

116TH CONGRESS  
1ST SESSION

# S. 2300

To amend the Energy Independence and Security Act of 2007 to establish a program to incentivize innovation and to enhance the industrial competitiveness of the United States by developing technologies to reduce emissions of nonpower industrial sectors, and for other purposes.

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## IN THE SENATE OF THE UNITED STATES

JULY 25, 2019

Mr. WHITEHOUSE (for himself, Mrs. CAPITO, Mr. MANCHIN, Mr. BRAUN, Mr. BOOKER, and Ms. COLLINS) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

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## A BILL

To amend the Energy Independence and Security Act of 2007 to establish a program to incentivize innovation and to enhance the industrial competitiveness of the United States by developing technologies to reduce emissions of nonpower industrial sectors, 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.**

4 This Act may be cited as the “Clean Industrial Tech-  
5 nology Act of 2019” or the “CIT Act of 2019”.

1 **SEC. 2. PURPOSE.**

2       The purpose of this Act and the amendments made  
3 by this Act is to encourage the development and evaluation  
4 of innovative technologies aimed at increasing—

5           (1) the technological and economic competitive-  
6 ness of industry and manufacturing in the United  
7 States; and

8           (2) the emissions reduction of nonpower indus-  
9 trial sectors.

10 **SEC. 3. INDUSTRIAL EMISSIONS REDUCTION TECHNOLOGY**  
11 **DEVELOPMENT PROGRAM.**

12       (a) IN GENERAL.—The Energy Independence and  
13 Security Act of 2007 is amended by inserting after section  
14 453 (42 U.S.C. 17112) the following:

15 **“SEC. 454. INDUSTRIAL EMISSIONS REDUCTION TECH-**  
16 **NOLOGY DEVELOPMENT PROGRAM.**

17       “(a) DEFINITIONS.—In this section:

18           “(1) DIRECTOR.—The term ‘Director’ means  
19 the Director of the Office of Science and Technology  
20 Policy.

21           “(2) ELIGIBLE ENTITY.—The term ‘eligible en-  
22 tity’ means—

23               “(A) a scientist or other individual with  
24 knowledge and expertise in emissions reduction;

25               “(B) an institution of higher education;

26               “(C) a nongovernmental organization;

1 “(D) a National Laboratory;

2 “(E) a private entity; and

3 “(F) a partnership or consortium of two or  
4 more entities described in subparagraphs (B)  
5 through (E).

6 “(3) EMISSIONS REDUCTION.—

7 “(A) IN GENERAL.—The term ‘emissions  
8 reduction’ means the reduction, to the max-  
9 imum extent practicable, of net nonwater green-  
10 house gas emissions to the atmosphere by en-  
11 ergy services and industrial processes.

12 “(B) EXCLUSION.—The term ‘emissions  
13 reduction’ does not include the elimination of  
14 carbon embodied in the principal products of in-  
15 dustrial manufacturing.

16 “(4) INSTITUTION OF HIGHER EDUCATION.—  
17 The term ‘institution of higher education’ has the  
18 meaning given the term in section 101 of the Higher  
19 Education Act of 1965 (20 U.S.C. 1001).

20 “(5) PROGRAM.—The term ‘program’ means  
21 the program established under subsection (b)(1).

22 “(b) INDUSTRIAL EMISSIONS REDUCTION TECH-  
23 NOLOGY DEVELOPMENT PROGRAM.—

24 “(1) IN GENERAL.—Not later than 1 year after  
25 the date of enactment of the CIT Act of 2019, the

1 Secretary, in coordination with the Director and in  
2 consultation with the heads of relevant Federal  
3 agencies, National Laboratories, industry, and insti-  
4 tutions of higher education, shall establish a cross-  
5 cutting industrial emissions reduction technology de-  
6 velopment program of research, development, dem-  
7 onstration, and commercial application to further  
8 the development and commercialization of innovative  
9 technologies that—

10 “(A) increase the technological and eco-  
11 nomic competitiveness of industry and manufac-  
12 turing in the United States; and

13 “(B) achieve emissions reduction in non-  
14 power industrial sectors.

15 “(2) COORDINATION.—In carrying out the pro-  
16 gram, the Secretary shall—

17 “(A) coordinate with each relevant office in  
18 the Department and any other Federal agency;

19 “(B) coordinate and collaborate with the  
20 Industrial Technology Innovation Advisory  
21 Committee established under section 455; and

22 “(C) coordinate with the energy-intensive  
23 industries program established under section  
24 452.

1           “(3) LEVERAGE OF EXISTING RESOURCES.—In  
2 carrying out the program, the Secretary shall lever-  
3 age, to the maximum extent practicable—

4           “(A) existing resources and programs of  
5 the Department and other relevant Federal  
6 agencies; and

7           “(B) public-private partnerships.

8           “(c) FOCUS AREAS.—The program shall focus on—

9           “(1) industrial production processes, including  
10 technologies and processes that—

11           “(A) achieve emissions reduction in high-  
12 emissions industrial materials production proc-  
13 esses, including production processes for iron,  
14 steel, steel mill products, aluminum, cement,  
15 glass, pulp, paper, and industrial ceramics;

16           “(B) achieve emissions reduction in  
17 medium- and high-temperature heat generation,  
18 including—

19           “(i) through electrification of heating  
20 processes;

21           “(ii) through renewable heat genera-  
22 tion technology;

23           “(iii) through combined heat and  
24 power; and

1 “(iv) by switching to alternative fuels,  
2 including hydrogen;

3 “(C) achieve emissions reduction in chem-  
4 ical production processes;

5 “(D) leverage smart manufacturing tech-  
6 nologies and principles, digital manufacturing  
7 technologies, and advanced data analytics to de-  
8 velop advanced technologies and practices in in-  
9 formation, automation, monitoring, computa-  
10 tion, sensing, modeling, and networking that—

11 “(i) simulate manufacturing produc-  
12 tion lines;

13 “(ii) monitor and communicate pro-  
14 duction line status;

15 “(iii) manage and optimize energy  
16 productivity and cost throughout produc-  
17 tion; and

18 “(iv) model, simulate, and optimize  
19 the energy efficiency of manufacturing  
20 processes;

21 “(E) leverage the principles of sustainable  
22 manufacturing to minimize the negative envi-  
23 ronmental impacts of manufacturing while con-  
24 serving energy and resources, including—

1 “(i) by designing products that enable  
2 reuse, refurbishment, remanufacturing,  
3 and recycling;

4 “(ii) by minimizing waste from indus-  
5 trial processes; and

6 “(iii) by reducing resource intensity;  
7 and

8 “(F) increase the energy efficiency of in-  
9 dustrial processes;

10 “(2) alternative materials that produce fewer  
11 emissions during production and result in fewer  
12 emissions during use, including—

13 “(A) innovative building materials;

14 “(B) high-performance lightweight mate-  
15 rials; and

16 “(C) substitutions for critical materials  
17 and minerals;

18 “(3) development of net-zero emission liquid  
19 and gaseous fuels;

20 “(4) emissions reduction in shipping, aviation,  
21 and long distance transportation, including through  
22 the use of alternative fuels;

23 “(5) carbon capture technologies for industrial  
24 processes;

1 “(6) high-performance computing to develop ad-  
 2 vanced materials and manufacturing processes con-  
 3 tributing to the focus areas described in paragraphs  
 4 (1) through (5), including—

5 “(A) modeling, simulation, and optimiza-  
 6 tion of the design of energy efficient and sus-  
 7 tainable products; and

8 “(B) the use of digital prototyping and ad-  
 9 ditive manufacturing to enhance product de-  
 10 sign; and

11 “(7) other technologies that achieve net-zero  
 12 emissions in nonpower industrial sectors, as deter-  
 13 mined by the Secretary, in coordination with the Di-  
 14 rector.

15 “(d) GRANTS, CONTRACTS, COOPERATIVE AGREE-  
 16 MENTS, AND DEMONSTRATION PROJECTS.—

17 “(1) GRANTS.—In carrying out the program,  
 18 the Secretary shall award grants on a competitive  
 19 basis to eligible entities for projects that the Sec-  
 20 retary determines would best achieve the goals of the  
 21 program.

22 “(2) CONTRACTS AND COOPERATIVE AGREE-  
 23 MENTS.—In carrying out the program, the Secretary  
 24 may enter into contracts and cooperative agreements  
 25 with eligible entities and Federal agencies for



1 projects that the Secretary determines would further  
2 the purposes of the program.

3 “(3) DEMONSTRATION PROJECTS.—In sup-  
4 porting technologies developed under this section,  
5 the Secretary shall fund demonstration projects that  
6 test and validate technologies described in subsection  
7 (c).

8 “(4) APPLICATION.—An entity seeking funding  
9 or a contract or agreement under this subsection  
10 shall submit to the Secretary an application at such  
11 time, in such manner, and containing such informa-  
12 tion as the Secretary may require.

13 “(5) COST SHARING.—In awarding funds under  
14 this section, the Secretary shall require cost sharing  
15 in accordance with section 988 of the Energy Policy  
16 Act of 2005 (42 U.S.C. 16352).

17 “(e) AUTHORIZATION OF APPROPRIATIONS.—

18 “(1) IN GENERAL.—There are authorized to be  
19 appropriated to the Secretary such sums as are nec-  
20 essary to carry out this section for each fiscal year  
21 during which the program is in effect.

22 “(2) DEMONSTRATION PROJECTS.—Subject to  
23 the amount appropriated under paragraph (1), not  
24 more than \$650,000,000 shall be used to carry out  
25 demonstration projects under subsection (d)(3).”.

1 (b) TECHNICAL AMENDMENT.—The table of contents  
 2 of the Energy Independence and Security Act of 2007  
 3 (Public Law 110–140; 121 Stat. 1494) is amended by in-  
 4 serting after the item relating to section 453 the following:

“Sec. 454. Industrial emissions reduction technology development program.”.

5 **SEC. 4. INDUSTRIAL TECHNOLOGY INNOVATION ADVISORY**  
 6 **COMMITTEE.**

7 (a) IN GENERAL.—The Energy Independence and  
 8 Security Act of 2007 is amended by inserting after section  
 9 454 (as added by section 3(a)) the following:

10 **“SEC. 455. INDUSTRIAL TECHNOLOGY INNOVATION ADVI-**  
 11 **SORY COMMITTEE.**

12 “(a) DEFINITIONS.—In this section:

13 “(1) COMMITTEE.—The term ‘Committee’  
 14 means the Industrial Technology Innovation Advi-  
 15 sory Committee established under subsection (b).

16 “(2) DIRECTOR.—The term ‘Director’ means  
 17 the Director of the Office of Science and Technology  
 18 Policy.

19 “(3) EMISSIONS REDUCTION.—The term ‘emis-  
 20 sions reduction’ has the meaning given the term in  
 21 section 454(a).

22 “(4) PROGRAM.—The term ‘program’ means  
 23 the industrial emissions reduction technology devel-  
 24 opment program established under section  
 25 454(b)(1).

1       “(b) ESTABLISHMENT.—Not later than 180 days  
2 after the date of enactment of the CIT Act of 2019, the  
3 Secretary, in coordination with the Director, shall estab-  
4 lish an advisory committee, to be known as the ‘Industrial  
5 Technology Innovation Advisory Committee’.

6       “(c) MEMBERSHIP.—

7               “(1) APPOINTMENT.—The Committee shall be  
8 comprised of not fewer than 14 members, who shall  
9 be appointed by the Secretary, in coordination with  
10 the Director.

11              “(2) REPRESENTATION.—Members appointed  
12 pursuant to paragraph (1) shall include—

13                      “(A) not less than 1 representative of each  
14 relevant Federal agency, as determined by the  
15 Secretary;

16                      “(B) not less than 2 representatives of  
17 labor groups;

18                      “(C) not less than 3 representatives of the  
19 research community, which shall include aca-  
20 demia and National Laboratories;

21                      “(D) not less than 2 representatives of  
22 nongovernmental organizations;

23                      “(E) not less than 6 representatives of in-  
24 dustry, the collective expertise of which shall

1 cover every focus area described in section  
2 454(c); and

3 “(F) any other individual whom the Sec-  
4 retary, in coordination with the Director, deter-  
5 mines to be necessary to ensure that the Com-  
6 mittee is comprised of a diverse group of rep-  
7 resentatives of industry, academia, independent  
8 researchers, and public and private entities.

9 “(3) CHAIR.—The Secretary shall designate a  
10 member of the Committee to serve as Chair.

11 “(d) DUTIES.—

12 “(1) IN GENERAL.—The Committee shall—

13 “(A) in consultation with the Secretary  
14 and the Director, develop the missions and  
15 goals of the program, which shall be consistent  
16 with the purposes of the program described in  
17 section 454(b)(1); and

18 “(B) advise the Secretary and the Director  
19 with respect to the program—

20 “(i) by identifying and evaluating any  
21 technologies being developed by the private  
22 sector relating to the focus areas described  
23 in section 454(c);

24 “(ii) by identifying technology gaps in  
25 the private sector in those focus areas, and

1 making recommendations to address those  
2 gaps;

3 “(iii) by surveying and analyzing fac-  
4 tors that prevent the adoption of emissions  
5 reduction technologies by the private sec-  
6 tor; and

7 “(iv) by recommending technology  
8 screening criteria for technology developed  
9 under the program to encourage adoption  
10 of the technology by the private sector; and

11 “(C) develop the roadmap described in  
12 paragraph (2).

13 “(2) EMISSIONS REDUCTION ROADMAP.—

14 “(A) PURPOSE.—The purpose of the road-  
15 map developed under paragraph (1)(C) is to  
16 achieve the goals of the program in the focus  
17 areas described in section 454(c).

18 “(B) CONTENTS.—The roadmap developed  
19 under paragraph (1)(C) shall—

20 “(i) specify near-term and long-term  
21 qualitative and quantitative objectives re-  
22 lating to each focus area described in sec-  
23 tion 454(c), including research, develop-  
24 ment, demonstration, and commercial ap-  
25 plication objectives;

1 “(ii) specify the anticipated timeframe  
2 for achieving the objectives specified under  
3 clause (i);

4 “(iii) include plans for developing  
5 emissions reduction technologies that are  
6 globally cost-competitive; and

7 “(iv) identify the appropriate role for  
8 investment by the Federal Government, in  
9 coordination with the private sector, to  
10 achieve the objectives specified under  
11 clause (i).

12 “(e) MEETINGS.—

13 “(1) FREQUENCY.—The Committee shall meet  
14 not less frequently than 2 times per year, at the call  
15 of the Chair.

16 “(2) INITIAL MEETING.—Not later than 30  
17 days after the date on which the members are ap-  
18 pointed under subsection (b), the Committee shall  
19 hold its first meeting.

20 “(f) COMMITTEE REPORT.—

21 “(1) IN GENERAL.—Not later than 2 years  
22 after the date of enactment of the CIT Act of 2019,  
23 and not less frequently than once every 3 years  
24 thereafter, the Committee shall submit to the Sec-

1       retary a report on the progress of achieving the pur-  
2       poses of the program.

3               “(2) CONTENTS.—The report under paragraph  
4       (1) shall include—

5                       “(A) a description of any technology inno-  
6       vation opportunities identified by the Com-  
7       mittee;

8                       “(B) a description of any technology gaps  
9       identified by the Committee under subsection  
10       (d)(1)(B)(ii);

11                      “(C) recommendations for improving tech-  
12       nology screening criteria and management of  
13       the program;

14                      “(D) an evaluation of the progress of the  
15       program and the research and development  
16       funded under the program;

17                      “(E) any recommended changes to the  
18       focus areas of the program described in section  
19       454(c);

20                      “(F) a description of the manner in which  
21       the Committee has carried out the duties de-  
22       scribed in subsection (d)(1) and any relevant  
23       findings as a result of carrying out those duties;

24                      “(G) the roadmap developed by the Com-  
25       mittee under subsection (d)(1)(C);

1           “(H) the progress made in achieving the  
2 goals set out in that roadmap;

3           “(I) a review of the management, coordina-  
4 tion, and industry utility of the program;

5           “(J) an assessment of the extent to which  
6 progress has been made under the program in  
7 developing commercial, cost-competitive tech-  
8 nologies in each focus area described in section  
9 454(c); and

10           “(K) an assessment of the effectiveness of  
11 the program in coordinating efforts within the  
12 Department and with other Federal agencies to  
13 achieve the purposes of the program.

14       “(g) REPORT TO CONGRESS.—Not later than 60 days  
15 after receiving a report from the Committee under sub-  
16 section (f), the Secretary shall submit a copy of that re-  
17 port to the Committee on Science, Space, and Technology  
18 of the House of Representatives, the Committee on En-  
19 ergy and Natural Resources of the Senate, and any other  
20 relevant Committee of Congress.

21       “(h) APPLICABILITY OF FEDERAL ADVISORY COM-  
22 MITTEE ACT.—Except as otherwise provided in this sec-  
23 tion, the Federal Advisory Committee Act (5 U.S.C. App.)  
24 shall apply to the Committee.”.



1 (b) TECHNICAL AMENDMENT.—The table of contents  
 2 of the Energy Independence and Security Act of 2007  
 3 (Public Law 110–140; 121 Stat. 1494) (as amended by  
 4 section 3(b)) is amended by inserting after the item relat-  
 5 ing to section 454 the following:

“Sec. 455. Industrial Technology Innovation Advisory Committee.”.

6 **SEC. 5. TECHNICAL ASSISTANCE PROGRAM TO IMPLEMENT**  
 7 **INDUSTRIAL EMISSIONS REDUCTION.**

8 (a) IN GENERAL.—The Energy Independence and  
 9 Security Act of 2007 is amended by inserting after section  
 10 455 (as added by section 4(a)) the following:

11 **“SEC. 456. TECHNICAL ASSISTANCE PROGRAM TO IMPLE-**  
 12 **MENT INDUSTRIAL EMISSIONS REDUCTION.**

13 “(a) DEFINITIONS.—In this section:

14 “(1) ELIGIBLE ENTITY.—The term ‘eligible en-  
 15 tity’ means—

16 “(A) a State;

17 “(B) a unit of local government;

18 “(C) a territory or possession of the  
 19 United States;

20 “(D) a relevant State or local office, in-  
 21 cluding an energy office;

22 “(E) a tribal organization (as defined in  
 23 section 3765 of title 38, United States Code);

24 “(F) an institution of higher education;  
 25 and

1 “(G) a private entity.

2 “(2) EMISSIONS REDUCTION.—The term ‘emis-  
3 sions reduction’ has the meaning given the term in  
4 section 454(a).

5 “(3) INSTITUTION OF HIGHER EDUCATION.—  
6 The term ‘institution of higher education’ has the  
7 meaning given the term in section 101 of the Higher  
8 Education Act of 1965 (20 U.S.C. 1001).

9 “(4) PROGRAM.—The term ‘program’ means  
10 the program established under subsection (b).

11 “(b) ESTABLISHMENT.—Not later than 180 days  
12 after the date of enactment of the CIT Act of 2019, the  
13 Secretary shall establish a program to provide technical  
14 assistance to eligible entities to carry out an activity de-  
15 scribed in subsection (c).

16 “(c) ACTIVITIES DESCRIBED.—An activity referred  
17 to in subsection (b) is any of the following activities car-  
18 ried out for the purpose of achieving emissions reduction  
19 in nonpower industrial sectors:

20 “(1) Adopting emissions reduction technologies.

21 “(2) Establishing goals and priorities to accel-  
22 erate the development and evaluation of relevant  
23 technologies.

1           “(3) Developing collaborations across States,  
2           local governments, and territories and possessions of  
3           the United States.

4           “(4) Reviewing the appropriate emissions re-  
5           duction options for a particular eligible entity.

6           “(5) Developing a roadmap for emissions reduc-  
7           tion for a particular eligible entity.

8           “(6) Any other activity determined appropriate  
9           by the Secretary.

10          “(d) APPLICATIONS.—

11               “(1) IN GENERAL.—An eligible entity desiring  
12           technical assistance under the program shall submit  
13           to the Secretary an application at such time, in such  
14           manner, and containing such information as the Sec-  
15           retary may require.

16               “(2) APPLICATION PROCESS.—The Secretary  
17           shall seek applications for technical assistance under  
18           the program on a periodic basis, but not less fre-  
19           quently than once every 12 months.

20               “(3) PRIORITIES.—In selecting eligible entities  
21           for technical assistance under the program, the Sec-  
22           retary shall give priority to an eligible entity—

23                       “(A) carrying out an activity that has the  
24                       greatest potential for achieving emissions reduc-  
25                       tion in nonpower industrial sectors;

1           “(B) located in a State that has histori-  
 2 cally relied on industrial sectors for a substan-  
 3 tial portion of the State economy, as deter-  
 4 mined by the Secretary, taking into account  
 5 employment data, per capita income, and other  
 6 indicators of economic output in the State; or

7           “(C) located in a State that has experi-  
 8 enced significant decline in the economic con-  
 9 tribution of industry to the State.

10       “(e) AUTHORIZATION OF APPROPRIATIONS.—There  
 11 are authorized to be appropriated to the Secretary such  
 12 sums as are necessary to carry out this section for each  
 13 fiscal year during which the program is in effect.”.

14       (b) TECHNICAL AMENDMENT.—The table of contents  
 15 of the Energy Independence and Security Act of 2007  
 16 (Public Law 110–140; 121 Stat. 1494) (as amended by  
 17 section 4(b)) is amended by inserting after the item relat-  
 18 ing to section 455 the following:

“Sec. 456. Technical assistance program to implement industrial emissions re-  
 duction.”.

19 **SEC. 6. COORDINATION OF RESEARCH AND DEVELOPMENT**  
 20 **OF ENERGY EFFICIENT TECHNOLOGIES FOR**  
 21 **INDUSTRY.**

22       Section 6(a) of the American Energy Manufacturing  
 23 Technical Corrections Act (42 U.S.C. 6351(a)) is amend-  
 24 ed—

1           (1) by striking “Industrial Technologies Pro-  
2       gram” each place it appears and inserting “Ad-  
3       vanced Manufacturing Office”; and

4           (2) in the matter preceding paragraph (1), by  
5       striking “Office of Energy” and all that follows  
6       through “Office of Science” and inserting “Depart-  
7       ment of Energy”.

○