
24 48(a)(2)(A) of such Code is amended by striking “para-
25 graph (6)” and inserting “paragraphs (6) and (7)”.

1 (h) EFFECTIVE DATE.—The amendments made by
2 this section shall apply to periods after December 31,
3 2019, in taxable years ending after such date, under rules
4 similar to the rules of section 48(m) of the Internal Rev-
5 enue Code of 1986 (as in effect on the day before the en-
6 actment of the Revenue Reconciliation Act of 1990).

7 **SEC. 303. EXPANDING FEDERAL CLEAN ELECTRICITY PUR-**
8 **CHASING REQUIREMENTS.**

9 (a) AMENDMENTS TO THE FEDERAL PURCHASE RE-
10 QUIREMENTS OF THE ENERGY POLICY ACT OF 2005.—
11 Section 203 of the Energy Policy Act of 2005 (42 U.S.C.
12 15852) is amended—

13 (1) in subsection (a), by striking “, the fol-
14 lowing amounts shall be renewable energy:” and in-
15 serting “, such amount shall be made up of the fol-
16 lowing:”;

17 (2) in subsection (a)(1), by inserting “shall be
18 renewable energy” after “2009”;

19 (3) in subsection (a)(2), by inserting “shall be
20 renewable energy” after “2012”;

21 (4) in subsection (a)(3), by striking “7.5 per-
22 cent in fiscal year 2013 and each fiscal year there-
23 after.” and inserting “7.5 percent in fiscal years
24 2013 through 2019 shall be renewable energy.”;

1 (5) in subsection (a), by adding at the end the
2 following:

3 “(4) Not less than 35 percent in fiscal year
4 2020 and each year thereafter shall be clean elec-
5 tricity.”;

6 (6) in subsection (b), by adding at the end the
7 following:

8 “(3) CLEAN ELECTRICITY.—The term ‘clean
9 electricity’ means—

10 “(A) renewable energy;

11 “(B) any electric energy generated by a
12 nuclear power plant; and

13 “(C) the percentage of electric energy gen-
14 erated by a power plant that equals the per-
15 centage of carbon dioxide emissions of such
16 plant that are captured and sequestered.”;

17 (7) in subsection (c), by striking “renewable en-
18 ergy” and inserting “clean electricity” in each place
19 it occurs;

20 (8) by redesignating subsection (d) as sub-
21 section (e); and

22 (9) by inserting after subsection (c) the fol-
23 lowing:

24 “(d) POWER PURCHASE AGREEMENT.—For the pur-
25 poses of this section, the Secretary may enter into a power

1 purchase agreement for as much as all of the electricity
2 output of a nuclear power plant for the duration of the
3 operational life of such plant if such plant supplies elec-
4 tricity for purposes of national security or mission-critical
5 activities.”.

6 (b) AMENDMENTS TO ENERGY POLICIES OF THE DE-
7 PARTMENT OF DEFENSE AND THE DEPARTMENT HOME-
8 LAND SECURITY.—Subtitle B of title VI of the Energy
9 Policy Act of 2005 is amended by adding at the end the
10 following:

11 **“SEC. 639A. LONG-TERM NUCLEAR POWER PURCHASE**
12 **AGREEMENT PILOT PROGRAM.**

13 “(a) ESTABLISHMENT.—The Secretary shall estab-
14 lish and carry out a pilot program for long-term power
15 purchase agreements for electricity generated by nuclear
16 power.

17 “(b) REQUIREMENTS.—In carrying out the pilot pro-
18 gram established under subsection (a), the Secretary
19 shall—

20 “(1) consult and coordinate with the heads of
21 other Federal agencies that may benefit from pur-
22 chasing nuclear power for a period of longer than 10
23 years, including—

24 “(A) the Secretary of Defense;

1 “(B) the Administrator of General Serv-
2 ices; and

3 “(B) the Secretary of Homeland Security;
4 and

5 “(2) not later than 5 years after the date of en-
6 actment of this section, enter into at least 1 power
7 purchase agreement with the owner or operator of a
8 commercial nuclear power plant for up to 30 years.

9 “(c) PRIORITY.—In carrying out the pilot program
10 established under subsection (a), the Secretary shall
11 prioritize entering into a power purchase agreement with
12 the owner or operator of a plant that uses first-of-a-kind
13 or early deployment nuclear technologies that can provide
14 reliable and resilient power to high-value assets for na-
15 tional security purposes or other purposes, which the Sec-
16 retary determines are in the national interest, especially
17 in remote off-grid scenarios or grid-connected scenarios
18 that can provide capabilities commonly known as
19 ‘islanding power capabilities’ during an emergency sce-
20 nario.

21 “(d) EFFECT ON RATES.—A power purchase agree-
22 ment entered into under this section may be at a rate that
23 is higher than the average market rate if the power pur-
24 chase agreement fulfills an applicable consideration de-
25 scribed in subsection (c).”.

1 (c) TABLE OF CONTENTS.—The table of contents of
2 the Energy Policy Act of 2005 (Public Law 109–58; 119
3 Stat. 594) is amended by inserting after the item relating
4 to section 639 the following:

“Sec. 639A. Long-term nuclear power purchase pilot program.”.

5 (d) AUTHORIZATION OF LONG-TERM POWER PUR-
6 CHASE AGREEMENTS.—Section 501(b)(1) of title 40,
7 United States Code, is amended by striking subparagraph
8 (B) and inserting the following:

9 “(B) PUBLIC UTILITY CONTRACTS.—

10 “(i) TERM.—

11 “(I) IN GENERAL.—A contract
12 under this paragraph to purchase
13 electricity service from a public utility
14 may be for a period of not more than
15 40 years.

16 “(II) OTHER PUBLIC UTILITY
17 SERVICES.—A contract under this
18 paragraph for a public utility service
19 other than a service described in sub-
20 clause (I) may be for a period of not
21 more than 10 years.

22 “(ii) COSTS.—The cost of a contract
23 under this paragraph for any fiscal year
24 may only be paid from the appropriations
25 for that fiscal year.”.

1 **SEC. 304. MODERNIZING THE NUCLEAR REGULATORY COM-**
2 **MISSION.**

3 (a) REDUCING THE ADMINISTRATIVE BURDEN OF
4 LICENSING ACTIVITIES FOR NEW DESIGNS OF ADVANCED
5 NUCLEAR REACTORS.—

6 (1) REPORT.—Not later than 90 days after the
7 date of enactment of this section, the Commission
8 shall submit to the Committee on Energy and Com-
9 merce of the House of Representatives and the Com-
10 mittee on Energy and Natural Resources of the Sen-
11 ate a report that recommends how to improve the
12 processes, procedures, and, if appropriate, regula-
13 tions of the Commission with respect to licensing,
14 certification, and approval of advanced nuclear reac-
15 tor designs.

16 (2) REQUIRED RECOMMENDATIONS.—The re-
17 port submitted under paragraph (1) shall include
18 recommendations to—

19 (A) improve all Commission actions with
20 respect to licensing, certification, and approval
21 of advanced nuclear reactor designs, including
22 actions to meet the Commission's obligations
23 under the National Environmental Policy Act of
24 1969 (42 U.S.C. 4231 et seq.);

25 (B) emphasize risk-informed and perform-
26 ance-based regulatory approaches; and

1 (C) enable the Commission to finalize its
2 review of an application to approve the design
3 of an advanced nuclear reactor in no more than
4 two years.

5 (b) STUDY ON ELIMINATION OF FOREIGN LICENSING
6 RESTRICTIONS.—Not later than 18 months after the date
7 of enactment of this section, the Comptroller General, in
8 consultation with the Secretary, shall submit to Congress
9 a report containing the results of a study on the feasibility
10 and implications of repealing restrictions under sections
11 103 d. and 104 d. of the Atomic Energy Act of 1954 (42
12 U.S.C. 2011 et seq.).

13 (c) STUDY ON THE IMPACT OF THE ELIMINATION OF
14 MANDATORY HEARINGS FOR UNCONTESTED LICENSING
15 APPLICATIONS.—Not later than 18 months after the date
16 of enactment of this section, the Comptroller General, in
17 consultation with the Secretary, shall submit to Congress
18 a report containing the results of a study on the estimated
19 effect of eliminating the requirement to hold a hearing for
20 uncontested applications for an operating license or con-
21 struction permit under section 189 of the Atomic Energy
22 Act of 1954 (42 U.S.C. 2239).

23 (d) INFORMAL HEARING PROCEDURES.—

1 (1) PROCEDURES.—Section 189 a. of the Atom-
2 ic Energy Act of 1954 (42 U.S.C. 2239(a)) is
3 amended by adding at the end the following:

4 “(3) Any hearing under this section shall be con-
5 ducted using informal adjudicatory procedures in accord-
6 ance with section 555 of title 5, United States Code, un-
7 less the Commission determines that formal adjudicatory
8 procedures under sections 554, 556, or 557 of title 5,
9 United States Code are necessary—

10 “(A) to develop a sufficient record; or

11 “(B) to achieve fairness.”; and

12 (2) HEARINGS ON LICENSING OF URANIUM EN-
13 RICHMENT FACILITIES.—Section 193(b) of the
14 Atomic Energy Act of 1954 (42 U.S.C. 2243(b)) is
15 amended—

16 (A) in paragraph (1), by striking “on the
17 record” and all that follows through “and 63”
18 and inserting “upon a request for a hearing on
19 the licensing of construction and operation of a
20 uranium enrichment facility under sections 53
21 and 63, the Commission shall conduct a single
22 adjudicatory hearing”; and

23 (B) in paragraph (2), by striking “Such
24 hearing” and inserting “If a hearing is held
25 under paragraph (1), the hearing”.

1 (e) APPLICATION REVIEWS FOR NUCLEAR ENERGY
2 PROJECTS.—Section 185 of the Atomic Energy Act of
3 1954 (42 U.S.C. 2235) is amended by adding at the end
4 the following:

5 “c. APPLICATION REVIEW FOR NUCLEAR ENERGY
6 PROJECTS.—

7 “(1) STREAMLINING LICENSE APPLICATION RE-
8 VIEW.—With respect to an application for a con-
9 struction permit, operating license, or combined con-
10 struction permit and operating license for a produc-
11 tion facility or utilization facility, the Commission
12 shall—

13 “(A) undertake an expedited environmental
14 review process and issue any draft environ-
15 mental impact statements (as required under
16 the National Environmental Policy Act of 1969
17 (42 U.S.C. 4321 et seq.)) for the application
18 not later than 24 months after the date on
19 which the application is accepted for docketing;
20 and

21 “(B) complete the technical review process
22 of the application, issue any safety evaluation
23 reports, and issue any final environmental im-
24 pact statements (as required under the Na-
25 tional Environmental Policy Act of 1969 (42

1 U.S.C. 4321 et seq.) for the application) not
2 later than 24 months after the date on which
3 the application is accepted for docketing.

4 “(2) USE OF EARLY SITE PERMIT ENVIRON-
5 MENTAL IMPACT STATEMENT.—

6 “(A) SUPPLEMENTAL ENVIRONMENTAL IM-
7 PACT STATEMENT.—In a proceeding for a com-
8 bined construction permit and operating license
9 for a site for which an early site permit has
10 been issued, any environmental impact state-
11 ment prepared by the Commission and cooper-
12 ating agencies (as required under the National
13 Environmental Policy Act of 1969 (42 U.S.C.
14 4321 et seq.)) shall be prepared as a supple-
15 ment to the environmental impact statement
16 prepared for the early site permit.

17 “(B) INCORPORATION BY REFERENCE.—
18 The supplemental environmental impact state-
19 ment prepared under subparagraph (A) shall—

20 “(i) incorporate by reference the anal-
21 ysis, findings, and conclusions from the en-
22 vironmental impact statement prepared for
23 the applicable early site permit; and

24 “(ii) include additional discussion,
25 analyses, findings, and conclusions on mat-

1 ters resolved in the early site permit pro-
2 ceeding only to the extent necessary to ad-
3 dress information that—

4 “(I) is new; and

5 “(II) would materially change the
6 prior findings or conclusions.

7 “(3) PRODUCTION OR UTILIZATION FACILITY
8 LOCATED AT AN EXISTING SITE.—In reviewing an
9 application for an early site permit, construction
10 permit, operating license, or combined construction
11 permit and operating license for a proposed produc-
12 tion facility or utilization facility that is to be lo-
13 cated at the site of an already licensed production
14 facility or utilization facility, the Commission shall,
15 to the extent practicable, use information that was
16 part of the determination to issue a license for the
17 already licensed production facility or utilization fa-
18 cility.

19 “(4) HEARING ON EARLY SITE PERMIT, CON-
20 STRUCTION PERMIT, AND COMBINED CONSTRUCTION
21 PERMIT AND OPERATING LICENSE.—

22 “(A) IN GENERAL.—The Commission shall
23 issue and make immediately effective an early
24 site permit or construction permit for a produc-
25 tion facility or utilization facility upon the Com-

1 mission’s finding that the application therefor
2 satisfies the requirements of this Act, notwith-
3 standing any outstanding request for a hearing
4 for such license.

5 “(B) APPROPRIATE ACTION.—Following
6 completion of any required hearing, the Com-
7 mission shall take any appropriate action with
8 respect to the early site permit, construction
9 permit, or combined construction permit and
10 operating license to the extent necessary to ac-
11 count for the hearing results.

12 “(5) EARLY SITE PERMIT DEFINED.—In this
13 subsection, the term ‘early site permit’ has the
14 meaning given such term in section 52.1 of title 10,
15 Code of Federal Regulations (as in effect on the
16 date of enactment of this subsection).”.

17 (f) DEFINITIONS.—In this section:

18 (1) ADVANCED NUCLEAR REACTOR.—The term
19 “advanced nuclear reactor” means a nuclear fission
20 or nuclear fusion reactor, including a prototype
21 plant (as such term is defined in section 50.2 or sec-
22 tion 52.1 of title 10, Code of Federal Regulations,
23 as in effect on the date of enactment of this section),
24 with significant improvements compared to a com-
25 mercial nuclear reactor that is under construction as

1 of the date of enactment of this section, including
2 improvements such as—

3 (A) additional inherent safety features;

4 (B) significantly lower levelized cost of
5 electricity;

6 (C) lower waste yields;

7 (D) greater fuel utilization;

8 (E) enhanced reliability;

9 (F) increased proliferation resistance;

10 (G) increased thermal efficiency;

11 (H) reduced consumption of cooling water;

12 (I) the ability to integrate into electric ap-
13 plications and nonelectric applications;

14 (J) modular sizes to allow for deployment
15 that corresponds with the demand for elec-
16 tricity; or

17 (K) operational flexibility to respond to
18 changes in demand for electricity and to com-
19 plement integration with intermittent renewable
20 energy.

21 (2) APPLICANT.—The term “applicant” means
22 an applicant for a license, certification, permit, or
23 other form of approval from the Commission for an
24 advanced nuclear reactor or a research and test re-
25 actor.

1 (3) COMMISSION.—The term “Commission”
2 means the Nuclear Regulatory Commission.

3 (g) AUTHORIZATION OF APPROPRIATIONS.—

4 (1) IN GENERAL.—There are authorized to be
5 appropriated to carry out subsections (a), (b), and
6 (c) \$20,000,000 for each of fiscal years 2021
7 through 2030, to remain available until expended.

8 (2) OFF-FEE APPROPRIATION.—Any funds ap-
9 propriated to carry out this section may not be re-
10 covered by the Commission through the collection of
11 user fees from existing licensees.

12 **SEC. 305. DEMONSTRATION AND EARLY DEPLOYMENT OF**
13 **ADVANCED NUCLEAR REACTORS.**

14 (a) IN GENERAL.—Subtitle B of title VI of the En-
15 ergy Policy Act of 2005 (Public Law 109–58; 119 Stat.
16 782) is further amended by adding after section 639(A)
17 (as added by this Act) the following:

18 **“SEC. 639B. ADVANCED NUCLEAR REACTOR RESEARCH**
19 **AND DEVELOPMENT GOALS.**

20 “(a) IN GENERAL.—The Secretary shall, as soon as
21 practicable after the date of enactment of this section, en-
22 able the commercial deployment of domestic, advanced, af-
23 fordable, and clean nuclear energy by—

1 “(1) demonstrating different advanced nuclear
2 reactor technologies that may be used by the private
3 sector to produce—

4 “(A) emission-free power at a cost of not
5 more than \$70 per mWh;

6 “(B) heat for industrial purposes or syn-
7 thetic fuel production;

8 “(C) a supply of remote or off-grid energy;
9 or

10 “(D) a power supply that is a necessary
11 backup to a mission for which uninterrupted
12 power is critical;

13 “(2) developing goals for nuclear energy re-
14 search programs, which are carried out by the Office
15 of Nuclear Energy of the Department of Energy;

16 “(3) identifying research that the private sector
17 is unable or unwilling to undertake due to the cost
18 of, or risks associated with, the research; and

19 “(4) facilitating the access of the private sec-
20 tor—

21 “(A) to Federal research facilities; and

22 “(B) to the results of research funded by
23 the Federal Government.

24 “(b) DEMONSTRATION PROJECTS.—

1 “(1) IN GENERAL.—Not later than December
2 31, 2025, the Secretary shall establish a program to
3 enter into agreements to carry out no fewer than 5
4 demonstration projects pursuant to subsection (a)(1)
5 to demonstrate the suitability of advanced nuclear
6 reactors for commercial applications.

7 “(2) REQUIREMENTS.—In carrying out dem-
8 onstration projects under paragraph (1), the Sec-
9 retary shall—

10 “(A) ensure the demonstration projects
11 under paragraph (1) cover a diverse range of
12 designs, including designs using different pri-
13 mary coolants;

14 “(B) ensure that—

15 “(i) the long-term cost of electricity or
16 heat for each design involved in a dem-
17 onstration project carried out under this
18 subsection is cost-competitive in the appli-
19 cable market; and

20 “(ii) such cost-competitiveness is
21 verified by an external review;

22 “(C) enter into cost-sharing agreements
23 with partners in accordance with section 988
24 for the conduct of activities relating to the re-
25 search, development, and demonstration of pri-

1 vate-sector advanced nuclear reactor designs
2 under the program established under paragraph
3 (1);

4 “(D) work with private sector partners to
5 identify potential sites, including sites owned by
6 the Department, to carry out demonstration
7 projects, as appropriate; and

8 “(E) align specific activities carried out
9 under demonstration projects that are carried
10 out under this subsection, with priorities identi-
11 fied through direct consultation between—

12 “(i) the Secretary;

13 “(ii) the National Laboratories;

14 “(iii) traditional end-users (such as an
15 electric utility);

16 “(iv) potential end-users of new tech-
17 nologies (such as petrochemical compa-
18 nies); and

19 “(v) developers of advanced nuclear
20 reactor technology.

21 “(c) RESEARCH AND DEVELOPMENT GOALS.—

22 “(1) IN GENERAL.—The Secretary shall estab-
23 lish and annually update goals for the research to
24 support the demonstration of advanced reactors

1 under subsection (b) and the deployment of subse-
2 quent advanced reactors.

3 “(2) COORDINATION.— In developing and up-
4 dating the goals, the Secretary shall coordinate with
5 members of private industry.

6 “(3) REQUIREMENTS.—In developing the goals,
7 the Secretary shall ensure that—

8 “(A) research activities are focused on—

9 “(i) key areas of nuclear research, de-
10 velopment, and deployment that range
11 from basic research on advanced nuclear
12 reactor generation to full-design develop-
13 ment, safety evaluation, and licensing;

14 “(ii) resolving materials challenges re-
15 lating to radiation damage or corrosive
16 coolants; and

17 “(ii) qualification of advanced nuclear
18 fuel;

19 “(B) infrastructure, such as a versatile re-
20 actor-based fast neutron source, which is re-
21 quired to be established in section 955(c)(1) of
22 the Energy Policy Act of 2005 (42 U.S.C.
23 16275(c)(1)), or a molten salt testing facility to
24 aid in research, is constructed; and

1 “(C) advanced manufacturing and con-
2 struction techniques and materials are analyzed
3 to identify strategies to reduce the commer-
4 cialization cost of advanced nuclear reactors.

5 “(d) DEFINITIONS.—In this section:

6 “(1) ADVANCED NUCLEAR REACTOR.—The
7 term ‘advanced nuclear reactor’ means a nuclear fis-
8 sion or nuclear fusion reactor, including a prototype
9 plant (as such term is defined in section 50.2 or sec-
10 tion 52.1 of title 10, Code of Federal Regulations
11 (as in effect on the date of enactment of this sec-
12 tion), with significant improvements compared to a
13 commercial nuclear reactor that is under construc-
14 tion as of the date of enactment of this section, in-
15 cluding improvements such as—

16 “(A) additional inherent safety features;

17 “(B) significantly lower levelized cost of
18 electricity;

19 “(C) lower waste yields;

20 “(D) greater fuel utilization;

21 “(E) enhanced reliability;

22 “(F) increased proliferation resistance;

23 “(G) increased thermal efficiency;

24 “(H) reduced consumption of cooling
25 water;

1 “(I) the ability to integrate into electric
2 applications and nonelectric applications;

3 “(J) modular sizes to allow for deployment
4 that corresponds with the demand for elec-
5 tricity; or

6 “(K) operational flexibility to respond to
7 changes in demand for electricity and to com-
8 plement integration with intermittent renewable
9 energy.

10 “(2) DEMONSTRATION PROJECT.—The term
11 ‘demonstration project’ means a project carried out
12 under subsection (b) that—

13 “(A) includes operation of an advanced nu-
14 clear reactor as part of the power generation fa-
15 cilities of an electric utility system; or

16 “(B) demonstrates the suitability of an ad-
17 vanced nuclear reactor for commercial applica-
18 tion.

19 “(e) AUTHORIZATION OF APPROPRIATIONS.—There
20 are authorized to be appropriated to the Secretary to carry
21 out this section \$1,000,000,000 for each of fiscal years
22 2021 through 2030.”.

23 “(b) TABLE OF CONTENTS AMENDMENT.—The table
24 of contents of the Energy Policy Act of 2005 (42 U.S.C.
25 15801 note) is further amended by adding after the item

1 relating to section 639A (as added by this Act) the fol-
2 lowing:

“Sec. 639B. Advanced nuclear reactor research and development goals.”.

3 **SEC. 306. ADVANCED NUCLEAR FUEL SECURITY PROGRAM.**

4 (a) FINDINGS.—Congress finds that—

5 (1) the national security nuclear enterprise,
6 which supports the nuclear weapons stockpile stew-
7 ardship and reactors functions of the National Nu-
8 clear Security Administration, requires a domestic
9 fuel cycle, including uranium mining, uranium proc-
10 essing, uranium enrichment, and fuel fabrication, ca-
11 pable of producing low- and high-enriched uranium;

12 (2) many domestic advanced nuclear power in-
13 dustry participants require access to high-assay, low-
14 enriched uranium fuel for—

15 (A) initial fuel testing;

16 (B) operation of demonstration reactors;

17 and

18 (C) commercial operation of advanced nu-
19 clear reactors;

20 (3) as of the date of enactment of this Act, no
21 domestic uranium enrichment or fuel fabrication ca-
22 pability exists for uranium fuel enriched to greater
23 than 10 weight percent of the uranium-235 isotope;

1 (4) a healthy commercial nuclear fuel cycle ca-
2 pable of providing higher levels of enriched uranium
3 would benefit—

4 (A) the relevant national security functions
5 of the National Nuclear Security Administra-
6 tion; and

7 (B) the domestic advanced nuclear indus-
8 try of the United States; and

9 (5) making limited quantities of high-assay,
10 low-enriched uranium available from Department
11 stockpiles of uranium would allow for initial fuel
12 testing and demonstration of advanced nuclear reac-
13 tor concepts, accelerating—

14 (A) the path to market of those concepts;
15 and

16 (B) the development of—

17 (i) a market for advanced nuclear re-
18 actors; and

19 (ii) a resulting growing commercial
20 nuclear fuel cycle capability.

21 (b) NUCLEAR ENERGY.—

22 (1) IN GENERAL.—Subtitle E of title IX of the
23 Energy Policy Act of 2005 (42 U.S.C. 16271 et
24 seq.) is amended by adding at the end the following:

1 **“SEC. 959A. ADVANCED NUCLEAR FUEL SECURITY PRO-**
2 **GRAM.**

3 “(a) HIGH-ASSAY, LOW-ENRICHED URANIUM PRO-
4 GRAM FOR ADVANCED NUCLEAR REACTORS.—

5 “(1) ESTABLISHMENT.—Not later than 1 year
6 after the date of enactment of this section, the Sec-
7 retary shall establish a program (in this section
8 known as the ‘Program’) to make available high-
9 assay, low-enriched uranium, through contracts for
10 sale, resale, transfer, or lease, for use in advanced
11 nuclear reactors.

12 “(2) NUCLEAR FUEL OWNERSHIP.—Each con-
13 tract under paragraph (1) shall include a provision
14 that—

15 “(A) requires that any high-assay, low-en-
16 riched uranium sold, resold, transferred, or
17 leased under such contract shall remain the
18 property of the Secretary; and

19 “(B) the Secretary shall be responsible for
20 the final disposition of all radioactive waste cre-
21 ated by the irradiation, processing, or purifi-
22 cation of any such uranium.

23 “(3) QUANTITY.—In carrying out the Program,
24 the Secretary shall make available—

1 “(A) by December 31, 2022, high-assay,
2 low-enriched uranium containing not less than
3 2 metric tons of the uranium-235 isotope; and

4 “(B) by December 31, 2025, high-assay,
5 low-enriched uranium containing not less than
6 10 metric tons of the uranium-235 isotope,
7 which shall include the quantities of the ura-
8 nium-235 isotope required to be made available
9 under subparagraph (A).

10 “(4) FACTORS FOR CONSIDERATION.—In car-
11 rying out the Program, the Secretary shall take into
12 consideration options for providing high-assay, low-
13 enriched uranium from the stockpile of uranium
14 owned by the Department (including the National
15 Nuclear Security Administration), including by pro-
16 viding from among such stockpile—

17 “(A) fuel that—

18 “(i) directly meets the needs of an
19 end-user; and

20 “(ii) has been previously used or fab-
21 ricated for another purpose;

22 “(B) fuel that can meet the needs of an
23 end-user after removing radioactive contami-
24 nants or other contaminants that resulted from
25 a previous use or fabrication of the fuel for re-

1 search, development, demonstration, or deploy-
2 ment activities of the Department (including ac-
3 tivities of the National Nuclear Security Admin-
4 istration); and

5 “(C) fuel from a high-enriched uranium
6 stockpile, which can be blended with lower-
7 assay uranium to become high-assay, low-en-
8 riched uranium that may be used in an ad-
9 vanced nuclear reactor.

10 “(5) LIMITATION.—The Secretary shall not
11 barter or otherwise sell, resell, or transfer uranium
12 in any form in exchange for services relating to the
13 final disposition of radioactive waste from uranium
14 that is the subject of a sale, lease, release, or trans-
15 fer under this section.

16 “(6) SUNSET.—The Program shall terminate
17 on the earlier of—

18 “(A) January 1, 2035; or

19 “(B) the date on which uranium enriched
20 up to, but not equal to, 20 weight percent can
21 be obtained in the commercial market from do-
22 mestic suppliers, as determined by the Sec-
23 retary.

24 “(b) REPORT.—

1 “(1) IN GENERAL.—Not later than 180 days
2 after the date of enactment of this section, the Sec-
3 retary shall submit to the Committee on Energy and
4 Natural Resources of the Senate and the Committee
5 on Energy and Commerce of the House of Rep-
6 resentatives a report that—

7 “(A) describes the actions the Secretary
8 proposes to carry out under the Program; and

9 “(B) includes—

10 “(i) the estimates under paragraph
11 (3); and

12 “(ii) the evaluations under paragraph
13 (4).

14 “(2) COORDINATION AND STAKEHOLDER
15 INPUT.—In developing the report required under
16 paragraph (1), the Secretary shall seek input from—

17 “(A) the Nuclear Regulatory Commission;

18 “(B) the National Laboratories;

19 “(C) institutions of higher education (as
20 such term is defined in section 101 of the High-
21 er Education Act of 1965 (20 U.S.C. 1001(a)));

22 “(D) a diverse group of entities operating
23 in the nuclear energy industry; and

24 “(E) a diverse group of technology devel-
25 opers.

1 “(3) COST AND SCHEDULE ESTIMATES.—The
2 report required under paragraph (1) shall include es-
3 timated costs, budgets, and timeframes for enabling
4 the use of high-assay, low-enriched uranium.

5 “(4) REQUIRED EVALUATIONS.—The report re-
6 quired under paragraph (1) shall evaluate—

7 “(A) the costs of the actions required to
8 establish and carry out the Program, including
9 with respect to—

10 “(i) proposed preliminary terms for
11 the sale, resale, transfer, and leasing of
12 high-assay, low-enriched uranium (includ-
13 ing guidelines defining the roles and re-
14 sponsibilities of the Department and the
15 purchaser, transfer recipient, or lessee);
16 and

17 “(ii) the potential to coordinate with
18 purchasers, transfer recipients, and lessees
19 regarding—

20 “(I) fuel fabrication; and

21 “(II) fuel transportation;

22 “(B) the potential sources of uranium and
23 fuel forms available to carry out the Program;

24 “(C) options to coordinate carrying out the
25 Program with the operation of the versatile re-

1 actor-based fast neutron source, which is re-
2 quired to be established under section 955(c) of
3 the Energy Policy Act of 2005 (42 U.S.C.
4 16275(c));

5 “(D) the ability of the domestic uranium
6 market to provide materials for advanced nu-
7 clear reactor fuel; and

8 “(E) any associated legal, regulatory, and
9 policy issues that should be addressed to—

10 “(i) carry out the Program; and

11 “(ii) enable the establishment of a do-
12 mestic industry capable of providing high-
13 assay, low-enriched uranium for commer-
14 cial and noncommercial purposes, including
15 with respect to the needs of—

16 “(I) the Department;

17 “(II) the Secretary of Defense;

18 and

19 “(III) the under Secretary of the
20 National Nuclear Security Adminis-
21 tration.

22 “(c) DEFINITIONS.—In this section:

23 “(1) HIGH-ASSAY, LOW-ENRICHED URANIUM.—

24 The term ‘high-assay, low-enriched uranium’ means
25 uranium that is enriched with the uranium-235 iso-

1 tope in an assay weight that is greater than 5 per-
2 cent, but less than 20 percent.

3 “(2) HIGH-ENRICHED URANIUM.—The term
4 ‘high-enriched uranium’ means uranium that is en-
5 riched with the uranium-235 isotope in an assay
6 weight of 20 percent or more.”.

7 (2) TABLE OF CONTENTS.—The table of con-
8 tents of the Energy Policy Act of 2005 (Public Law
9 109–58; 119 Stat. 594) is amended—

10 (A) in the item relating to section 957, by
11 inserting “Sec.” before “957”;

12 (B) in the item relating to section 958, by
13 inserting “Sec.” before “958”;

14 (C) in the item relating to section 959, by
15 inserting “Sec.” before “959”; and

16 (D) by adding after the item relating to
17 section 959 (as amended by this paragraph) the
18 following:

 “Sec. 959A. Advanced nuclear fuel security program.”.

19 **SEC. 307. AUTHORIZATION OF APPROPRIATIONS FOR LOAN**
20 **GUARANTEES FOR ADVANCED NUCLEAR FA-**
21 **CILITIES.**

22 Section 1704 of the Energy Policy Act of 2005 (42
23 U.S.C. 16514) is amended by adding at the end the fol-
24 lowing:

1 “(c) **ADVANCED NUCLEAR ENERGY FACILITIES.**—
2 The Secretary is authorized to make guarantees and credit
3 subsidies for advanced nuclear energy facilities under sec-
4 tion 1703(b)(4) for loans of \$10,000,000,000 for each of
5 fiscal years 2021 through 2030, to remain available until
6 expended.”.

7 **SEC. 308. EXPANDING THE PRODUCTION TAX CREDIT FOR**
8 **NUCLEAR POWER.**

9 Section 45J of the Internal Revenue Code of 1986
10 is amended—

11 (1) in subsection (a)(1), by striking “1.8 cents”
12 and inserting “2.7 cents”;

13 (2) in subsection (b)(5)(B)(ii), by striking
14 “6,000 megawatts” and inserting “15,000
15 megawatts”; and

16 (3) in subsection (e), by striking paragraph (1)
17 and redesignating paragraphs (2) and (3) as (1) and
18 (2), respectively.

19 **SEC. 309. AUTHORIZATIONS OF APPROPRIATIONS FOR IN-**
20 **NOVATION IN NUCLEAR POWER.**

21 There are authorized to be appropriated to the Sec-
22 retary \$1,000,000,000 for each of fiscal years 2021
23 through 2030—

24 (1) for Gateway for Accelerated Innovation in
25 Nuclear vouchers;

- 1 (2) for advanced nuclear technology develop-
2 ment funding opportunity announcements;
- 3 (3) for advanced small modular reactor research
4 and development;
- 5 (4) for the advanced reactor demonstration pro-
6 gram; and
- 7 (5) up to \$60,000,000 for the Nuclear Reactor
8 Innovation Center.

9 **TITLE IV—CLEAN ELECTRICITY**
10 **STANDARD**

11 **SEC. 401. CERTIFICATION OF COST-EFFECTIVE MARKET**
12 **PENETRATION OF CLEAN ELECTRICITY**
13 **TECHNOLOGIES.**

14 Title VI of the Public Utility Regulatory Policies Act
15 of 1978 (16 U.S.C. 2601 et seq.) is amended by adding
16 at the end the following:

17 **“SEC. 610. FEDERAL DECARBONIZATION AND INNOVATION**
18 **ASSESSMENT PROGRAM.**

19 “(a) IN GENERAL.—Not later than 2 years after the
20 date of enactment of this section, the Secretary, after con-
21 sultation with the Administrator of the Environmental
22 Protection Agency, shall establish a program, to be known
23 as the ‘Federal Decarbonization and Innovation Assess-
24 ment Program’, to annually review and monitor progress
25 towards the achievement of—

1 “(1) an 80 percent reduction in annual power
2 sector carbon dioxide emissions, below the level in
3 the year of enactment, by 2050; and

4 “(2) cost-effective market penetration of ad-
5 vanced clean power generation technologies, in ac-
6 cordance with subsection (b).

7 “(b) COST-EFFECTIVE MARKET PENETRATION.—
8 Cost-effective market penetration of advanced clean power
9 generation technologies shall be deemed to have occurred
10 on the date when the Secretary determines that—

11 “(1) at least 3 gigawatts of new electricity gen-
12 erating capacity using any type of eligible technology
13 has come into commercial operation since enactment
14 of this section, provided that—

15 “(A) less than 50 percent of the capital
16 costs of such capacity has been subsidized with
17 Federal funds; and

18 “(B) at least 1 gigawatt of the new elec-
19 tricity generating capacity using eligible tech-
20 nology is coal-fired electricity generation using
21 carbon capture utilization and storage tech-
22 nology; or

23 “(2) at least one type of eligible technology has
24 similar operating characteristics, such as
25 dispatchability upon demand and duty cycle, as ex-

1 isting fossil-fueled electricity generation and, based
2 on data provided by the Energy Information Admin-
3 istration, has a total cost of electricity generation
4 that is not more than 10 percent higher than the av-
5 erage total cost of electricity generation from such
6 existing fossil-fueled electricity generation that has
7 been constructed within the 5 years prior to enact-
8 ment of this section.

9 “(c) CERTIFICATION OF COST-EFFECTIVE MARKET
10 PENETRATION.—Upon making the determination de-
11 scribed under subsection (b), but no earlier than 5 years
12 after enactment of this section, the Secretary shall certify
13 that cost-effective market penetration of advanced clean
14 power generation technologies has occurred.

15 “(d) DEFINITIONS.—In this section:

16 “(1) ADVANCED DISPATCHABLE RENEWABLE
17 GENERATION.—The term ‘advanced dispatchable re-
18 newable generation’ means renewable electricity gen-
19 eration capacity that the Secretary has determined
20 can be used upon demand by grid operators, includ-
21 ing renewable electricity generation facilities that are
22 supported by long-duration energy storage.

23 “(2) ADVANCED NUCLEAR POWER GENERA-
24 TION.—The term ‘advanced nuclear power genera-
25 tion’ means electricity generation capacity using an

1 advanced nuclear reactor, as such term is defined in
2 section 640 of the Energy Policy Act of 2005.

3 “(3) ELIGIBLE TECHNOLOGIES.—The term ‘eli-
4 gible technologies’ means the following types of tech-
5 nologies:

6 “(A) Advanced nuclear power generation.

7 “(B) Advanced dispatchable renewable
8 generation.

9 “(C) Fossil-fueled electricity generation
10 equipped with carbon capture technology, from
11 which at least 90 percent of carbon dioxide out-
12 put is captured and utilized or stored in a man-
13 ner that prevents emission to the atmosphere.”.

14 **SEC. 402. FEDERAL CLEAN ELECTRICITY STANDARD.**

15 Title VI of the Public Utility Regulatory Policies Act
16 of 1978 (16 U.S.C. 2601 et seq.) is further amended by
17 adding after section 610 (as added by this Act) the fol-
18 lowing:

19 **“SEC. 611. FEDERAL CLEAN ELECTRICITY STANDARD.**

20 “(a) CLEAN ELECTRICITY REQUIREMENT.—

21 “(1) DEFINITION OF RETAIL ELECTRICITY SUP-
22 PLIER.—In this section, as determined for each cal-
23 endar year, the term ‘retail electricity supplier’
24 means an entity in the United States that sold not
25 fewer than 20 megawatt-hours of electric energy to

1 electric consumers for purposes other than resale
2 during the preceding calendar year.

3 “(2) IN GENERAL.—Effective beginning in the
4 first compliance period of the program, and for each
5 compliance period thereafter, each retail electricity
6 supplier shall surrender clean electricity credits cor-
7 responding to the required percentage, as deter-
8 mined under paragraph (3), of the electric energy it
9 sells to electric consumers.

10 “(3) DETERMINATION OF REQUIRED PERCENT-
11 AGE.—The Secretary shall determine, and may ad-
12 just as needed, the required percentage for each
13 compliance period, such that the power sector
14 achieves, by 2050, a reduction in carbon dioxide
15 emissions of 80 percent from emission levels in the
16 year of enactment of this section, and that carbon
17 dioxide emission levels are reduced linearly in each
18 compliance period through 2050, provided that—

19 “(A) in 2026, the Secretary shall make a
20 projection of the electricity generated in 2030
21 that could qualify for clean electricity credits
22 under subsection (d);

23 “(B) the required percentage for the first
24 compliance period shall be the greater of—

1 “(i) the percentage of electricity gen-
2 erated that would qualify for issuance of
3 clean electricity credits under subsection
4 (d) in the year of enactment of this sec-
5 tion; and

6 “(ii) the Secretary’s projection for
7 2030 under subparagraph (A); and

8 “(C) the required percentage shall be uni-
9 form for each retail electric supplier regulated
10 under this section for any compliance period.

11 “(4) EARLY PROJECTION OF REQUIRED PER-
12 CENTAGE TO PROMOTE COMPLIANCE PLANNING.—
13 Not later than two years after the date of enactment
14 of this section, the Secretary shall make a projection
15 of the required percentage for the first compliance
16 period, extrapolating from the prior five years of
17 electricity generation.

18 “(b) COMPLIANCE.—A retail electric supplier shall
19 meet the requirements of subsection (a) for each compli-
20 ance period by—

21 “(1) submitting to the Secretary a number of
22 clean electricity credits equal to the product of the
23 required percentage for the compliance period times
24 the volume of electric energy the retail electric sup-

1 plier sold to consumers during the compliance pe-
2 riod;

3 “(2) paying an amount equal to the product of
4 the alternative compliance payment, in the amount
5 specified in subsection (h), times the number of
6 clean electricity credits that would otherwise be due
7 under paragraph (1) in the compliance period; or

8 “(3) taking a combination of the actions de-
9 scribed in paragraphs (1) and (2).

10 “(c) FEDERAL CLEAN ELECTRICITY CREDIT TRAD-
11 ING PROGRAM.—

12 “(1) ESTABLISHMENT.—Not later than 180
13 days after the program trigger date, the Secretary
14 shall establish a Federal clean electricity credit ac-
15 counting and trading program under which clean
16 electricity credits may be acquired, sold, transferred,
17 and held and electric utilities may submit to the Sec-
18 retary clean electricity credits to comply with the re-
19 quirements of this section.

20 “(2) CLEAN ELECTRICITY CREDITS.—Each
21 year, the Secretary shall issue to each generator of
22 electric energy a quantity of clean electricity credits
23 determined in accordance with subsection (d).

24 “(3) ADMINISTRATION.—Each clean electricity
25 credit issued under this subsection shall be used only

1 once for the purpose of complying with the require-
2 ments of this section.

3 “(4) DELEGATION OF PROGRAM ADMINISTRA-
4 TION.—In carrying out this subsection, the Sec-
5 retary may delegate—

6 “(A) to the Commission, the implementa-
7 tion of some or all of the program established
8 under paragraph (1); and

9 “(B) to appropriate entities, the tracking
10 of clean electricity credits.

11 “(5) BANKING OF CLEAN ELECTRICITY CRED-
12 ITS.—Clean electricity credits issued under sub-
13 section (d) shall be valid for the compliance period
14 in which the clean electricity credit is issued or in
15 any subsequent compliance period.

16 “(d) ISSUANCE OF CLEAN ELECTRICITY CREDITS.—

17 “(1) IN GENERAL.—For each calendar year,
18 starting with the year of the program effective date,
19 the Secretary shall issue clean electricity credits to
20 each electricity generator in the United States that
21 has sold electricity and has an annual carbon inten-
22 sity of less than 0.825 metric tons per megawatt-
23 hour.

1 “(2) DETERMINATION OF CREDITS ISSUED.—

2 The number of clean electricity credits issued under
3 paragraph (1) shall be equal to the product of—

4 “(A) the number of megawatt-hours of
5 electric energy sold from the electricity gener-
6 ator; and

7 “(B) 1.0 minus the quotient obtained by
8 dividing—

9 “(i) the annual carbon intensity of the
10 generator, as determined in accordance
11 with paragraph (3), expressed in metric
12 tons per megawatt-hour; by

13 “(ii) 0.82.

14 “(3) DETERMINATION OF ANNUAL CARBON IN-
15 TENSITY OF GENERATING FACILITIES.—With re-
16 spect to paragraph (2)(B)(i), the Secretary shall de-
17 termine, in consultation with the Administrator of
18 the Environmental Protection Agency, the annual
19 carbon intensity of each generator by dividing—

20 “(A) the net annual carbon dioxide emis-
21 sions of the generator; by

22 “(B) the annual quantity of electric energy
23 generated and sold by the generator.

24 “(e) DYNAMIC CREDITING.—If the Secretary ap-
25 proves use of a dynamic crediting methodology or meth-

1 odologies under section 612(c), the Secretary shall imple-
2 ment such methodology or methodologies in lieu of the
3 crediting methodology established under subsection (d)(2)
4 as a means of issuing clean electricity credits.

5 “(f) CIVIL PENALTIES.—

6 “(1) IN GENERAL.—Subject to paragraph (2), a
7 retail electric supplier that fails to meet the require-
8 ments to submit clean electricity credits or make al-
9 ternative compliance payments as required by sub-
10 section (b) shall be subject to a civil penalty in an
11 amount equal to the product obtained of—

12 “(A) the number of megawatt-hours of
13 electric energy sold by the retail electric sup-
14 plier to electric consumers in violation of sub-
15 section (b); and

16 “(B) 200 percent of the value of the appli-
17 cable alternative compliance payment as deter-
18 mined under subsection (h).

19 “(2) PROCEDURE FOR ASSESSING PENALTY.—
20 The Secretary shall assess a civil penalty under this
21 subsection in accordance with the procedures for as-
22 sessing a penalty against a person under section
23 333(d) of the Energy Policy and Conservation Act
24 (42 U.S.C. 6303(d)).

1 “(g) SAVINGS PROVISION.—Nothing in this section
2 affects the authority of a State, or a political subdivision
3 of a State, to adopt or enforce any law relating to—

4 “(1) clean electricity or renewable energy;

5 “(2) carbon dioxide emissions; or

6 “(3) the regulation of a retail electric supplier.

7 “(h) ALTERNATIVE COMPLIANCE PAYMENT.—

8 “(1) INITIAL AMOUNT.—The alternative compli-
9 ance payment for the first year of the first compli-
10 ance period shall be \$30 per megawatt hour.

11 “(2) ANNUAL ADJUSTMENTS TO ALTERNATIVE
12 COMPLIANCE PAYMENT.—For each year after the
13 first year of the first compliance period, the Sec-
14 retary shall increase the amount of the alternative
15 compliance payment from the amount for the prior
16 year by 5 percent. The Secretary may make an addi-
17 tional annual adjustment to account for inflation, as
18 the Secretary may determine necessary.

19 “(i) REGULATIONS.—Not later than 1 year after the
20 date of enactment of this section, the Secretary shall pro-
21 mulgate regulations to implement this section.

22 “(j) DEFINITIONS.—In this section:

23 “(1) COMPLIANCE PERIOD.—The term ‘compli-
24 ance period’ means the 3-year period starting on the

1 program effective date and each 3-year period there-
2 after until 2050.

3 “(2) PROGRAM TRIGGER DATE.—The term ‘pro-
4 gram trigger date’ means January 1 of the first cal-
5 endar year after the Secretary issues the certifi-
6 cation under section 610(c).

7 “(3) PROGRAM EFFECTIVE DATE.—The term
8 ‘program effective date’ means the earlier of—

9 “(A) January 1 of the first calendar year
10 that starts two years after the program trigger
11 date; or

12 “(B) January 1 of the first calendar year
13 that is more than 10 years after the date of en-
14 actment of this section.

15 **“SEC. 612. USE OF DYNAMIC CREDITING TO ISSUE CLEAN**
16 **ELECTRICITY CREDITS.**

17 “(a) IDENTIFICATION OF DYNAMIC CREDITING
18 METHODOLOGIES.—Not later than 2 years after the date
19 of enactment of this section, the Secretary, in consultation
20 with the Administrator of the Environmental Protection
21 Agency, shall identify methodologies for calculating the
22 carbon dioxide emissions from electricity generating re-
23 sources that are avoided or displaced by increasing the
24 generation from generating facilities eligible to receive

1 clean electricity credits under section 611(d). In carrying
2 out this subsection, the Secretary shall—

3 “(1) identify methodologies that estimate in an
4 accurate manner the net carbon dioxide emissions
5 avoided or displaced due to the electricity generated
6 by each specific generating facility in each genera-
7 tion dispatch interval; and

8 “(2) identify such a methodology or methodolo-
9 gies, as appropriate for generation resources located
10 within the region served by a regional transmission
11 organization or independent system operator, as de-
12 fined in section 3 of the Federal Power Act (16
13 U.S.C. 796), and for generation resources operating
14 outside such regions.

15 “(b) COMMISSION REVIEW OF DYNAMIC CREDITING
16 METHODOLOGIES.—

17 “(1) The Secretary shall share the identified
18 dynamic crediting methodologies with the Commis-
19 sion.

20 “(2) Not later than 120 days after its receipt
21 of the dynamic crediting methodologies from the
22 Secretary, the Commission shall hold a technical
23 conference in partnership with State electric utility
24 regulators to evaluate the dynamic crediting meth-
25 odologies, including evaluation of alternatives.

1 “(3) Not later than 180 days after the technical
2 conference held pursuant to paragraph (2), and
3 after providing an opportunity for public comment,
4 the Commission shall provide a report to the Sec-
5 retary on the technical conference and any Commis-
6 sion recommendations or evaluation concerning dy-
7 namic crediting methodologies.

8 “(c) DETERMINATION.—No later than 180 days fol-
9 lowing receipt of the report provided pursuant to sub-
10 section (b)(3), the Secretary, in consultation with the Ad-
11 ministrators of the Environmental Protection Agency, shall
12 approve use of one or more identified dynamic crediting
13 methodologies to issue clean electricity credits if the Sec-
14 retary determines that such use would—

15 “(1) significantly enhance confidence that a
16 clean electricity standard would achieve the carbon
17 dioxide emission reduction targets set forth in sec-
18 tion 611(a)(2); or

19 “(2) significantly reduce the costs of achieving
20 such targets.

21 “(d) USE OF DYNAMIC CREDITING METHODOLO-
22 GIES.—If the Secretary approves one or more identified
23 dynamic crediting methodologies under subsection (c), the
24 Secretary shall implement the approved methodology to
25 determine the number of clean electricity credits to be

1 issued to an electricity generator in lieu of the method-
2 ology provided in 611(d)(2). The Secretary shall apply a
3 dynamic crediting factor approved under subsection (c) for
4 the first full calendar year after such approval, or for the
5 first year of the first compliance period, whichever is later,
6 except that the Secretary may delay use of approved dy-
7 namic crediting methodologies by one year if the Secretary
8 finds that additional time is needed for the Secretary or
9 the Commission to take actions necessary for implementa-
10 tion under subsection (e).

11 “(e) IMPLEMENTATION.—

12 “(1) The Secretary may, by rule, require that
13 the regional transmission organizations, independent
14 system operators, other balancing authorities, and
15 other appropriate entities provide the Secretary with
16 the information necessary for the Secretary to apply
17 any approved dynamic crediting methodology.

18 “(2) At the request of the Secretary, or upon
19 its own initiative, the Commission shall consider
20 whether changes to tariffs on file under section 205
21 of the Federal Power Act 16 U.S.C. 824d) are nec-
22 essary to implement the requirements of any rule
23 promulgated by the Secretary under paragraph
24 (1).”.

1 **SEC. 403. REGIONAL CLEAN ELECTRICITY PLANNING MOD-**
2 **ELS.**

3 (a) DEVELOPMENT OF PLANNING MODELS AND
4 DATA.—Not later than 2 years after the date of enact-
5 ment this Act, the Secretary shall make available one or
6 more regional electricity planning models and standard-
7 ized sets of data, including potential renewable energy
8 hourly production profiles at all potential locations for re-
9 newable energy deployment, that States can use to develop
10 plans for portfolios of clean electricity resources that are
11 capable of achieving the emission reduction trajectory pro-
12 vided in the clean electricity requirements established
13 under section 611 of the Public Utility Regulatory Policies
14 Act of 1978 at least cost and consistent with the need
15 to maintain reliability.

16 (b) DEVELOPMENT PROCESS.—In making planning
17 models and data available under subsection (a), the Sec-
18 retary shall—

19 (1) solicit planning models and standardized,
20 accurate data sets from the national laboratories
21 and universities;

22 (2) hold jointly with the Commission a technical
23 conference on planning models and standardized
24 data sets, including hourly profiles of renewable en-
25 ergy production at potential deployment locations,
26 and consider the input from such conference in

1 choosing planning models and data sets to make
2 available; and

3 (3) update the planning models and data sets
4 made available from time to time in response to new
5 information.

6 (c) USE OF MODELS BY STATES.—The Secretary
7 shall encourage States to use the models and data sets
8 to—

9 (1) plan collaboratively with other States in the
10 same North American Electric Reliability Corpora-
11 tion reliability region or organized electricity market
12 on least-cost and reliable compliance with the clean
13 electricity standard established under section 611 of
14 the Public Utility Regulatory Policies Act of 1978;
15 and

16 (2) adopt, and from time to time update, multi-
17 State clean electricity resource deployment goals
18 that promote least-cost deployment consistent with
19 maintaining electric reliability.

20 **SEC. 404. STAND-BY EMISSION PERFORMANCE STANDARDS.**

21 (a) ANNUAL REVIEW OF ELECTRIC POWER SECTOR
22 EMISSIONS.—Not later than February 1 of the first year
23 after enactment of this section, and each February 1
24 thereafter, the Secretary, in consultation with the Admin-
25 istrator of the Environmental Protection Agency, shall

1 publish a determination of the annual average level of
2 greenhouse gas emissions from the electric power sector
3 for the prior three calendar years.

4 (b) ENFORCEABILITY.—Emission limitations for car-
5 bon dioxide emissions from fossil fuel-fired power plants
6 established under title I of the of the Clean Air Act (42
7 U.S.C. 7401 et seq.) may be enforced by a State or by
8 the Administrator of the Environmental Protection Agen-
9 cy—

10 (1) before the clean electricity standard pro-
11 gram trigger date, only if—

12 (A) the Secretary, not earlier than 5 years
13 after the date of enactment of this Act, deter-
14 mines under subsection (a) that the 5-year an-
15 nual average level of electric power sector
16 greenhouse gas emissions exceeded the annual
17 average level of such emissions for the pre-
18 ceding 5-year period by at least 6 percent; or

19 (B) the Secretary finds that significantly
20 less than the full amount of funding authorized
21 for programs under this Act has been appro-
22 priated, resulting in substantial limitation to or
23 delay of the technology advancement program
24 elements of this Act; or

1 (2) after the end of a clean electricity standard
2 compliance period, if the clean electricity require-
3 ment is not enforced for the compliance period.

4 (c) CLEAN AIR ACT AUTHORITIES.—Except as pro-
5 vided in this section, neither a State nor the Administrator
6 of the Environmental Protection Agency may enforce any
7 emission limitation for carbon dioxide emissions from fos-
8 sil fuel-fired electric power generating units established
9 under title I of the of the Clean Air Act (42 U.S.C. 7401
10 et seq.).

11 (d) DEFINITIONS.—In this section:

12 (1) COMPLIANCE PERIOD.—The term “compli-
13 ance period” has the meaning given such term in
14 section 611(k)(1) of the Public Utility Regulatory
15 Policies Act of 1978.

16 (2) PROGRAM TRIGGER DATE.—The term “pro-
17 gram trigger date” has the meaning given such term
18 in section 611(k)(2) of the Public Utility Regulatory
19 Policies Act of 1978.