

Calendar No. 221

116TH CONGRESS
1ST SESSION

S. 1685

[Report No. 116–118]

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.

IN THE SENATE OF THE UNITED STATES

MAY 23 (legislative day, MAY 22), 2019

Mr. CORNYN (for himself, Mr. CASSIDY, Mr. COONS, Ms. SINEMA, and Mr. GARDNER) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

SEPTEMBER 25, 2019

Reported by Ms. MURKOWSKI, with an amendment

[Strike out all after the enacting clause and insert the part printed in *italie*]

A BILL

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.

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

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Launching Energy Ad-
3 vancement and Development through Innovations for Nat-
4 ural Gas Act of 2019”.

5 **SEC. 2. NATURAL GAS CARBON CAPTURE RESEARCH, DE-**
6 **VELOPMENT, AND DEMONSTRATION PRO-**
7 **GRAM.**

8 (a) **IN GENERAL.**—Subtitle F of title IX of the En-
9 ergy Policy Act of 2005 (42 U.S.C. 16291 et seq.) is
10 amended by adding at the end the following:

11 **“SEC. 969. NATURAL GAS CARBON CAPTURE RESEARCH,**
12 **DEVELOPMENT, AND DEMONSTRATION PRO-**
13 **GRAM.**

14 “(a) **DEFINITIONS.**—In this section:

15 “(1) **ELIGIBLE ENTITY.**—The term ‘eligible en-
16 tity’ means an entity that documents to the satisfac-
17 tion of the Secretary that—

18 “(A) the entity is financially responsible;
19 and

20 “(B) the entity will provide sufficient in-
21 formation to the Secretary to enable the Sec-
22 retary to ensure that any funds awarded to the
23 entity are spent efficiently and effectively.

24 “(2) **NATURAL GAS.**—The term ‘natural gas’
25 means any fuel consisting in whole or in part of—

26 “(A) natural gas;

1 “(B) liquid petroleum gas;

2 “(C) synthetic gas derived from petroleum
3 or natural gas liquids;

4 “(D) any mixture of natural gas and syn-
5 thetic gas; or

6 “(E) any product derived directly from
7 natural gas, including hydrogen.

8 “(3) NATURAL GAS-GENERATED POWER.—The
9 term ‘natural gas-generated power’ means electric
10 energy generated through the use of natural gas.

11 “(4) PROGRAM.—The term ‘program’ means
12 the program established under subsection (b)(1).

13 “(5) QUALIFYING ELECTRIC GENERATION FA-
14 CILITY.—

15 “(A) IN GENERAL.—The term ‘qualifying
16 electric generation facility’ means a facility that
17 generates electric energy using natural gas as
18 the fuel.

19 “(B) INCLUSIONS.—The term ‘qualifying
20 electric generation facility’ includes—

21 “(i) a traditional natural gas plant;

22 “(ii) a simple cycle plant;

23 “(iii) a combined cycle plant;

24 “(iv) a combined heat and power
25 plant; or

1 “(v) any other facility that uses nat-
 2 ural gas as the fuel for generating electric
 3 energy.

4 “(6) QUALIFYING TECHNOLOGY.—The term
 5 ‘qualifying technology’ means any commercially via-
 6 ble technology, as determined by the Secretary, for
 7 the capture of carbon dioxide produced during the
 8 generation of natural gas-generated power.

9 “(b) ESTABLISHMENT OF RESEARCH, DEVELOP-
 10 MENT, AND DEMONSTRATION PROGRAM.—

11 “(1) IN GENERAL.—The Secretary shall estab-
 12 lish a program of research, development, and dem-
 13 onstration of qualifying technologies for use by
 14 qualifying electric generation facilities.

15 “(2) OBJECTIVES.—The objectives of the pro-
 16 gram shall be—

17 “(A) to identify opportunities to accelerate
 18 the development and commercial applications of
 19 qualifying technologies to reduce the quantity of
 20 carbon dioxide emissions released from quali-
 21 fying electric generation facilities;

22 “(B) to enter into cooperative agreements
 23 with eligible entities to expedite and carry out
 24 demonstration projects (including pilot projects)
 25 for qualifying technologies for use by qualifying

1 electric generation facilities to demonstrate the
2 technical feasibility and economic potential of
3 those qualifying technologies for commercial de-
4 ployment; and

5 “(C) to identify any barriers to the com-
6 mercial deployment of any qualifying tech-
7 nologies under development.

8 “(3) PARTICIPATION OF NATIONAL LABORA-
9 TORIES, UNIVERSITIES, AND RESEARCH FACILI-
10 TIES.—The program may include the participation
11 of—

12 “(A) National Laboratories;

13 “(B) institutions of higher education;

14 “(C) research facilities; or

15 “(D) other appropriate entities.

16 “(4) COOPERATIVE AGREEMENTS.—

17 “(A) IN GENERAL.—In carrying out the
18 program, the Secretary may enter into coopera-
19 tive agreements with eligible entities to carry
20 out research, development, and demonstration
21 projects for qualifying technologies.

22 “(B) APPLICATIONS; PROPOSALS.—An eli-
23 gible entity desiring to enter into a cooperative
24 agreement under this paragraph shall submit to
25 the Secretary an application at such time, in

1 such manner, and containing such information
2 as the Secretary may require.

3 “(c) CARBON CAPTURE FACILITIES DEMONSTRATION
4 PROGRAM.—

5 “(1) ESTABLISHMENT.—As part of the pro-
6 gram, the Secretary shall establish a demonstration
7 program under which the Secretary shall enter into
8 cooperative agreements with eligible entities for dem-
9 onstration or pilot projects to license, permit, con-
10 struct, and operate, by not later than September 30,
11 2025, three or more facilities to capture carbon diox-
12 ide from qualifying electric generation facilities.

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

15 “(A) be designed to further the develop-
16 ment of qualifying technologies that may be
17 used by a qualifying electric generation facility;

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

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

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

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

5 “(A) to demonstrate qualifying tech-
6 nologies at three or more qualifying electric
7 generation facilities;

8 “(B) to obtain any license or permit from
9 a State or Federal agency that is necessary for
10 the construction of three or more facilities to
11 capture carbon dioxide from a qualifying elec-
12 tric generation facility; and

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

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

20 “(A) ensure a broad geographic distribu-
21 tion of project sites;

22 “(B) ensure that a broad selection of
23 qualifying electric generation facilities are rep-
24 resented;

1 “(C) ensure that a broad selection of quali-
2 fying technologies are represented;

3 “(D) require information and knowledge
4 gained by each participant in the demonstration
5 program to be transferred and shared among—

6 “(i) all participants in the demonstra-
7 tion program; and

8 “(ii) other interested parties; and

9 “(E) leverage existing—

10 “(i) public-private partnerships; and

11 “(ii) Federal resources.

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

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

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

1 “(1) with respect to subsections (b) and (c), in-
2 cludes recommendations for any legislative changes
3 needed to improve the implementation of those sub-
4 sections;

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

6 “(A) a detailed description of how applica-
7 tions for cooperative agreements under para-
8 graph (4) of that subsection will be solicited
9 and evaluated, including—

10 “(i) a list of any activities carried out
11 by the Secretary to solicit or evaluate ap-
12 plications; and

13 “(ii) a process for ensuring that any
14 projects carried out under a cooperative
15 agreement are designed to result in the de-
16 velopment or demonstration of qualifying
17 technologies;

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

21 “(C) a detailed description of how each
22 project carried out pursuant to a cooperative
23 agreement under paragraph (4) of that sub-
24 section will meet the milestones for carbon cap-
25 ture described in the September 2017 report of

1 the Office of Fossil Energy entitled ‘Accel-
 2 erating Breakthrough Innovation in Carbon
 3 Capture, Utilization, and Storage’; and

4 “(D) an affirmation from the Secretary
 5 that all recipients of funding under that sub-
 6 section are eligible entities; and

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

9 “(A) an estimate of the cost of licensing,
 10 permitting, constructing, and operating each
 11 carbon capture facility expected to be con-
 12 structed under that demonstration program;

13 “(B) a schedule for—

14 “(i) obtaining any license or permit
 15 necessary to construct and operate each
 16 carbon capture facility expected to be con-
 17 structed; and

18 “(ii) constructing each facility; and

19 “(C) an estimate of any financial assist-
 20 ance, compensation, or incentives proposed to
 21 be paid by the host State, Indian Tribe, or local
 22 government with respect to each facility.

23 “(g) FUNDING.—For each of fiscal years 2020
 24 through 2025, out of any amounts appropriated to the De-
 25 partment to carry out fossil energy research and develop-

1 ment activities and not otherwise obligated, the Secretary
 2 may use to carry out this section not more than
 3 \$50,000,000.”.

4 (b) CLERICAL AMENDMENT.—The table of contents
 5 for the Energy Policy Act of 2005 (Public Law 109–58;
 6 119 Stat. 600) is amended by inserting after the item re-
 7 lating to section 968 the following:

“Sec. 969. Natural gas carbon capture research, development, and demonstra-
 tion program.”.

8 **SECTION 1. SHORT TITLE.**

9 *This Act may be cited as the “Launching Energy Ad-
 10 vancement and Development through Innovations for Nat-
 11 ural Gas Act of 2019”.*

12 **SEC. 2. NATURAL GAS CARBON CAPTURE RESEARCH, DE-
 13 VELOPMENT, AND DEMONSTRATION PRO-
 14 GRAM.**

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 16 Policy Act of 2005 (42 U.S.C. 16291 et seq.) is amended
 17 by adding at the end the following:

18 **“SEC. 969. NATURAL GAS CARBON CAPTURE RESEARCH, DE-
 19 VELOPMENT, AND DEMONSTRATION PRO-
 20 GRAM.**

21 *“(a) DEFINITIONS.*—*In this section:*

22 *“(1) COMMERCIALLY VIABLE TECHNOLOGY.*—*The*
 23 *term ‘commercially viable technology’ means tech-*
 24 *nology that has the potential to be successfully de-*

1 *ployed and compete effectively in the marketplace at*
2 *an appropriate size or scale.*

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

6 “(A) *the entity is financially responsible;*
7 *and*

8 “(B) *the entity will provide sufficient infor-*
9 *mation to the Secretary to enable the Secretary*
10 *to ensure that any funds awarded to the entity*
11 *are spent efficiently and effectively.*

12 “(3) *NATURAL GAS.*—*The term ‘natural gas’*
13 *means any fuel consisting in whole or in part of—*

14 “(A) *natural gas;*

15 “(B) *liquid petroleum gas;*

16 “(C) *synthetic gas derived from petroleum*
17 *or natural gas liquids;*

18 “(D) *any mixture of natural gas and syn-*
19 *thetic gas; or*

20 “(E) *biomethane.*

21 “(4) *NATURAL GAS-GENERATED POWER.*—*The*
22 *term ‘natural gas-generated power’ means—*

23 “(A) *electric energy generated through the*
24 *use of natural gas; and*

1 “(B) *the generation of hydrogen from nat-*
2 *ural gas.*

3 “(5) *PROGRAM.—The term ‘program’ means the*
4 *program established under subsection (b)(1).*

5 “(6) *QUALIFYING ELECTRIC GENERATION FACIL-*
6 *ITY.—*

7 “(A) *IN GENERAL.—The term ‘qualifying*
8 *electric generation facility’ means a facility that*
9 *generates electric energy using natural gas as the*
10 *fuel.*

11 “(B) *INCLUSIONS.—The term ‘qualifying*
12 *electric generation facility’ includes a new or ex-*
13 *isting—*

14 “(i) *simple cycle plant;*

15 “(ii) *combined cycle plant;*

16 “(iii) *combined heat and power plant;*

17 “(iv) *steam methane reformer that pro-*
18 *duces hydrogen from natural gas for use in*
19 *the production of electric energy; or*

20 “(v) *facility that uses natural gas as*
21 *the fuel for generating electric energy.*

22 “(7) *QUALIFYING TECHNOLOGY.—The term*
23 *‘qualifying technology’ means any commercially via-*
24 *ble technology, as determined by the Secretary, for the*

1 *capture of carbon dioxide produced during the genera-*
2 *tion of natural gas-generated power.*

3 “(b) *ESTABLISHMENT OF RESEARCH, DEVELOPMENT,*
4 *AND DEMONSTRATION PROGRAM.—*

5 “(1) *IN GENERAL.—The Secretary shall establish*
6 *a program of research, development, and demonstra-*
7 *tion of qualifying technologies for use by qualifying*
8 *electric generation facilities.*

9 “(2) *OBJECTIVES.—The objectives of the program*
10 *shall be—*

11 “(A) *to identify opportunities to accelerate*
12 *the development and commercial applications of*
13 *qualifying technologies to reduce the quantity of*
14 *carbon dioxide emissions released from quali-*
15 *fying electric generation facilities;*

16 “(B) *to enter into cooperative agreements*
17 *with eligible entities to expedite and carry out*
18 *demonstration projects (including pilot projects)*
19 *for qualifying technologies for use by qualifying*
20 *electric generation facilities to demonstrate the*
21 *technical and commercial viability of those*
22 *qualifying technologies for commercial deploy-*
23 *ment; and*

1 “(C) to identify any barriers to the com-
2 mercial deployment of any qualifying tech-
3 nologies under development.

4 “(3) *PARTICIPATION OF NATIONAL LABORA-*
5 *TORIES, UNIVERSITIES, AND RESEARCH FACILITIES.—*

6 *The program may include the participation of—*

7 “(A) *National Laboratories;*

8 “(B) *institutions of higher education;*

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10 “(D) *other appropriate entities.*

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19 *agreement under this paragraph shall submit to*
20 *the Secretary an application at such time, in*
21 *such manner, and containing such information*
22 *as the Secretary may require.*

23 “(c) *CARBON CAPTURE FACILITIES DEMONSTRATION*
24 *PROGRAM.—*

1 “(1) *ESTABLISHMENT.*—As part of the program,
2 the Secretary shall establish a demonstration program
3 under which the Secretary shall enter into cooperative
4 agreements with eligible entities for demonstration or
5 pilot projects to license, permit, construct, and oper-
6 ate, by not later than September 30, 2025, 3 or more
7 facilities to capture carbon dioxide from qualifying
8 electric generation facilities.

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

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

14 “(B) be financed in part by the private sec-
15 tor;

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

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

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

1 “(A) to demonstrate qualifying technologies
2 at 3 or more qualifying electric generation facili-
3 ties;

4 “(B) to obtain any license or permit from
5 a State or Federal agency that is necessary for
6 the construction of 3 or more facilities to capture
7 carbon dioxide from a qualifying electric genera-
8 tion facility; and

9 “(C) to construct and operate 3 or more fa-
10 cilities to capture carbon dioxide from a quali-
11 fying electric generation facility.

12 “(4) REVIEW OF APPLICATIONS.—In reviewing
13 applications submitted under paragraph (3), the Sec-
14 retary, to the maximum extent practicable, shall—

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

17 “(B) ensure that a broad selection of quali-
18 fying electric generation facilities are rep-
19 resented;

20 “(C) ensure that a broad selection of quali-
21 fying technologies are represented; and

22 “(D) leverage existing—

23 “(i) public-private partnerships; and

24 “(ii) Federal resources.

1 “(d) *COST SHARING.*—*In carrying out this section, the*
2 *Secretary shall require cost sharing in accordance with sec-*
3 *tion 988.*

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

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

13 “(1) *with respect to subsections (b) and (c), in-*
14 *cludes recommendations for any legislative changes*
15 *needed to improve the implementation of those sub-*
16 *sections;*

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

18 “(A) *a detailed description of how applica-*
19 *tions for cooperative agreements under para-*
20 *graph (4) of that subsection will be solicited and*
21 *evaluated, including—*

22 “(i) *a list of any activities carried out*
23 *by the Secretary to solicit or evaluate appli-*
24 *cations; and*

1 “(ii) a process for ensuring that any
2 projects carried out under a cooperative
3 agreement are designed to result in the de-
4 velopment or demonstration of qualifying
5 technologies;

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

9 “(C) a detailed description of how each
10 project carried out pursuant to a cooperative
11 agreement under paragraph (4) of that sub-
12 section will meet the milestones for carbon cap-
13 ture described in the September 2017 report of
14 the Office of Fossil Energy entitled ‘Accelerating
15 Breakthrough Innovation in Carbon Capture,
16 Utilization, and Storage’; and

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

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

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

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