

**Calendar No. 99**112TH CONGRESS  
1ST SESSION**S. 699****[Report No. 112-32]**

To authorize the Secretary of Energy to carry out a program to demonstrate the commercial application of integrated systems for long-term geological storage of carbon dioxide, and for other purposes.

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**IN THE SENATE OF THE UNITED STATES**

MARCH 31, 2011

Mr. BINGAMAN (for himself, Mr. BARRASSO, Mr. ROCKEFELLER, Ms. MURKOWSKI, Mr. TESTER, Mr. UDALL of Colorado, 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 amendments

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**A BILL**

To authorize the Secretary of Energy to carry out a program to demonstrate the commercial application of integrated systems for long-term geological storage of carbon dioxide, 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,*

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Department of Energy  
3 Carbon Capture and Sequestration Program Amendments  
4 Act of 2011”.

5 **SEC. 2. LARGE-SCALE CARBON STORAGE PROGRAM.**

6 (a) IN GENERAL.—Subtitle F of title IX of the En-  
7 ergy Policy Act of 2005 (42 U.S.C. 16291 et seq.) is  
8 amended by inserting after section 963 (42 U.S.C. 16293)  
9 the following:

10 **“SEC. 963A. LARGE-SCALE CARBON STORAGE PROGRAM.**

11 “(a) DEFINITIONS.—In this section:

12 “(1) INDUSTRIAL SOURCE.—The term ‘indus-  
13 trial source’ means any source of carbon dioxide that  
14 is not naturally occurring.

15 “(2) LARGE-SCALE.—The term ‘large-scale’  
16 means the injection of over 1,000,000 tons of carbon  
17 dioxide each year from industrial sources into a geo-  
18 logical formation.

19 “(3) SECRETARY CONCERNED.—The term ‘Sec-  
20 retary concerned’ means—

21 “(A) the Secretary of Agriculture (acting  
22 through the Chief of the Forest Service), with  
23 respect to National Forest System land; and

24 “(B) the Secretary of the Interior, with re-  
25 spect to land managed by the Bureau of Land

1 Management (including land held for the ben-  
2 efit of an Indian tribe).

3 “(b) PROGRAM.—In addition to the research, develop-  
4 ment, and demonstration program authorized by section  
5 963, the Secretary shall carry out a program to dem-  
6 onstrate the commercial application of integrated systems  
7 for the capture, injection, monitoring, and long-term geo-  
8 logical storage of carbon dioxide from industrial sources.

9 “(c) AUTHORIZED ASSISTANCE.—In carrying out the  
10 program, the Secretary may enter into cooperative agree-  
11 ments to provide financial and technical assistance to up  
12 to 10 *large-scale* demonstration projects.

13 “(d) PROJECT SELECTION.—The Secretary shall  
14 competitively select recipients of cooperative agreements  
15 under this section from among applicants that—

16 “(1) provide the Secretary with sufficient geo-  
17 logical site information (including hydrogeological  
18 and geophysical information) to establish that the  
19 proposed geological storage unit is capable of long-  
20 term storage of the injected carbon dioxide, includ-  
21 ing—

22 “(A) the location, extent, and storage ca-  
23 pacity of the geological storage unit at the site  
24 into which the carbon dioxide will be injected;

1           “(B) the principal potential modes of  
2           geomechanical failure in the geological storage  
3           unit;

4           “(C) the ability of the geological storage  
5           unit to retain injected carbon dioxide; and

6           “(D) the measurement, monitoring, and  
7           verification requirements necessary to ensure  
8           adequate information on the operation of the  
9           geological storage unit during and after the in-  
10          jection of carbon dioxide;

11          “(2) possess the land or interests in land nec-  
12          essary for—

13                 “(A) the injection and storage of the car-  
14                 bon dioxide at the proposed geological storage  
15                 unit; and

16                 “(B) the closure, monitoring, and long-  
17                 term stewardship of the geological storage unit;

18          “(3) possess or have a reasonable expectation of  
19          obtaining all necessary permits and authorizations  
20          under applicable Federal and State laws (including  
21          regulations); and

22          “(4) agree to comply with each requirement of  
23          subsection (e).

24          “(e) TERMS AND CONDITIONS.—The Secretary shall  
25          condition receipt of financial assistance pursuant to a co-

1 operative agreement under this section on the recipient  
2 agreeing to—

3 “(1) comply with all applicable Federal and  
4 State laws (including regulations), including a cer-  
5 tification by the appropriate regulatory authority  
6 that the project will comply with Federal and State  
7 requirements to protect drinking water supplies;

8 “(2) in the case of industrial sources subject to  
9 the Clean Air Act (42 U.S.C. 7401 et seq.), inject  
10 only carbon dioxide captured from industrial sources  
11 in compliance with that Act;

12 “(3) comply with all applicable construction and  
13 operating requirements for deep injection wells;

14 “(4) measure, monitor, and test to verify that  
15 carbon dioxide injected into the injection zone is  
16 not—

17 “(A) escaping from or migrating beyond  
18 the confinement zone; or

19 “(B) endangering an underground source  
20 of drinking water;

21 “(5) comply with applicable well-plugging, post-  
22 injection site care, and site closure requirements, in-  
23 cluding—

24 “(A)(i) maintaining financial assurances  
25 during the post-injection closure and monitoring

1 phase until a certificate of closure is issued by  
2 the Secretary; and

3 “(ii) promptly undertaking remediation ac-  
4 tivities for any leak from the geological storage  
5 unit that would endanger public health or safe-  
6 ty or natural resources; and

7 “(B) complying with *the requirements of*  
8 subsection (f);

9 “(6) comply with applicable long-term care re-  
10 quirements;

11 “(7) maintain financial protection in a form  
12 and in an amount acceptable to—

13 “(A) the Secretary;

14 “(B) the Secretary with jurisdiction over  
15 the land; and

16 “(C) the Administrator of the Environ-  
17 mental Protection Agency; and

18 “(8) provide the assurances described in section  
19 963(c)(4)(B).

20 “(f) POST INJECTION CLOSURE AND MONITORING  
21 ELEMENTS.—In assessing whether a project complies with  
22 site closure requirements under subsection (e)(5), the Sec-  
23 retary, in consultation with the Administrator of the Envi-  
24 ronmental Protection Agency, shall determine whether the  
25 recipient of financial assistance has demonstrated contin-

1 uous compliance with each of the following *requirements*  
2 over a period of not less than 10 consecutive years after  
3 the plume of carbon dioxide has stabilized within the geo-  
4 logic formation that comprises the geologic storage unit  
5 following the cessation of injection activities:

6           “(1) The estimated location and extent of the  
7 project footprint (including the detectable plume of  
8 carbon dioxide and the area of elevated pressure re-  
9 sulting from the project) has not substantially  
10 changed and is contained within the geologic storage  
11 unit.

12           “(2) The injection zone formation pressure has  
13 ceased to increase following cessation of carbon diox-  
14 ide injection into the geologic storage unit.

15           “(3) There is no leakage of either carbon diox-  
16 ide or displaced formation fluid from the geologic  
17 storage unit that is endangering public health and  
18 safety, including underground sources of drinking  
19 water and natural resources.

20           “(4) The injected or displaced formation fluids  
21 are not expected to migrate in the future in a man-  
22 ner that encounters a potential leakage pathway.

23           “(5) The injection wells at the site completed  
24 into or through the injection zone or confining zone  
25 are plugged and abandoned in accordance with the

1 applicable requirements of Federal or State law gov-  
2 erning the wells.

3 “(g) INDEMNIFICATION AGREEMENTS.—

4 “(1) DEFINITION OF LIABILITY.—In this sub-  
5 section, the term ‘liability’ means any legal liability  
6 for—

7 “(A) bodily injury, sickness, disease, or  
8 death;

9 “(B) loss of or damage to property, or loss  
10 of use of property; or

11 “(C) injury to or destruction or loss of nat-  
12 ural resources, including fish, wildlife, and  
13 drinking water supplies.

14 “(2) AGREEMENTS.—Not later than 1 year  
15 after the date of the receipt by the Secretary of a  
16 completed application for a demonstration project,  
17 the Secretary may agree to indemnify and hold  
18 harmless the recipient of a cooperative agreement  
19 under this section from liability arising out of or re-  
20 sulting from a demonstration project in excess of the  
21 amount of liability covered by financial protection  
22 maintained by the recipient under subsection (e)(7).

23 “(3) EXCEPTION FOR GROSS NEGLIGENCE AND  
24 INTENTIONAL MISCONDUCT.—Notwithstanding para-  
25 graph (1), the Secretary may not indemnify the re-



1 recipient of a cooperative agreement under this section  
2 from liability arising out of conduct of a recipient  
3 that is grossly negligent or that constitutes inten-  
4 tional misconduct.

5 “(4) COLLECTION OF FEES.—

6 “(A) IN GENERAL.—The Secretary shall  
7 collect a fee from any person with whom an  
8 agreement for indemnification is executed under  
9 this subsection in an amount that is equal to  
10 the net present value of payments made by the  
11 United States to cover liability under the in-  
12 demnification agreement.

13 “(B) AMOUNT.—The Secretary shall estab-  
14 lish, by regulation, criteria for determining the  
15 amount of the fee, taking into account—

16 “(i) the likelihood of an incident re-  
17 sulting in liability to the United States  
18 under the indemnification agreement; and

19 “(ii) other factors pertaining to the  
20 hazard of the indemnified project.

21 “(C) USE OF FEES.—Fees collected under  
22 this paragraph shall be deposited in the Treas-  
23 ury and credited to miscellaneous receipts.

24 “(5) CONTRACTS IN ADVANCE OF APPROPRIA-  
25 TIONS.—

1           “(A) IN GENERAL.—Subject to subpara-  
2 graph (B), the Secretary may enter into agree-  
3 ments of indemnification under this subsection  
4 in advance of appropriations and incur obliga-  
5 tions without regard to section 1341 of title 31,  
6 United States Code (commonly known as the  
7 ‘Anti-Deficiency Act’), or section 11 of title 41,  
8 United States Code (commonly known as the  
9 ‘Adequacy of Appropriations Act’).

10           “(B) LIMITATION.—The amount of indem-  
11 nification under this subsection shall not exceed  
12 \$10,000,000,000 (adjusted not less than once  
13 during each 5-year period following the date of  
14 enactment of this section, in accordance with  
15 the aggregate percentage change in the Con-  
16 sumer Price Index since the previous adjust-  
17 ment under this subparagraph), in the aggre-  
18 gate, for all persons indemnified in connection  
19 with an agreement and for each project, includ-  
20 ing such legal costs as are approved by the Sec-  
21 retary.

22           “(6) CONDITIONS OF AGREEMENTS OF INDEM-  
23 NIFICATION.—

24           “(A) IN GENERAL.—An agreement of in-  
25 demnification under this subsection may con-

1           tain such terms as the Secretary considers ap-  
2           propriate to carry out the purposes of this sec-  
3           tion.

4           “(B) ADMINISTRATION.—The agreement  
5           shall provide that, if the Secretary makes a de-  
6           termination the United States will probably be  
7           required to make indemnity payments under the  
8           agreement, the Attorney General—

9                   “(i) shall collaborate with the recipi-  
10                   ent of an award under this subsection; and

11                   “(ii) may—

12                           “(I) approve the payment of any  
13                           claim under the agreement of indem-  
14                           nification;

15                           “(II) appear on behalf of the re-  
16                           cipient;

17                           “(III) take charge of an action;  
18                   and

19                           “(IV) settle or defend an action.

20           “(C) SETTLEMENT OF CLAIMS.—

21                   “(i) IN GENERAL.—The Attorney  
22                   General shall have final authority on behalf  
23                   of the United States to settle or approve  
24                   the settlement of any claim under this sub-  
25                   section on a fair and reasonable basis with

1           due regard for the purposes of this sub-  
2           section.

3                   “(ii) EXPENSES.—The settlement  
4           shall not include expenses in connection  
5           with the claim incurred by the recipient.

6           “(h) FEDERAL LAND.—

7                   “(1) IN GENERAL.—The Secretary concerned  
8           may authorize the siting of a project on Federal  
9           land under the jurisdiction of the Secretary con-  
10          cerned in a manner consistent with applicable laws  
11          and land management plans and subject to such  
12          terms and conditions as the Secretary concerned de-  
13          termines to be necessary.

14                   “(2) FRAMEWORK FOR GEOLOGICAL CARBON  
15          SEQUESTRATION ON PUBLIC LAND.—In determining  
16          whether to authorize a project on Federal land, the  
17          Secretary concerned shall take into account the  
18          framework for geological carbon sequestration on  
19          public land prepared in accordance with section 714  
20          of the Energy Independence and Security Act of  
21          2007 (Public Law 110–140; 121 Stat. 1715).

22                   “(i) ACCEPTANCE OF TITLE AND LONG-TERM MONI-  
23          TORING.—

24                   “(1) IN GENERAL.—As a condition of a cooper-  
25          ative agreement under this section, the Secretary

1 may accept title to, or transfer of administrative ju-  
2 risdiction from another Federal agency over, any  
3 land or interest in land necessary for the monitoring,  
4 remediation, or long-term stewardship of a project  
5 site.

6 “(2) LONG-TERM MONITORING ACTIVITIES.—  
7 After accepting title to, or transfer of, a site closed  
8 in accordance with this section, the Secretary shall  
9 monitor the site and conduct any remediation activi-  
10 ties to ensure the geological integrity of the site and  
11 prevent any endangerment of public health or safety.

12 “(3) FUNDING.—There is appropriated to the  
13 Secretary, out of funds of the Treasury not other-  
14 wise appropriated, such sums as are necessary to  
15 carry out paragraph (2).”.

16 (b) CONFORMING AMENDMENTS.—

17 (1) Section 963 of the Energy Policy Act of  
18 2005 (42 U.S.C. 16293) is amended—

19 (A) by redesignating subsections (a)  
20 through (d) as subsections (b) through (e), re-  
21 spectively;

22 (B) by inserting before subsection (b) (as  
23 so redesignated) the following:

24 “(a) DEFINITIONS.—In this section:

1           “(1) INDUSTRIAL SOURCE.—The term ‘indus-  
2           trial source’ means any source of carbon dioxide that  
3           is not naturally occurring.

4           “(2) LARGE-SCALE.—The term ‘large-scale’  
5           means the injection of over 1,000,000 tons of carbon  
6           dioxide from industrial sources over the lifetime of  
7           the project.”;

8                   (C) in subsection (b) (as so redesignated),  
9                   by striking “IN GENERAL” and inserting “PRO-  
10                   GRAM”;

11                   (D) in subsection (c) (as so redesignated),  
12                   by striking “subsection (a)” and inserting “sub-  
13                   section (b)”;

14                   (E) in subsection (d)(3) (as so redesign-  
15                   ated), by striking subparagraph (D).

16           (2) Sections 703(a)(3) and 704 of the Energy  
17           Independence and Security Act of 2007 (42 U.S.C.  
18           17251(a)(3), 17252) are amended by striking “sec-  
19           tion 963(c)(3) of the Energy Policy Act of 2005 (42  
20           U.S.C. 16293(c)(3))” each place it appears and in-  
21           serting “section 963(d)(3) of the Energy Policy Act  
22           of 2005 (42 U.S.C. 16293(d)(3))”.

1 **SEC. 3. TRAINING PROGRAM FOR STATE AND TRIBAL**  
2 **AGENCIES.**

3 (a) ESTABLISHMENT.—The Secretary of Energy, in  
4 consultation with the Administrator of the Environmental  
5 Protection Agency and the Secretary of Transportation,  
6 shall establish a program to provide grants for employee  
7 training purposes to State and tribal agencies involved in  
8 permitting, management, inspection, and oversight of car-  
9 bon capture, transportation, and storage projects.

10 (b) AUTHORIZATION OF APPROPRIATIONS.—There is  
11 authorized to be appropriated to the Secretary of Energy  
12 to carry out this section \$10,000,000 ~~for each of fiscal~~  
13 ~~years 2010 through 2020.~~

14 (c) OFFSET.—Section 708 of the Energy Independence  
15 and Security Act of 2007 (42 U.S.C. 17256) is repealed.

16 **SEC. 4. ANNUAL DEPARTMENT OF ENERGY ASSESSMENT.**

17 (a) IN GENERAL.—

18 (1) DEPARTMENT OF ENERGY REPORT.—Not  
19 later than 1 year after the date of enactment of this  
20 Act and annually thereafter until the Secretary of  
21 Energy (referred to in this section as the “Secretary”)  
22 determines that technology preventing the emission of,  
23 capturing, transporting, permanently storing or se-  
24 questrating, or putting to beneficial use carbon dioxide  
25 is available to the commercial marketplace, the Sec-  
26 retary shall conduct an assessment in accordance

1 *with subsection (b) of the existing Federal programs*  
2 *supporting such technology and submit to the appro-*  
3 *appropriate authorizing and appropriating committees of*  
4 *Congress a report on the results of the assessment.*

5 (2) *GOVERNMENT ACCOUNTABILITY OFFICE RE-*  
6 *VIEW.—Not later than 1 year after the first report is*  
7 *provided to the appropriate authorizing and appro-*  
8 *priating committees of Congress under paragraph (1)*  
9 *and subsequently as needed until technology pre-*  
10 *venting the emission of, capturing, transporting, per-*  
11 *manently storing or sequestering, and putting to ben-*  
12 *eficial use carbon dioxide is available to the commer-*  
13 *cial marketplace, the Comptroller General of the*  
14 *United States shall conduct a review of the report de-*  
15 *scribed in paragraph (1) in accordance with sub-*  
16 *section (c).*

17 (b) *DEPARTMENT OF ENERGY REPORT REQUIRE-*  
18 *MENTS.—The Secretary shall include in the report required*  
19 *under subsection (a)(1)—*

20 (1) *a detailed description of the existing pro-*  
21 *grams, including each major program area, that con-*  
22 *duct or support research, development, demonstration,*  
23 *and deployment of technology—*



1           (A) to prevent the emission of carbon diox-  
2           ide or capture of carbon dioxide from sources, in-  
3           cluding fossil fuel-based power plants;

4           (B) to transport carbon dioxide;

5           (C) to store or sequester captured carbon di-  
6           oxide permanently; or

7           (D) to put captured carbon dioxide to bene-  
8           ficial use;

9           (2) an assessment, based on Federal Government  
10          laboratory research experience, available industry re-  
11          search experience, and such other data and informa-  
12          tion as the Secretary considers useful and appro-  
13          priate, to determine whether each major program  
14          area and principal projects within the areas described  
15          in paragraph (1) are designed to, and will, advance  
16          fundamental knowledge or achieve significant tech-  
17          nical advancement and materially improve the tech-  
18          nology base to effectively address the prevention of  
19          carbon dioxide emissions or capture of carbon dioxide  
20          or the transport, permanent storage, or beneficial use  
21          of captured carbon dioxide;

22          (3) an assessment of the estimated time frame  
23          and costs of the Secretary necessary to reasonably  
24          conclude that technology will be available to the com-  
25          mercial marketplace; and

1           (4) *an assessment of the barriers and solutions,*  
2           *including policy recommendations, to financing large*  
3           *carbon capture and storage demonstration projects*  
4           *with a focus on overcoming the impacts of oil price*  
5           *volatility on enhanced oil recovery contracts for car-*  
6           *bon dioxide.*

7           (c) *GOVERNMENT ACCOUNTABILITY OFFICE REVIEW*  
8           *REQUIREMENTS.—The Comptroller General of the United*  
9           *States shall include in the review required under subsection*  
10          *(a)(2)—*

11           (1) *an analysis of the estimated time frames and*  
12           *costs of the Secretary, as reported pursuant to sub-*  
13           *section (b)(3);*

14           (2) *any recommendations that the Comptroller*  
15           *General considers appropriate and useful to improve*  
16           *the likelihood of achieving technological advancements*  
17           *to mitigate carbon dioxide emissions or to expedite*  
18           *the availability of carbon capture and sequestration*  
19           *technology for the commercial marketplace;*

20           (3) *an assessment of any legal or regulatory im-*  
21           *pediment by any Federal agency or department that*  
22           *has arisen in relation to the deployment of carbon*  
23           *capture and storage technology, including any delays*  
24           *in the permitting of the technology or the construction*  
25           *or operation of any the facility; and*

1           (4) *any other analyses the Comptroller General*  
2           *considers necessary or appropriate.*

3           (d) *BUDGET REQUEST REPORT.—In the case of the*  
4 *budget request for fiscal year 2013, the President shall in-*  
5 *clude in the budget request of the Secretary for the Fossil*  
6 *Energy Program a report that—*

7           (1) *assesses the progress of the Secretary in im-*  
8 *plementing the recommendations of the Comptroller*  
9 *General of the United States and compares the esti-*  
10 *mated costs of completing implementation of those*  
11 *recommendations to the requested budget levels; and*

12           (2) *an assessment of the progress made for the*  
13 *preceding fiscal year toward achieving the goals of the*  
14 *program for which funding is requested.*

Calendar No. 99

112<sup>TH</sup> CONGRESS  
1<sup>ST</sup> Session

**S. 699**

[Report No. 112-32]

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## **A BILL**

To authorize the Secretary of Energy to carry out a program to demonstrate the commercial application of integrated systems for long-term geological storage of carbon dioxide, and for other purposes.

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JULY 11, 2011

Reported with amendments