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### LAUNCHING ENERGY ADVANCEMENT AND DEVELOPMENT THROUGH INNOVATIONS FOR NATURAL GAS ACT OF 2019

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SEPTEMBER 25, 2019.—Ordered to be printed

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Ms. MURKOWSKI, from the Committee on Energy and Natural Resources, submitted the following

### R E P O R T

[To accompany S. 1685]

The Committee on Energy and Natural Resources, to which was referred the bill (S. 1685) to require the Secretary of Energy to establish a program for the research, development, and demonstration of commercially viable technologies for the capture of carbon dioxide produced during the generation of natural gas-generated power, having considered the same, reports favorably thereon with an amendment (in the nature of a substitute) and recommends that the bill, as amended, do pass.

### AMENDMENT

The amendment is as follows:

Strike all after the enacting clause and insert the following:

#### SECTION 1. SHORT TITLE.

This Act may be cited as the “Launching Energy Advancement and Development through Innovations for Natural Gas Act of 2019”.

#### SEC. 2. NATURAL GAS CARBON CAPTURE RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM.

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

#### “SEC. 969. NATURAL GAS CARBON CAPTURE RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM.

“(a) DEFINITIONS.—In this section:

“(1) **COMMERCIALLY VIABLE TECHNOLOGY.**—The term ‘commercially viable technology’ means technology that has the potential to be successfully deployed and compete effectively in the marketplace at an appropriate size or scale.

“(2) **ELIGIBLE ENTITY.**—The term ‘eligible entity’ means an entity that documents to the satisfaction of the Secretary that—

- “(A) the entity is financially responsible; and
- “(B) the entity will provide sufficient information to the Secretary to enable the Secretary to ensure that any funds awarded to the entity are spent efficiently and effectively.
- “(3) NATURAL GAS.—The term ‘natural gas’ means any fuel consisting in whole or in part of—
  - “(A) natural gas;
  - “(B) liquid petroleum gas;
  - “(C) synthetic gas derived from petroleum or natural gas liquids;
  - “(D) any mixture of natural gas and synthetic gas; or
  - “(E) biomethane.
- “(4) NATURAL GAS-GENERATED POWER.—The term ‘natural gas-generated power’ means—
  - “(A) electric energy generated through the use of natural gas; and
  - “(B) the generation of hydrogen from natural gas.
- “(5) PROGRAM.—The term ‘program’ means the program established under subsection (b)(1).
- “(6) QUALIFYING ELECTRIC GENERATION FACILITY.—
  - “(A) IN GENERAL.—The term ‘qualifying electric generation facility’ means a facility that generates electric energy using natural gas as the fuel.
  - “(B) INCLUSIONS.—The term ‘qualifying electric generation facility’ includes a new or existing—
    - “(i) simple cycle plant;
    - “(ii) combined cycle plant;
    - “(iii) combined heat and power plant;
    - “(iv) steam methane reformer that produces hydrogen from natural gas for use in the production of electric energy; or
    - “(v) facility that uses natural gas as the fuel for generating electric energy.
- “(7) QUALIFYING TECHNOLOGY.—The term ‘qualifying technology’ means any commercially viable technology, as determined by the Secretary, for the capture of carbon dioxide produced during the generation of natural gas-generated power.
- “(b) ESTABLISHMENT OF RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM.—
  - “(1) IN GENERAL.—The Secretary shall establish a program of research, development, and demonstration of qualifying technologies for use by qualifying electric generation facilities.
  - “(2) OBJECTIVES.—The objectives of the program shall be—
    - “(A) to identify opportunities to accelerate the development and commercial applications of qualifying technologies to reduce the quantity of carbon dioxide emissions released from qualifying electric generation facilities;
    - “(B) to enter into cooperative agreements with eligible entities to expedite and carry out demonstration projects (including pilot projects) for qualifying technologies for use by qualifying electric generation facilities to demonstrate the technical and commercial viability of those qualifying technologies for commercial deployment; and
    - “(C) to identify any barriers to the commercial deployment of any qualifying technologies under development.
  - “(3) PARTICIPATION OF NATIONAL LABORATORIES, UNIVERSITIES, AND RESEARCH FACILITIES.—The program may include the participation of—
    - “(A) National Laboratories;
    - “(B) institutions of higher education;
    - “(C) research facilities; or
    - “(D) other appropriate entities.
  - “(4) COOPERATIVE AGREEMENTS.—
    - “(A) IN GENERAL.—In carrying out the program, the Secretary may enter into cooperative agreements with eligible entities to carry out research, development, and demonstration projects for qualifying technologies.
    - “(B) APPLICATIONS; PROPOSALS.—An eligible entity desiring to enter into a cooperative agreement under this paragraph shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary may require.
- “(c) CARBON CAPTURE FACILITIES DEMONSTRATION PROGRAM.—
  - “(1) ESTABLISHMENT.—As part of the program, the Secretary shall establish a demonstration program under which the Secretary shall enter into cooperative agreements with eligible entities for demonstration or pilot projects to license, permit, construct, and operate, by not later than September 30, 2025, 3

or more facilities to capture carbon dioxide from qualifying electric generation facilities.

“(2) GOALS.—Each demonstration or pilot project under the demonstration program shall—

“(A) be designed to further the development of qualifying technologies that may be used by a qualifying electric generation facility;

“(B) be financed in part by the private sector;

“(C) if necessary, secure agreements for the offtake of the majority of the carbon dioxide emissions captured by qualifying technologies during the project; and

“(D) support energy production in the United States.

“(3) REQUEST FOR APPLICATIONS.—Not later than 120 days after the date of enactment of this Act, the Secretary shall solicit applications for cooperative agreements for projects—

“(A) to demonstrate qualifying technologies at 3 or more qualifying electric generation facilities;

“(B) to obtain any license or permit from a State or Federal agency that is necessary for the construction of 3 or more facilities to capture carbon dioxide from a qualifying electric generation facility; and

“(C) to construct and operate 3 or more facilities to capture carbon dioxide from a qualifying electric generation facility.

“(4) REVIEW OF APPLICATIONS.—In reviewing applications submitted under paragraph (3), the Secretary, to the maximum extent practicable, shall—

“(A) ensure a broad geographic distribution of project sites;

“(B) ensure that a broad selection of qualifying electric generation facilities are represented;

“(C) ensure that a broad selection of qualifying technologies are represented; and

“(D) leverage existing—

“(i) public-private partnerships; and

“(ii) Federal resources.

“(d) COST SHARING.—In carrying out this section, the Secretary shall require cost sharing in accordance with section 988.

“(e) FEE TITLE.—The Secretary may vest fee title or other property interests acquired under cooperative agreements entered into under subsection (b)(4) in any entity, including the United States.

“(f) REPORT.—Not later than 180 days after the date on which the Secretary solicits applications under subsection (c)(3), and annually thereafter, the Secretary shall submit to the appropriate committees of jurisdiction of the Senate and the House of Representatives a report that—

“(1) with respect to subsections (b) and (c), includes recommendations for any legislative changes needed to improve the implementation of those subsections;

“(2) with respect to subsection (b), includes—

“(A) a detailed description of how applications for cooperative agreements under paragraph (4) of that subsection will be solicited and evaluated, including—

“(i) a list of any activities carried out by the Secretary to solicit or evaluate applications; and

“(ii) a process for ensuring that any projects carried out under a cooperative agreement are designed to result in the development or demonstration of qualifying technologies;

“(B) a detailed list of technical milestones for each qualifying technology pursued under that subsection;

“(C) a detailed description of how each project carried out pursuant to a cooperative agreement under paragraph (4) of that subsection will meet the milestones for carbon capture described in the September 2017 report of the Office of Fossil Energy entitled ‘Accelerating Breakthrough Innovation in Carbon Capture, Utilization, and Storage’; and

“(D) an affirmation from the Secretary that all recipients of funding under that subsection are eligible entities; and

“(3) with respect to the demonstration program established under subsection (c), includes—

“(A) an estimate of the cost of licensing, permitting, constructing, and operating each carbon capture facility expected to be constructed under that demonstration program;

“(B) a schedule for—

“(i) obtaining any license or permit necessary to construct and operate each carbon capture facility expected to be constructed; and

“(ii) constructing each facility; and

“(C) an estimate of any financial assistance, compensation, or incentives proposed to be paid by the host State, Indian Tribe, or local government with respect to each facility.

“(g) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out this section \$50,000,000 for each of fiscal years 2020 through 2025.”.

(b) CLERICAL AMENDMENT.—The table of contents for the Energy Policy Act of 2005 (Public Law 109–58; 119 Stat. 600) is amended by inserting after the item relating to section 968 the following:

“SEC. 969. NATURAL GAS CARBON CAPTURE RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM.”.

#### PURPOSE

The purpose of S. 1685, as ordered reported, is to require the Secretary of Energy to establish a program for the research, development, and demonstration (RD&D) of commercially viable technologies for the capture of carbon dioxide produced during the generation of natural gas-generated power.

#### BACKGROUND AND NEED

According to a 2019 report by the International Energy Agency, deployment of innovative clean energy technologies is essential to offset the increased greenhouse gas emissions resulting from increased global energy demand. These technologies include carbon capture, utilization, and sequestration (CCUS), a process by which manmade carbon dioxide is captured at its source and is either stored permanently in a geological formation or reused to prevent its release into the atmosphere.

Many facilities across the globe demonstrate the technical and commercial viability of CCUS technologies. In total, there are 18 large-scale CCUS facilities in commercial operation that are capturing 40 metric tons of carbon dioxide per year, with many more in development.

The Department of Energy (DOE) has long supported research, development, demonstration, and deployment of CCUS through research programs within the Office of Fossil Energy. However, those programs mainly focus on reducing emissions of coal-fired power plants. While coal has historically provided the majority of electricity in the United States, natural gas is now the largest source of electricity, accounting for 35.1 percent of all electricity produced in 2018. The Energy Information Administration expects this number to continue to rise for the foreseeable future as more natural gas power plants come online. To address the need to reduce emissions from natural gas plants while creating jobs and supporting domestic energy production and security, S. 1685 establishes a program at DOE to develop cost-effective CCUS technology for natural gas power plants.

Section 402(i) of the Energy Policy Act of 2005 (EPA 2005, Public Law 109–58) states that no technology or emissions reduction achieved by any facility receiving financial assistance under any section of EPA 2005 shall be considered adequately demonstrated for purposes of section 111 of the Clean Air Act (CAA) (Public Law 95–95); achievable for purposes of section 169 of the CAA; or achievable in practice for purposes of section 171 of the CAA. Because S. 1685 amends EPA 2005, section 402(i) of EPA 2005 ap-

plies to all technologies or emissions reductions that are achieved by any facility receiving assistance under S. 1685.

#### LEGISLATIVE HISTORY

S. 1685 was introduced by Senators Cornyn, Cassidy, Coons, and Sinema on May 23, 2019. The Subcommittee on Energy held a legislative hearing on S. 1685 on July 9, 2019.

The Senate Committee on Energy and Natural Resources met in open business session on July 16, 2019, and ordered S. 1685 favorably reported, as amended.

#### COMMITTEE RECOMMENDATION

The Senate Committee on Energy and Natural Resources, in open business session on July 16, 2019, by a majority voice vote of a quorum present, recommends that the Senate pass S. 1685, if amended as described herein. Senator Lee asked to be recorded as voting no.

#### COMMITTEE AMENDMENTS

During its consideration of S. 1685, the Committee adopted an amendment in the nature of a substitute and an amendment to the substitute. The substitute amendment changes the stated objectives of the research and development program established by S. 1685 from demonstrating the “economic potential” of qualifying technologies to the “commercial viability” of CCUS technologies for commercial deployment. It also adds a definition of “commercially viable technology” and strikes a provision requiring data to be transferred and shared among participants in CCUS demonstration projects and other interested parties. The amendment to the substitute authorizes appropriation of \$50 million for each of fiscal years (FYs) 2020 through 2025 rather than permitting the Secretary to carry out the program using funds appropriated for fossil energy research and development that are not otherwise obligated.

#### SECTION-BY-SECTION ANALYSIS

##### *Section 1. Short title*

Section 1 sets forth the short title.

##### *Sec. 2. Natural gas carbon capture research, development, and demonstration program*

Sec. 2 amends subtitle F of title IX of EAct 2005 to add a new section 969 titled “Natural Gas Carbon Capture Research, Development, and Demonstration Program.”

The new section 969(a) provides for definitions of relevant terms.

The new section 969(b) establishes a RD&D program for CCUS from natural gas-generated power. It specifies the program’s objectives, including accelerating the deployment of CCUS technologies and entering into cooperative agreements to carry out CCUS demonstration projects. It also encourages the participation of National Laboratories, higher education institutions and research facilities.

The new section 969(c) requires the Secretary to establish a demonstration program under which the Secretary shall enter into cooperative agreements with eligible entities for demonstration

projects to license, permit, construct, and operate, by September 30, 2025, three or more facilities to capture carbon dioxide from natural gas power generation facilities. It also sets goals for the projects and describes the application process for eligible entities to obtain a grant.

The new section 969(d) sets forth cost-sharing in accordance with section 988 of EPLA 2005.

The new section 969(e) authorizes the Secretary to vest for title or other property interests acquired under cooperative agreements entered into under subsection (b)(4) in any entity, including the United States.

The new section 969(f) requires the Secretary to submit an annual report on program activities to Congress.

The new section 969(g) authorizes \$50 million to be appropriated to the Secretary for each of FYs 2020 through 2025 to carry out the activities in the new section 969.

#### COST AND BUDGETARY CONSIDERATIONS

The Congressional Budget Office estimate of the costs of this measure has been requested but was not received at the time the report was filed. When the Congressional Budget Office completes its cost estimate, it will be posted on the internet at [www.cbo.gov](http://www.cbo.gov).

#### REGULATORY IMPACT EVALUATION

In compliance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee makes the following evaluation of the regulatory impact which would be incurred in carrying out S. 1685. The bill is not a regulatory measure in the sense of imposing Government-established standards or significant economic responsibilities on private individuals and businesses.

No personal information would be collected in administering the program. Therefore, there would be no impact on personal privacy.

Little, if any, additional paperwork would result from the enactment of S. 1685, as ordered reported.

#### CONGRESSIONALLY DIRECTED SPENDING

S. 1685, as ordered reported, does not contain any congressionally directed spending items, limited tax benefits, or limited tariff benefits as defined in rule XLIV of the Standing Rules of the Senate.

#### EXECUTIVE COMMUNICATIONS

The testimony provided by the Department of Energy at the July 9, 2019, hearing on S. 1685 follows:

TESTIMONY OF THE HONORABLE BRUCE J. WALKER, ASSISTANT SECRETARY, OFFICE OF ELECTRICITY, U.S. DEPARTMENT OF ENERGY

#### INTRODUCTION

Chairman Cassidy, Ranking Member Heinrich, and Members of the Subcommittee, it is an honor and a privilege to serve at the Department of Energy (DOE or the De-

partment), as Assistant Secretary for the Office of Electricity. DOE is charged with, among other important responsibilities, providing our Nation with premier energy research and development (R&D) activities. The work being conducted by DOE is setting the course for various advancements in the energy field and beyond. Issues like energy storage, improving energy efficiency, creating breakthroughs in how we extract and utilize our Nation's fossil fuels, and Artificial Intelligence are just some of the important areas of DOE research. These are also the topics being covered at today's hearing.

#### FOSSIL ENERGY

FE is responsible for Federal research, development, and demonstration efforts on advanced power generation; power plant efficiency; water management; and carbon capture, utilization, and storage (CCUS) technologies. Additionally, FE is responsible for the development of technological solutions for the prudent and sustainable development of our unconventional oil and gas domestic resources.

#### *S. 1685—Launching Energy Advancement and Development through Innovations for Natural Gas Act of 2019*

The Department is advancing an important part of FE's R&D portfolio—the commercial deployment of CCUS technologies. With ongoing support, the Department is backing up its commitment to CCUS with R&D necessary to advance these technologies, improve our environmental footprint, and advance U.S. world leadership in this critical area.

This bill directs DOE to establish a program for the capture of carbon dioxide produced during the generation of natural gas-generated power.

Specifically, DOE must:

- identify opportunities to accelerate the development of commercially viable carbon capture technologies to reduce carbon dioxide emissions;
- enter into cooperative agreements with certain entities to license, permit, construct, and operate at least three facilities to capture carbon dioxide from natural gas-fueled power generating facilities; and
- identify any barriers to the commercial development of carbon capture technologies.

The Department is reviewing the proposed language and we look forward to working with the Committee.

#### CONCLUSION

Thank you again for the opportunity to testify today on behalf of DOE. The Department appreciates the ongoing bipartisan efforts to address our nation's energy challenges, and looks forward to working with the Committee on the legislation on today's agenda and any future legislation.

## CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the changes in existing law made by the original bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

**ENERGY POLICY ACT OF 2005**

Public Law 109–58, as Amended

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**SECTION 1. SHORT TITLE; TABLE OF CONTENTS**

\* \* \* \* \*

**TITLE IX—RESEARCH AND DEVELOPMENT**

\* \* \* \* \*

**Subtitle F—Fossil Energy**

Sec. 961. Fossil energy.  
 Sec. 962. Coal and related technologies program.  
 Sec. 963. Carbon capture research and development program.  
 Sec. 964. Research and development for coal mining technologies.  
 Sec. 965. Oil and gas research programs.  
 Sec. 966. Low-volume oil and gas reservoir research program.  
 Sec. 967. Complex well technology testing facility.  
 Sec. 968. Methane hydrate research.  
 Sec. 969. *Natural gas carbon capture research, development, and demonstration program*

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**TITLE IX—RESEARCH AND DEVELOPMENT**

\* \* \* \* \*

**Subtitle F—Fossil Energy**

\* \* \* \* \*

**SEC. 969. NATURAL GAS CARBON CAPTURE RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM.**(a) *DEFINITIONS.—In this section:*

(1) *Commercially viable technology.*—The term “commercially viable technology” means technology that has the potential to be successfully deployed and compete effectively in the marketplace at an appropriate size or scale.

(2) *ELIGIBLE ENTITY.*—The term “eligible entity” means an entity that documents to the satisfaction of the Secretary that—

(A) the entity is financially responsible; and

(B) the entity will provide sufficient information to the Secretary to enable the Secretary to ensure that any funds awarded to the entity are spent efficiently and effectively.

- (3) *NATURAL GAS.*—The term “natural gas” means any fuel consisting in whole or in part of—
- (A) natural gas;
  - (B) liquid petroleum gas;
  - (C) synthetic gas derived from petroleum or natural gas liquids;
  - (D) any mixture of natural gas and synthetic gas; or
  - (E) biomethane.
- (4) *NATURAL GAS-GENERATED POWER.*—The term “natural gas-generated power” means—
- (A) electric energy generated through the use of natural gas; and
  - (B) the generation of hydrogen from natural gas.
- (5) *PROGRAM.*—The term “program” means the program established under subsection (b)(1).
- (6) *QUALIFYING ELECTRIC GENERATION FACILITY.*—
- (A) *IN GENERAL.*—The term “qualifying electric generation facility” means a facility that generates electric energy using natural gas as the fuel.
  - (B) *INCLUSIONS.*—The term “qualifying electric generation facility” includes a new or existing—
    - (i) simple cycle plant;
    - (ii) combined cycle plant;
    - (iii) combined heat and power plant;
    - (iv) steam methane reformer that produces hydrogen from natural gas for use in the production of electric energy; or
    - (v) facility that uses natural gas as the fuel for generating electric energy.
- (7) *QUALIFYING TECHNOLOGY.*—The term “qualifying technology” means any commercially viable technology, as determined by the Secretary, for the capture of carbon dioxide produced during the generation of natural gas-generated power.
- (b) *ESTABLISHMENT OF RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM.*—
- (1) *IN GENERAL.*—The Secretary shall establish a program of research, development, and demonstration of qualifying technologies for use by qualifying electric generation facilities.
  - (2) *OBJECTIVES.*—The objectives of the program shall be—
    - (A) to identify opportunities to accelerate the development and commercial applications of qualifying technologies to reduce the quantity of carbon dioxide emissions released from qualifying electric generation facilities;
    - (B) to enter into cooperative agreements with eligible entities to expedite and carry out demonstration projects (including pilot projects) for qualifying technologies for use by qualifying electric generation facilities to demonstrate the technical and commercial viability of those qualifying technologies for commercial deployment; and
    - (C) to identify any barriers to the commercial deployment of any qualifying technologies under development.
  - (3) *PARTICIPATION OF NATIONAL LABORATORIES, UNIVERSITIES, AND RESEARCH FACILITIES.*—The program may include the participation of—
    - (A) National Laboratories;

- (B) institutions of higher education;
  - (C) research facilities; or
  - (D) other appropriate entities.
- (4) COOPERATIVE AGREEMENTS.—
- (A) IN GENERAL.—In carrying out the program, the Secretary may enter into cooperative agreements with eligible entities to carry out research, development, and demonstration projects for qualifying technologies.
  - (B) APPLICATIONS; PROPOSALS.—An eligible entity desiring to enter into a cooperative agreement under this paragraph shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary may require.
- (c) CARBON CAPTURE FACILITIES DEMONSTRATION PROGRAM.—
- (1) ESTABLISHMENT.—As part of the program, the Secretary shall establish a demonstration program under which the Secretary shall enter into cooperative agreements with eligible entities for demonstration or pilot projects to license, permit, construct, and operate, by not later than September 30, 2025, 3 or more facilities to capture carbon dioxide from qualifying electric generation facilities.
  - (2) GOALS.—Each demonstration or pilot project under the demonstration program shall—
    - (A) be designed to further the development of qualifying technologies that may be used by a qualifying electric generation facility;
    - (B) be financed in part by the private sector;
    - (C) if necessary, secure agreements for the off take of the majority of the carbon dioxide emissions captured by qualifying technologies during the project; and
    - (D) support energy production in the United States.
  - (3) REQUEST FOR APPLICATIONS.—Not later than 120 days after the date of enactment of this Act, the Secretary shall solicit applications for cooperative agreements for projects—
    - (A) to demonstrate qualifying technologies at 3 or more qualifying electric generation facilities;
    - (B) to obtain any license or permit from a State or Federal agency that is necessary for the construction of 3 or more facilities to capture carbon dioxide from a qualifying electric generation facility; and
    - (C) to construct and operate 3 or more facilities to capture carbon dioxide from a qualifying electric generation facility.
  - (4) REVIEW OF APPLICATIONS.—In reviewing applications submitted under paragraph (3), the Secretary, to the maximum extent practicable, shall—
    - (A) ensure a broad geographic distribution of project sites;
    - (B) ensure that a broad selection of qualifying electric generation facilities are represented;
    - (C) ensure that a broad selection of qualifying technologies are represented; and
    - (D) leverage existing—
      - (i) public-private partnerships; and
      - (ii) Federal resources.

(d) *COST SHARING.*—In carrying out this section, the Secretary shall require cost sharing in accordance with section 988.

(e) *FEE TITLE.*—The Secretary may vest fee title or other property interests acquired under cooperative agreements entered into under subsection (b)(4) in any entity, including the United States.

(f) *REPORT.*—Not later than 180 days after the date on which the Secretary solicits applications under subsection (c)(3), and annually thereafter, the Secretary shall submit to the appropriate committees of jurisdiction of the Senate and the House of Representatives a report that—

(1) with respect to subsections (b) and (c), includes recommendations for any legislative changes needed to improve the implementation of those subsections;

(2) with respect to subsection (b), includes—

(A) a detailed description of how applications for cooperative agreements under paragraph (4) of that subsection will be solicited and evaluated, including—

(i) a list of any activities carried out by the Secretary to solicit or evaluate applications; and

(ii) a process for ensuring that any projects carried out under a cooperative agreement are designed to result in the development or demonstration of qualifying technologies;

(B) a detailed list of technical milestones for each qualifying technology pursued under that subsection;

(C) a detailed description of how each project carried out pursuant to a cooperative agreement under paragraph (4) of that subsection will meet the milestones for carbon capture described in the September 2017 report of the Office of Fossil Energy entitled “Accelerating Breakthrough Innovation in Carbon Capture, Utilization, and Storage”; and

(D) an affirmation from the Secretary that all recipients of funding under that subsection are eligible entities; and

(3) with respect to the demonstration program established under subsection (c), includes—

(A) an estimate of the cost of licensing, permitting, constructing, and operating each carbon capture facility expected to be constructed under that demonstration program;

(B) a schedule for—

(i) obtaining any license or permit necessary to construct and operate each carbon capture facility expected to be constructed; and

(ii) constructing each facility; and

(C) an estimate of any financial assistance, compensation, or incentives proposed to be paid by the host State, Indian Tribe, or local government with respect to each facility.

(g) *AUTHORIZATION OF APPROPRIATIONS.*—There is authorized to be appropriated to the Secretary to carry out this section \$50,000,000 for each of fiscal years 2020 through 2025.

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