Calendar No. 100

112TH CONGRESS
1ST SESSION

S. 757

[Report No. 112–33]

To provide incentives to encourage the development and implementation of technology to capture carbon dioxide from dilute sources on a significant scale using direct air capture technologies.

IN THE SENATE OF THE UNITED STATES

APRIL 7 (legislative day, APRIL 5), 2011

Mr. BARRASSO (for himself, Mr. BINGAMAN, Mr. ENZI, and Mr. HOEVEN) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

JULY 11, 2011

Reported by Mr. BINGAMAN, with an amendment

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

A BILL

To provide incentives to encourage the development and implementation of technology to capture carbon dioxide from dilute sources on a significant scale using direct air capture technologies.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. CARBON DIOXIDE CAPTURE TECHNOLOGY PRIZE.

(a) FINDINGS.—Congress finds that—

(1) flue gases from coal-fired electric generating facilities typically have carbon dioxide concentrations of approximately 17 percent by volume;

(2) it is possible to separate carbon dioxide from dilute sources and even the atmosphere, which has a carbon dioxide concentration of 0.038 percent, but substantial advances in research and technology will be necessary to provide the separation in an economical manner;

(3) developing practical separations of carbon dioxide from dilute sources is important to the future development of energy technology;

(4) economical onsite separation of atmospheric carbon dioxide can help leverage the use of carbon dioxide in energy applications such as enhanced oil recovery and enhanced geothermal systems at remote sites; and

(5) authorizing the Secretary of Energy to provide a technology prize for separation of carbon dioxide from dilute sources can provide the impetus for developing the novel technologies that will be needed in the future as part of the national energy system of the United States.

(b) PURPOSE.—It is the purpose of this section to provide incentives to encourage the development and implementation of technology to capture carbon dioxide from dilute sources on a significant scale using direct air capture technologies.

(c) CARBON DIOXIDE CAPTURE TECHNOLOGY PRIZE.—Section 1008 of the Energy Policy Act of 2005 (42 U.S.C. 16396) is amended by adding at the end the following:

"(g) CARBON DIOXIDE CAPTURE TECHNOLOGY PRIZE.—

"(1) DEFINITIONS.—In this subsection:

"(A) BOARD.—The term 'Board' means the Carbon Dioxide Capture Technology Advisory Board established by paragraph (6).

"(B) DILUTE.—The term 'dilute' means a concentration of less than 1 percent by volume.

"(C) INTELLECTUAL PROPERTY.—The term 'intellectual property' means—

"(i) an invention that is patentable under title 35, United States Code; and

"(ii) any patent on an invention described in clause (i).

"(D) SECRETARY.—The term 'Secretary' means the Secretary of Energy or designee, in consultation with the Board.

"(2) AUTHORITY.—Not later than 1 year after the date of enactment of this subsection, as part of the program carried out under this section, the Secretary shall establish and award competitive technology financial awards for carbon dioxide capture from media in which the concentration of carbon dioxide is dilute.

"(3) DUTIES.—In carrying out this subsection, the Secretary shall—

"(A) subject to paragraph (4), develop specific requirements for—

"(i) the competition process;

"(ii) minimum performance standards for qualifying projects; and

"(iii) monitoring and verification procedures for approved projects;

"(B) establish minimum levels for the capture of carbon dioxide from a dilute medium that are required to be achieved to qualify for a financial award described in subparagraph (C);

"(C) offer financial awards for—

‘‘(i) a design for a promising capture technology;

‘‘(ii) a successful bench-scale demonstration of a capture technology;

‘‘(iii) a design for a technology described in clause (i) that will—

‘‘(I) be operated on a demonstration scale; and

‘‘(II) achieve significant reduction in the level of carbon dioxide; and

‘‘(iv) an operational capture technology on a commercial scale that meets the minimum levels described in subparagraph (B); and

‘‘(D) submit to Congress—

‘‘(i) an annual report that describes the progress made by the Board and recipients of financial awards under this subsection in achieving the demonstration goals established under subparagraph (C); and

‘‘(ii) not later than 1 year after the date of enactment of this subsection, a report that describes the levels of funding

that are necessary to achieve the purposes of this subsection.

''(4) PUBLIC PARTICIPATION.—In carrying out paragraph (3)(A), the Board shall—

''(A) provide notice of and, for a period of at least 60 days, an opportunity for public comment on, any draft or proposed version of the requirements described in paragraph (3)(A); and

''(B) take into account public comments received in developing the final version of those requirements.

''(5) PEER REVIEW.—No financial awards may be provided under this subsection until the proposal for which the award is sought has been peer reviewed in accordance with such standards for peer review as are established by the Secretary.

''(6) CARBON DIOXIDE CAPTURE TECHNOLOGY ADVISORY BOARD.—

''(A) ESTABLISHMENT.—There is established an advisory board to be known as the 'Carbon Dioxide Capture Technology Advisory Board'.

''(B) COMPOSITION.—The Board shall be composed of 9 members appointed by the Presi-

dent, by and with the advice and consent of the Senate, who shall provide expertise in—

"(i) climate science;

"(ii) physics;

"(iii) chemistry;

"(iv) biology;

"(v) engineering;

"(vi) economics;

"(vii) business management; and

"(viii) such other disciplines as the Secretary determines to be necessary to achieve the purposes of this subsection.

"(C) TERM; VACANCIES.—

"(i) TERM.—A member of the Board shall serve for a term of 6 years.

"(ii) VACANCIES.—A vacancy on the Board—

"(I) shall not affect the powers of the Board; and

"(II) shall be filled in the same manner as the original appointment was made.

"(D) INITIAL MEETING.—Not later than 30 days after the date on which all members of

the Board have been appointed, the Board shall hold the initial meeting of the Board.

''(E) MEETINGS.—The Board shall meet at the call of the Chairperson.

''(F) QUORUM.—A majority of the members of the Board shall constitute a quorum, but a lesser number of members may hold hearings.

''(G) CHAIRPERSON AND VICE CHAIRPERSON.—The Board shall select a Chairperson and Vice Chairperson from among the members of the Board.

''(H) COMPENSATION.—Each member of the Board may be compensated at not to exceed the daily equivalent of the annual rate of basic pay in effect for a position at level V of the Executive Schedule for each day during which the member is engaged in the actual performance of the duties of the Board.

''(I) DUTIES.—The Board shall advise the Secretary on carrying out the duties of the Secretary under this subsection.

''(7) INTELLECTUAL PROPERTY.—

''(A) IN GENERAL.—As a condition of receiving a financial award under this subsection,

an applicant shall agree to vest the intellectual property of the applicant derived from the technology in 1 or more entities that are incorporated in the United States.

''(B) RESERVATION OF LICENSE.—The United States—

''(i) may reserve a nonexclusive, nontransferable, irrevocable, paid-up license, to have practiced for or on behalf of the United States, in connection with any intellectual property described in subparagraph (A); but

''(ii) shall not, in the exercise of a license reserved under clause (i), publicly disclose proprietary information relating to the license.

''(C) TRANSFER OF TITLE.—Title to any intellectual property described in subparagraph (A) shall not be transferred or passed, except to an entity that is incorporated in the United States, until the expiration of the first patent obtained in connection with the intellectual property.

~~"(8) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to carry out this subsection such sums as are necessary.~~

~~"(9) TERMINATION OF AUTHORITY.—The Board and all authority provided under this subsection shall terminate on December 31, 2020.".~~

SECTION 1. SHORT TITLE.

This Act may be cited as the "Carbon Dioxide Capture Technology Prize Act of 2011".

SEC. 2. FINDINGS AND PURPOSE.

(a) FINDINGS.—Congress finds that—

(1) flue gases from coal-fired electric generating facilities typically have carbon dioxide concentrations of approximately 17 percent by volume;

(2) it is possible to separate carbon dioxide from dilute sources and even the atmosphere, which has a carbon dioxide concentration of 0.038 percent, but substantial advances in research and technology will be necessary to provide the separation in an economical manner;

(3) developing practical separations of carbon dioxide from dilute sources is important to the future development of energy technology;

(4) economical onsite separation of atmospheric carbon dioxide can help leverage the use of carbon di-

oxide in energy applications such as enhanced oil recovery and enhanced geothermal systems at remote sites; and

(5) authorizing the Secretary of Energy to provide a technology prize for separation of carbon dioxide from dilute sources can provide the impetus for developing the novel technologies that will be needed in the future as part of the national energy system of the United States.

(b) PURPOSE.—The purpose of this Act is to provide incentives to encourage the development and implementation of technology to capture carbon dioxide from dilute sources on a significant scale using direct air capture technologies.

SEC. 3. CARBON DIOXIDE CAPTURE TECHNOLOGY PRIZE.

Section 703 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17251) is amended—

(1) by redesignating subsection (b) as subsection (c);

(2) by inserting after subsection (a) the following:

"(b) CARBON DIOXIDE CAPTURE TECHNOLOGY PRIZE.—

"(1) DEFINITIONS.—In this subsection:

"(A) BOARD.—The term 'Board' means the Carbon Dioxide Capture Technology Advisory Board established by paragraph (6).

"(B) DILUTE.—The term 'dilute' means a concentration of less than 1 percent by volume.

"(C) INTELLECTUAL PROPERTY.—The term 'intellectual property' means—

"(i) an invention that is patentable under title 35, United States Code; and

"(ii) any patent on an invention described in clause (i).

"(D) SECRETARY.—The term 'Secretary' means the Secretary of Energy or designee, in consultation with the Board.

"(2) AUTHORITY.—Not later than 1 year after the date of enactment of the Carbon Dioxide Capture Technology Prize Act of 2011, as part of the program carried out under this section, the Secretary shall establish and award competitive technology financial awards for carbon dioxide capture from media in which the concentration of carbon dioxide is dilute.

"(3) DUTIES.—In carrying out this subsection, the Secretary shall—

"(A) subject to paragraph (4), develop specific requirements for—

"(i) the competition process;

"(ii) minimum performance standards for qualifying projects; and

"(iii) monitoring and verification procedures for approved projects;

"(B) establish minimum levels for the capture of carbon dioxide from a dilute medium that are required to be achieved to qualify for a financial award described in subparagraph (C); and

"(C) offer financial awards for—

"(i) a design for a promising capture technology;

"(ii) a successful bench-scale demonstration of a capture technology;

"(iii) a design for a technology described in clause (i) that will—

"(I) be operated on a demonstration scale; and

"(II) achieve significant reduction in the level of carbon dioxide; and

"(iv) an operational capture technology on a commercial scale that meets the minimum levels described in subparagraph (B).

"(4) PUBLIC PARTICIPATION.—In carrying out paragraph (3)(A), the Board shall—

"(A) provide notice of and, for a period of at least 60 days, an opportunity for public comment on, any draft or proposed version of the requirements described in paragraph (3)(A); and

"(B) take into account public comments received in developing the final version of those requirements.

"(5) PEER REVIEW.—No financial awards may be provided under this subsection until the proposal for which the award is sought has been peer reviewed in accordance with such standards for peer review as are established by the Secretary.

"(6) CARBON DIOXIDE CAPTURE TECHNOLOGY ADVISORY BOARD.—

"(A) ESTABLISHMENT.—There is established an advisory board to be known as the 'Carbon Dioxide Capture Technology Advisory Board'.

"(B) COMPOSITION.—The Board shall be composed of 7 members appointed by the President that provide expertise in—

"(i) climate science;

"(ii) physics;

"(iii) chemistry;

"(iv) biology;

"(v) engineering;

"(vi) economics;

"(vii) business management; and

"(viii) such other disciplines as the Secretary determines to be necessary to achieve the purposes of this subsection.

"(C) INITIAL MEETING.—Not later than 30 days after the date on which all members of the Board have been appointed, the Board shall hold the initial meeting of the Board.

"(D) MEETINGS.—The Board shall meet at the call of the Chairperson.

"(E) QUORUM.—A majority of the members of the Board shall constitute a quorum, but a lesser number of members may hold hearings.

"(F) CHAIRPERSON AND VICE CHAIRPERSON.—The Board shall select a Chairperson and Vice Chairperson from among the members of the Board.

"(G) DUTIES.—The Board shall advise the Secretary on carrying out the duties of the Secretary under this subsection.

"(7) INTELLECTUAL PROPERTY.—

"(A) IN GENERAL.—As a condition of receiving a financial award under this subsection, an applicant shall agree to vest the intellectual property of the applicant derived from the technology in 1 or more entities that are incorporated in the United States.

"(B) RESERVATION OF LICENSE.—The United States—

"(i) may reserve a nonexclusive, nontransferable, irrevocable, paid-up license, to have practiced for or on behalf of the United States, in connection with any intellectual property described in subparagraph (A); but

"(ii) shall not, in the exercise of a license reserved under clause (i), publicly disclose proprietary information relating to the license.

"(C) TRANSFER OF TITLE.—Title to any intellectual property described in subparagraph (A) shall not be transferred or passed, except to an entity that is incorporated in the United States, until the expiration of the first patent obtained in connection with the intellectual property.

"(8) TERMINATION OF AUTHORITY.—The Board and all authority provided under this subsection shall terminate on the date that is 5 years after the date of enactment of the Carbon Dioxide Capture Technology Prize Act of 2011."; and

(3) in subsection (c) (as redesignated by paragraph (1))—

(A) by striking "There is" and inserting the following:

"(1) IN GENERAL.—There is";

(B) by striking "this section" and inserting "subsection (a)"; and

(C) by striking "2013" and inserting "2011 and $195,000,000 for each of fiscal years 2012 and 2013"; and

(D) by adding at the end the following:

"(2) CARBON DIOXIDE CAPTURE TECHNOLOGY PRIZE.—There is authorized to be appropriated to the Secretary to carry out subsection (b) $10,000,000 for the period of fiscal years 2012 through 2016.".

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