

107TH CONGRESS  
1ST SESSION

# S. 1294

To establish a new national policy designed to manage the risk of potential climate change, ensure long-term energy security, and to strengthen provisions in the Energy Policy Act of 1992 and the Federal Nonnuclear Energy Research and Development Act of 1974 with respect to potential climate change.

---

## IN THE SENATE OF THE UNITED STATES

AUGUST 1, 2001

Mr. MURKOWSKI (for Mr. CRAIG, Mr. HAGEL, Mr. DOMENICI, Mr. ROBERTS, and Mr. BOND) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

---

## A BILL

To establish a new national policy designed to manage the risk of potential climate change, ensure long-term energy security, and to strengthen provisions in the Energy Policy Act of 1992 and the Federal Nonnuclear Energy Research and Development Act of 1974 with respect to potential climate change.

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 “Climate Change Risk  
5 Management Act of 2001”.

1 **SEC. 2. FINDINGS.**

2 Congress finds that—

3 (1) human activities, namely energy production  
4 and use, contribute to increasing concentrations of  
5 greenhouse gases in the atmosphere, which may ultimately contribute to global climate change beyond  
6 that resulting from natural variability;

7 (2) although the science of global climate change has been advanced in the past ten years, the timing and magnitude of climate change-related impacts on the United States cannot currently be predicted with any reasonable certainty;

8 (3) furthermore, a recent National Research Council review of climate change science suggests that without an understanding of the sources and degree of uncertainty regarding climate change and its impacts, decision-makers could fail to define the best ways to manage the risk of climate change;

9 (4) despite this uncertainty, the potential impacts from human-induced climate change pose a substantial risk that should be managed in a responsible manner;

10 (5) given that the bulk of greenhouse gas emissions from human activities result from energy production and use, national and international energy policy decisions made now and in the longer-term fu-

1       ture will influence the extent and timing of any cli-  
2       mate change and resultant impacts from climate  
3       change later this century;

4               (6) the characteristics of greenhouse gases and  
5       the physical nature of the climate system require  
6       that stabilization of atmospheric greenhouse gas con-  
7       centrations at any future level must be a long-term  
8       effort undertaken on a global basis;

9               (7) the characteristics of existing energy-related  
10      infrastructure and capital suggest that effective  
11      greenhouse gas management efforts will depend on  
12      the development of long-term, cost-effective tech-  
13      nologies and practices that can be demonstrated and  
14      deployed commercially in the United States and  
15      around the world;

16               (8) environmental progress, energy security,  
17      economic prosperity, and satisfaction of basic human  
18      needs are interrelated, particularly in developing  
19      countries;

20               (9) developing countries will constitute the  
21      major source of greenhouse gas emissions in the  
22      21st century and the major source of increases in  
23      such emissions;

24               (10) any program to address the risks of cli-  
25      mate change that does not fully include developing

1 nations as integral participants will be ineffective;  
2 and

3 (11) a new long-term, technology-based, cost-ef-  
4 fective, flexible, and global strategy to ensure long-  
5 term energy security and manage the risk of climate  
6 change is needed, and should be promoted by the  
7 United States in its domestic and international ac-  
8 tivities in this regard.

9 **SEC. 3. DEFINITIONS.**

10 Title XVI of the Energy Policy Act of 1992 (42  
11 U.S.C. 13381, et seq.) is amended by inserting before sec-  
12 tion 1601 the following:

13 **“SEC. 1600. DEFINITIONS.**

14 “(a) AGRICULTURAL ACTIVITY.—The term ‘agricul-  
15 tural activity’ means livestock production, cropland cul-  
16 tivation, biogas and other waste material recovery and nu-  
17 trient management.

18 “(b) CLIMATE SYSTEM.—The term ‘climate system’  
19 means the totality of the atmosphere, hydrosphere, bio-  
20 sphere and geosphere and their interactions.

21 “(c) CLIMATE CHANGE.—The term ‘climate change’  
22 means a change in the state of the climate system attrib-  
23 uted directly or indirectly to human activity which is in  
24 addition to natural climate variability observed over com-  
25 parable time periods.

1       “(d) EMISSIONS.—The term ‘emissions’ means the  
2 net release of greenhouse gases and/or their precursors  
3 into the atmosphere over a specified area and period of  
4 time, after taking into account any reductions due to  
5 greenhouse gas sequestration.

6       “(e) GREENHOUSE GASES.—The term ‘greenhouse  
7 gases’ means those gaseous and aerosol constituents of the  
8 atmosphere, both natural and anthropogenic, that absorb  
9 and re-emit infrared radiation.

10       “(f) SEQUESTRATION.—The term ‘sequestration’  
11 means any process, activity or mechanism which removes  
12 a greenhouse gas or its precursor from the atmosphere  
13 or from emissions streams.

14       “(g) FOREST PRODUCTS.—The term ‘forest prod-  
15 ucts’ means all products or goods manufactured from  
16 trees.

17       “(h) FORESTRY ACTIVITY.—

18       “(1) IN GENERAL.—The term ‘forestry activity’  
19 means any ownership or management action that  
20 has a discernible impact on the use and productivity  
21 of forests.

22       “(2) INCLUSIONS.—Forestry activities include,  
23 but are not limited to, the establishment of trees on  
24 an area not previously forested, the establishment of  
25 trees on an area previously forested if a net carbon

1 benefit can be demonstrated, enhanced forest man-  
2 agement (including thinning, stand improvement,  
3 fire protection, weed control, nutrient application,  
4 pest management, and other silvicultural practices),  
5 forest protection or conservation if a net carbon ben-  
6 efit can be demonstrated, and production or use of  
7 biomass energy (including the use of wood, grass or  
8 other biomass in lieu of fossil fuel).

9           “(3) EXCLUSIONS.—The term ‘forestry activity’  
10 does not include a land use change associated with—  
11           “(A) an act of war; or  
12           “(B) an act of nature, including floods,  
13           storms, earthquakes, fires, hurricanes, and tor-  
14           nadoes.”.

15 **SEC. 4. NATIONAL CLIMATE CHANGE STRATEGY.**

16           (a) IN GENERAL.—Section 1601 of the Energy Policy  
17 Act of 1992 (42 U.S.C. 13381) is amended to read as  
18 follows:

19 **“SEC. 1601. NATIONAL CLIMATE CHANGE STRATEGY.**

20           “(a) IN GENERAL.—The President, in consultation  
21 with appropriate Federal agencies and the Congress, shall  
22 develop and implement a national strategy to manage the  
23 risks posed by potential climate change.

24           “(b) GOAL.—The strategy shall be consistent with  
25 the United Nations Framework Convention on Climate

1 Change, done at New York on May 9, 1992, in a manner

2 that—

3 “(1) does not result in serious harm to the U.S.

4 economy;

5 “(2) adequately provides for the energy security  
6 of the U.S.;

7 “(3) establishes and maintains U.S. leadership  
8 with respect to climate change-related scientific re-  
9 search, development and deployment of advanced en-  
10 ergy technology; and

11 “(4) will result in a reduction in the ratio that  
12 the net U.S. greenhouse gas emissions bears to the  
13 U.S. gross domestic production.

14 “(c) ELEMENTS.—The strategy shall include short-  
15 term and long-term strategies, programs and policies  
16 that—

17 “(1) enhance the scientific knowledge base for  
18 understanding and evaluation of natural and human-  
19 induced climate change, including the role of climate  
20 feedbacks and all climate forcing agents;

21 “(2) improve scientific observation, modeling,  
22 analysis and prediction of climate change and its im-  
23 pacts, and the economic, social and environmental  
24 risks posed by such impacts;

1           “(3) assess the economic, social, and environmental costs and benefits of current and potential options to reduce, avoid, or sequester greenhouse gas emissions;

5           “(4) develop and implement market-directed policies that reduce, avoid or sequester greenhouse gas emissions, including:

8           “(A) cost-effective Federal, State, tribal, and local policies, programs, standards and incentives;

11           “(B) policies and incentives to speed development, deployment and consumer adoption of advanced energy technologies in the U.S. and throughout the world; and

15           “(C) removal of regulatory barriers that impede the development, deployment and consumer adoption of advanced energy technologies in the U.S. and throughout the world; and

19           “(D) participation in international institutions, or the support of international activities, that are established or conducted to facilitate effective measures to implement the United Nations Framework Convention on Climate Change;

1           “(5) advance areas where bilateral or multilateral cooperation and investment would lead to adoption of advanced technologies for use within developing countries to reduce, avoid or sequester greenhouse gas emissions;

6           “(6) identify activities and policies that provide  
7           for adaptation to natural and human-induced climate change;

9           “(7) recommend specific legislative or administrative activities, giving preference to cost-effective and technologically feasible measures that will—

12           “(A) result in a reduction in the ratio that  
13           the net U.S. greenhouse gas emissions bears to  
14           the U.S. gross domestic product;

15           “(B) avoid adverse short-term and long-term economic and social impacts on the United States; and

18           “(C) foster such changes in institutional and technology systems as are necessary to mitigate or adapt to climate change and its impacts in the short-term and the long-term; and

22           “(8) designate federal, state, tribal or local agencies responsible for carrying out recommended activities and programs, and identify interagency en-

1       ties or activities that may be needed to coordinate  
2       actions carried out consistent with this strategy.

3       “(d) CONSULTATION.—This strategy shall be devel-  
4       oped in a manner that provides for meaningful participa-  
5       tion by, and consultation among, Federal, State, tribal,  
6       and local government agencies, non-governmental organi-  
7       zations, academia, scientific bodies, industry, the public,  
8       and other interested parties.

9       “(e) BIANNUAL REPORT.—No later than one year  
10      after the date of enactment of this section, and at the end  
11      of each second year thereafter, the President shall submit  
12      to Congress a report that includes—

13           “(1) a description of the national climate  
14       change strategy and its goals and Federal programs  
15       and activities intended to carry out this strategy  
16       through mitigation, adaptation, and scientific re-  
17       search activities;

18           “(2) an evaluation of Federal programs and ac-  
19       tivities implemented as part of this strategy against  
20       the goals and implementation dates outlined in the  
21       strategy;

22           “(3) a description of changes to Federal pro-  
23       grams or activities implemented to carry out this  
24       strategy, in light of new knowledge of climate  
25       change and its impacts and costs or benefits, or

1 technological capacity to improve mitigation or adap-  
2 tation activities;

3 “(4) a description of all Federal spending on  
4 climate change for the current fiscal year and each  
5 of the five years previous, categorized by Federal  
6 agency and program function (including scientific re-  
7 search, energy research and development, regulation,  
8 education and other activities);

9 “(5) an estimate of the budgetary impact for  
10 the current fiscal year and each of the five years  
11 previous of any Federal tax credits, tax deductions  
12 or other incentives claimed by taxpayers that are di-  
13 rectly or indirectly attributable to greenhouse gas  
14 emissions reduction activities; and

15 “(6) an estimate of the amount, in metric tons,  
16 of greenhouse gas emissions reduced, avoided or se-  
17 questered directly or indirectly as a result of each  
18 spending program or tax credit, deduction or other  
19 incentive for the current fiscal year and each of the  
20 five years previous.

21 “(f) REVIEW BY NATIONAL ACADEMIES.—

22 “(1) IN GENERAL.—Not later than 90 days  
23 after the date of publication of each biannual report  
24 as directed by this section, the President shall com-  
25 mission the National Academies to conduct a review

1 of the national climate change strategy and imple-  
2 mentation plan required by this section.

3       “(2) CRITERIA.—The National Academies’ re-  
4 view shall evaluate the goals and recommendations  
5 contained in the national climate change strategy re-  
6 port in light of—

7           “(A) new or improved scientific knowledge  
8 regarding climate change and its impacts;

9           “(B) new understanding of human social  
10 and economic responses to climate change, and  
11 responses of natural ecosystems to climate  
12 change;

13           “(C) advancements in energy technologies  
14 that reduce, avoid, or sequester greenhouse  
15 gases or otherwise mitigate the risks of climate  
16 change;

17           “(D) new or revised understanding of eco-  
18 nomic costs and benefits of mitigation or adap-  
19 tation activities; and

20           “(E) the existence of alternative policy op-  
21 tions that could achieve the strategy goals at  
22 lower economic, environmental, or social cost.

23       “(3) REPORT.—The National Academies shall  
24 prepare and submit to Congress and the President  
25 a report concerning the results of such review, along

1       with any recommendations as appropriate. Such re-  
2       port shall also be made available to the public.

3           “(4) DEFINITION.—For the purposes of this  
4       Section, the term “National Academies” means the  
5       National Research Council, the National Academy of  
6       Sciences, the National Academy of Engineering, and  
7       the Institute of Medicine.”.

8           (b) CONFORMING AMENDMENT.—Section 1103(b) of  
9       the Global Climate Protection Act of 1987 (15 U.S.C.  
10      2901) is amended by inserting “, the Department of En-  
11      ergy, and other Federal agencies as appropriate” after  
12      “Environmental Protection Agency”.

13   **SEC. 5. CLIMATE TECHNOLOGY RESEARCH, DEVELOPMENT,**  
14                   **DEMONSTRATION AND DEPLOYMENT PRO-**  
15                   **GRAM.**

16           (a) IN GENERAL.—Section 1604 of the Energy Policy  
17       Act of 1992 (42 U.S.C. 13384) is amended to read as  
18       follows:

19   **“SEC. 1604. CLIMATE TECHNOLOGY RESEARCH, DEVELOP-**  
20                   **MENT, DEMONSTRATION AND DEPLOYMENT**  
21                   **PROGRAM.**

22           “(a) IN GENERAL.—The Secretary, in consultation  
23       with the Advisory Board established under section 2302,  
24       shall establish a long-term Climate Technology Research,

1 Development, Demonstration, and Deployment Program,  
2 in accordance with sections 3001 and 3002.

3       “(b) PROGRAM OBJECTIVES.—The program shall  
4 conduct a long-term research, development, demonstration  
5 and deployment program to foster technologies and prac-  
6 tices that—

7           “(1) reduce or avoid anthropogenic emissions of  
8 greenhouse gases;

9           “(2) remove and sequester greenhouse gases  
10 from emissions streams; and

11           “(3) remove and sequester greenhouse gases  
12 from the atmosphere.

13       “(c) PROGRAM PLAN.—Not later than 1 year after  
14 the date of enactment of this Act, the Secretary shall pre-  
15 pare and submit to the Congress a 10-year program plan  
16 to guide activities under this section. Thereafter, the Sec-  
17 retary shall biennially update and resubmit the program  
18 plan to the Congress. In preparing the program plan, the  
19 Secretary shall:

20           “(1) include quantitative technology perform-  
21 ance and carbon emissions reduction goals, schedule  
22 milestones, technology approaches, Federal funding  
23 requirements, and non-Federal cost sharing require-  
24 ments;

1           “(2) consult with appropriate representatives of  
2        industry, institutions of higher education, Department  
3        of Energy national laboratories, and professional,  
4        scientific and technical societies;

5           “(3) take into consideration how the Federal  
6        Government, acting through the Secretary, can be  
7        effective in ensuring the availability of such technologies  
8        when they are needed and how the Federal  
9        Government can most effectively cooperate with the  
10       private sector in the accomplishment of the goals set  
11       forth in subsection (b); and

12       “(4) consider how activities funded under the  
13       program can be complementary to, and not duplicative of,  
14       existing research and development activities  
15       within the Department.

16       “(d) SOLICITATION.—Not later than 1 year after the  
17       date of submission of the 10-year program plan, the Secretary  
18       shall solicit proposals for conducting activities consistent  
19       with the 10-year program plan and select one or  
20       more proposals not later than 180 days after such solicitations.

22       “(e) PROPOSALS.—Proposals may be submitted by  
23       applicants or consortia from industry, institutions of higher  
24       education, or Department of Energy national labora-

1 stories. At minimum, each proposal shall also include the  
2 following:

3           “(1) a multi-year management plan that out-  
4 lines how the proposed research, development, dem-  
5 onstration and deployment activities will be carried  
6 out;

7           “(2) quantitative technology goals and green-  
8 house gas emission reduction targets that can be  
9 used to measure performance against program objec-  
10 tives;

11           “(3) the total cost of the proposal for each year  
12 in which funding is requested, and a breakdown of  
13 those costs by category;

14           “(4) evidence that the applicant has in exist-  
15 ence or has access to—

16           “(A) the technical capability to enable it to  
17 make use of existing research support and fa-  
18 cilities in carrying out the research objectives of  
19 the proposal;

20           “(B) a multi-disciplinary research staff ex-  
21 perienced in technologies or practices able to se-  
22 quester, avoid, or capture greenhouse gas emis-  
23 sions;

24           “(C) access to facilities and equipment to  
25 enable the conduct of laboratory-scale testing or

1 demonstration of technologies or related pro-  
2 cesses undertaken through the program; and

3 “(D) commitment for matching funds and  
4 other resources from non-Federal sources, in-  
5 cluding cash, equipment, services, materials, ap-  
6 propriate technology transfer activities, and  
7 other assets directly related to the cost of the  
8 proposal;

9 “(5) evidence that the proposed activities are  
10 supplemental to, and not duplicative of, existing re-  
11 search and development activities carried out, fund-  
12 ed, or otherwise supported by the Department;

13 “(6) a description of the technology transfer  
14 mechanisms and industry partnerships that the ap-  
15 plicant will use to make available research results to  
16 industry and to other researchers;

17 “(7) a statement whether the unique capabili-  
18 ties of Department of Energy national laboratories  
19 warrant collaboration with those laboratories, and  
20 the extent of any such collaboration proposed; and

21 “(8) demonstrated evidence of the ability of the  
22 applicant to undertake and complete the proposed  
23 project, including the successfully introduction of the  
24 technology into commerce.

1       “(f) SELECTION OF PROPOSALS.—From the pro-  
2 posals submitted, the Secretary shall select for funding  
3 one or more proposals that will best accomplish the pro-  
4 gram objectives outlined in this section.

5       “(g) ANNUAL REPORT.—The Secretary shall prepare  
6 and submit an annual report to Congress that—

7           “(1) demonstrates that the program objectives  
8 are adequately focused, peer-reviewed for merit, and  
9 not unnecessarily duplicative of the science and tech-  
10 nology research being conducted by other Federal  
11 agencies and programs,

12           “(2) states whether the program as conducted  
13 in the prior year addresses an adequate breadth and  
14 range of technologies and solutions to address an-  
15 thropogenic climate change; and

16           “(3) evaluates the quantitative progress of  
17 funded proposals towards the program objectives  
18 outlined in this section, and the technology and  
19 greenhouse gas emission reduction, avoidance or se-  
20 questration goals as described in their respective  
21 proposals.

22       “(h) AUTHORIZATION OF APPROPRIATIONS.—There  
23 are authorized to be appropriated to carry out this subtitle  
24 \$200,000,000 for each of fiscal years 2002 through 2011,  
25 to remain available until expended.”.

1        “(b) CONFORMING AMENDMENTS.—Section 6 of the  
2 Federal Nonnuclear Energy Research and Development  
3 Act of 1974 (42 U.S.C. 5905) is amended—

4                (1) in subsection (a)—

5                        (A) in paragraph (2), by striking “and” at  
6 the end;

7                        (B) in paragraph (3) by striking the period  
8 at the end and inserting ”, and ”; and

9                        (C) by adding at the end the following:

10                “(4) solutions to the effective management of  
11 greenhouse gas emissions in the long term by the de-  
12 velopment of technologies and practices designed  
13 to—

14                “(A) reduce or avoid anthropogenic emis-  
15 sions of greenhouse gases;

16                “(B) remove and sequester greenhouse  
17 gases from emissions streams; and

18                “(C) remove and sequester greenhouse  
19 gases from the atmosphere. ”; and

20                (2) in subsection (b)—

21                (A) in paragraph (2), by striking “sub-  
22 section (a)(1) through (3)” and inserting  
23 “paragraphs (1) through (4) of subsection (a)”;  
24 and

25                (B) in paragraph (3)—

(i) in subparagraph (R), by striking

“and” at the end;

(ii) in subparagraph (S), by striking

the period at the end and inserting ";

and”; and

(iii) by adding at the end the fol-

lowing:

“(T) to pursue a long-term climate tech-

9 nology strategy designed to demonstrate a vari-

10 ety of technologies by which stabilization of

11 greenhouse gases might be best achieved, in-

12 cluding accelerated research, development, dem-

### 13 onstration and deployment of—

“(j) renewable energy systems;

“(ii) advanced fossil energy tech-

## nology.

### “(iii) advanced nuclear power plant

18 design:

“(iv) fuel cell technology for residen-

<sup>20</sup> See, e.g., *Industrial and Transportation Applications of the Internet of Things* (2013).

tions:

#### **“(v) carbon sequestration practices**

and technologies, including agricultural

<sup>24</sup> See, for example, the following sections that stress the importance of the

1                             “(vi) efficient electrical generation,  
2                             transmission and distribution technologies;  
3                             and  
4                             “(vii) efficient end use energy tech-  
5                             nologies.”.

6 **SEC. 6. INTERNATIONAL ENERGY TECHNOLOGY DEPLOY-  
7                             MENT PROGRAM.**

8                     Section 1608 of Energy Policy Act of 1992 (42  
9 U.S.C. 13387) is amended by striking subsection (l) and  
10 inserting the following:

11                     “(l) INTERNATIONAL ENERGY TECHNOLOGY DE-  
12 PLOYMENT PROGRAM.—

13                     “(1) DEFINITIONS.—In this subsection:

14                     “(A) INTERNATIONAL ENERGY DEPLOY-  
15 MENT PROJECT.—The term “international en-  
16 ergy deployment project” means a project to  
17 construct an energy production facility outside  
18 the United States—

19                     “(i) the output of which will be con-  
20 sumed outside the United States; and

21                     “(ii) the deployment of which will re-  
22 sult in a greenhouse gas reduction per unit  
23 of energy produced when compared to the  
24 technology that would otherwise be imple-  
25 mented of—

1                             “(I) 10 percentage points or  
2                             more, in the case of a unit placed in  
3                             service before January 1, 2010;

4                             “(II) 20 percentage points or  
5                             more, in the case of a unit placed in  
6                             service after December 31, 2009, and  
7                             before January 1, 2020; or

8                             “(III) 30 percentage points or  
9                             more, in the case of a unit placed in  
10                             service after December 31, 2019, and  
11                             before January 2, 2030.

12                             “(B) QUALIFYING INTERNATIONAL EN-  
13                             ERGY DEPLOYMENT PROJECT.—The term  
14                             “qualifying international energy deployment  
15                             project” means an international energy deploy-  
16                             ment project that—

17                             “(i) is submitted by a United States  
18                             firm to the Secretary in accordance with  
19                             procedures established by the Secretary by  
20                             regulation;

21                             “(ii) uses technology that has been  
22                             successfully developed or deployed in the  
23                             United States, or in another country as a  
24                             result of a partnership with a company  
25                             based in the United States;

1                             “(iii) meets the criteria of subsection  
2 (k);

3                             “(iv) is approved by the Secretary,  
4 with notice of the approval being published  
5 in the Federal Register; and

6                             “(v) complies with such terms and  
7 conditions as the Secretary establishes by  
8 regulation.

9                             “(C) UNITED STATES.—The term ‘United  
10 States’, when used in a geographical sense,  
11 means the 50 States, the District of Columbia,  
12 Puerto Rico, Guam, the Virgin Islands, Amer-  
13 ican Samoa, and the Commonwealth of the  
14 Northern Mariana Islands.

15                             “(2) PILOT PROGRAM FOR FINANCIAL ASSIST-  
16 ANCE.—

17                             “(A) IN GENERAL.—Not later than 180  
18 days after the date of enactment of this Act,  
19 the Secretary shall, by regulation, provide for a  
20 pilot program for financial assistance for qual-  
21 ifying international energy deployment projects.

22                             “(B) SELECTION CRITERIA.—After con-  
23 sultation with the Secretary of State, the Sec-  
24 retary of Commerce, and the United States  
25 Trade Representative, the Secretary shall select

1 projects for participation in the program based  
2 solely on the criteria under this title and with-  
3 out regard to the country in which the project  
4 is located.

5           “(C) FINANCIAL ASSISTANCE.—

6           “(i) IN GENERAL.—A United States  
7 firm that undertakes a qualifying inter-  
8 national energy deployment project that is  
9 selected to participate in the pilot program  
10 shall be eligible to receive a loan or a loan  
11 guarantee from the Secretary.

12           “(ii) RATE OF INTEREST.—The rate  
13 of interest of any loan made under clause  
14 (i) shall be equal to the rate for Treasury  
15 obligations then issued for periods of com-  
16 parable maturities.

17           “(iii) AMOUNT.—The amount of a  
18 loan or loan guarantee under clause (i)  
19 shall not exceed 50 percent of the total  
20 cost of the qualified international energy  
21 deployment project.

22           “(iv) DEVELOPED COUNTRIES.—  
23 Loans or loan guarantees made for  
24 projects to be located in a developed coun-  
25 try, as listed in Annex I of the United Na-



1                   contribute at least 5 percent of funds for  
2                   the capacity building research.

3                   “(D) COORDINATION WITH OTHER PRO-  
4                   GRAMS.—A qualifying international energy de-  
5                   ployment project funded under this section shall  
6                   not be eligible as a qualifying clean coal tech-  
7                   nology under section 415 of the Clean Air Act  
8                   (42 U.S.C. 7651n).

9                   “(E) REPORT.—Not later than 5 years  
10                  after the date of enactment of this section, the  
11                  Secretary shall submit to the President and the  
12                  Congress a report on the results of the pilot  
13                  projects.

14                  “(F) RECOMMENDATION.—Not later than  
15                  60 days after receiving the report under sub-  
16                  paragraph (E), the Secretary shall submit to  
17                  Congress a recommendation concerning whether  
18                  the financial assistance program under this sec-  
19                  tion should be continued, expanded, reduced, or  
20                  eliminated.

21                  “(G) AUTHORIZATION OF APPROPRIA-  
22                  TIONS.—There are authorized to be appro-  
23                  priated to carry out this section \$100,000,000  
24                  for each of fiscal years 2002 through 2011, to  
25                  remain available until expended.”.

1 **SEC. 7. NATIONAL GREENHOUSE GAS EMISSIONS REG-  
2 ISTRY.**

3 Section 1605 of the Energy Policy Act of 1992 (42  
4 U.S.C. 13385) is amended—

5 (1) by amending the second sentence of sub-  
6 section (a) to read as follows: “The Secretary shall  
7 annually update and analyze such inventory using  
8 available data, including, beginning in calendar year  
9 2001, information collected as a result of voluntary  
10 reporting under subsection (b). The inventory shall  
11 identify for calendar year 2001 and thereafter the  
12 amount of emissions reductions attributed to those  
13 reported under subsection (b).”;

14 (2) by amending subsection (b)(1) (B) and (C)  
15 to read as follows—

16 “(B) annual reductions or avoidance of  
17 greenhouse gas emissions and carbon sequestra-  
18 tion achieved through any measures, including  
19 agricultural activities, co-generation, appliance  
20 efficiency, energy efficiency, forestry activities  
21 that increase carbon sequestration stocks (in-  
22 cluding the use of forest products), fuel switch-  
23 ing, management of crop lands, grazing lands,  
24 grasslands and dry lands, manufacture or use  
25 of vehicles with reduced greenhouse gas emis-  
26 sions, methane recovery, ocean seeding, use of

1           renewable energy, chlorofluorocarbon capture  
2           and replacement, and power plant heat rate im-  
3           provement; and

4           “(C) reductions in, or avoidance of, green-  
5           house gas emissions achieved as a result of vol-  
6           untary activities domestically, or internation-  
7           ally, plant or facility closings, and State or Fed-  
8           eral requirements.”.

9           (3) by striking in the first sentence of sub-  
10          section (b)(2) the word “entities” and inserting  
11          “persons or entities” and in the second sentence of  
12          such subsection, by inserting after “Persons” the  
13          words “or entities”;

14          (4) by inserting in the second sentence of sub-  
15          section (b)(4) the words “persons or” before “enti-  
16          ty”;

17          (5) by adding after subsection (b)(4) the fol-  
18          lowing new paragraphs—

19           “(5) RECOGNITION OF VOLUNTARY GREEN-  
20           HOUSE GAS EMISSIONS REDUCTION, AVOIDANCE, OR  
21           SEQUESTRATION.—To encourage new and increased  
22           voluntary efforts to reduce, avoid, or sequester emis-  
23           sions of greenhouse gases, the Secretary shall de-  
24           velop and establish a program of giving annual pub-  
25           lic recognition to all reporting persons and entities

1 demonstrating voluntarily achieved greenhouse gases  
2 reduction, avoidance, or sequestration, pursuant to  
3 the voluntary collections and reporting guidelines  
4 issued under this section. Such recognition shall be  
5 based on the information certified, subject to section  
6 1001 of title 18, United States Code, by such per-  
7 sons or entities for accuracy as provided in para-  
8 graph 2 of this subsection, and shall include such in-  
9 formation reported prior to the enactment of this  
10 paragraph. At a minimum such recognition shall an-  
11 nually be published in the Federal Register.

12           “(6) REVIEW AND REVISION OF GUIDE-  
13 LINES.—

14           “(A) IN GENERAL.—Not later than 1 year  
15 after the date of enactment of this subpara-  
16 graph, the Secretary of Energy, acting through  
17 the Administrator of the Energy Information  
18 Administration, shall conduct a review of guide-  
19 lines established under this section regarding  
20 the accuracy and reliability of reports of green-  
21 house gas reductions and related information.

22           “(B) CONTENTS.—The review shall include  
23 the consideration of the need for any amend-  
24 ments to such guidelines, including—

1                     “(i) a random or other verification  
2                     process using the authorities available to  
3                     the Secretary under other provisions of  
4                     law;

5                     “(ii) a range of reference cases for re-  
6                     porting of project-based activities in sec-  
7                     tors, including the measures specified in  
8                     subparagraph (1)(B) of this subsection,  
9                     and the inclusion of benchmark and de-  
10                    fault methodologies and best practices for  
11                    use as reference cases for eligible projects;

12                    “(iii) issues, such as comparability,  
13                    that are associated with the option of re-  
14                    porting on an entity-wide basis or on an  
15                    activity or project basis; and

16                    “(iv) safeguards to address the possi-  
17                    bility of reporting, inadvertently or other-  
18                    wise, of some or all of the same greenhouse  
19                    gas emissions reductions by more than one  
20                    reporting entity or person and to make  
21                    corrections where necessary;

22                    “(v) provisions that encourage entities  
23                    or persons to register their certified, by ap-  
24                    propriate and credible means, baseline  
25                    emissions levels on an annual basis, taking

1 into consideration all of their reports made  
2 under this section prior to the enactment  
3 of this paragraph;

15 For the purposes of this paragraph, the term  
16 'reductions' means any and all activities taken  
17 by a reporting entity or person that reduce,  
18 avoid or sequester greenhouse gas emissions, or  
19 sequester greenhouse gases from the atmos-  
20 phere.

21                             “(C) ECONOMIC ANALYSIS.—The review  
22                             should consider the costs and benefits of any  
23                             such amendments, the effect of such amend-  
24                             ments on participation in this program, includ-  
25                             ing by farmers and small businesses, and the

1       need to avoid creating undue economic advan-  
2       tages or disadvantages for persons or entities in  
3       the private sector. The review should provide,  
4       where appropriate, a range of reasonable op-  
5       tions that are consistent with the voluntary na-  
6       ture of this section and that will help further  
7       the purposes of this section.

8               “(D) PUBLIC COMMENT AND SUBMISSION  
9       OF REPORT.—The findings of the review shall  
10      be made available in draft form for public com-  
11      ment for at least 45 days, and a report con-  
12      taining the findings of the review shall be sub-  
13      mitted to Congress and the President no later  
14      than one year after date of enactment of this  
15      section.

16               “(E) REVISION OF GUIDELINES.—If the  
17      Secretary, after consultation with the Adminis-  
18      trator, finds, based on the study results, that  
19      changes to the program are likely to be bene-  
20      ficial and cost effective in improving the accu-  
21      racy and reliability of reported greenhouse gas  
22      reductions and related information, are con-  
23      sistent with the voluntary nature of this section,  
24      and further the purposes of this section, the  
25      Secretary shall propose and promulgate changes

1 to program guidelines based with such findings.  
2 In carrying out the provisions of this para-  
3 graph, the Secretary shall consult with the Sec-  
4 retary of Agriculture and the Administrator of  
5 the Small Business Administration to encourage  
6 greater participation by small business and  
7 farmers in addressing greenhouse gas emission  
8 reductions and reporting such reductions.

9 “(F) PERIODIC REVIEW AND REVISION OF  
10 GUIDELINES.—The Secretary shall thereafter  
11 review and revise these guidelines at least once  
12 every 5 years, following the provisions for eco-  
13 nomic analysis, public review, and revision set  
14 forth in subsections (C) through (E) of this sec-  
15 tion.”.

16 (6) in subsection (c), by inserting “the Sec-  
17 retary of the Department of Agriculture, the Sec-  
18 retary of the Department of Commerce, the Admin-  
19 istrator of the Energy Information Administration,  
20 and” before “the Administrator”; and

21 (7) by adding at the end the following:

22 “(d) PUBLIC AWARENESS PROGRAM.—

23 “(1) IN GENERAL.—The Secretary shall create  
24 and implement a public awareness program to edu-  
25 cate all persons in the United States of—

1                     “(A) the direct benefits of engaging in voluntary greenhouse gas emissions reduction  
2                     measures and having the emissions reductions certified under this section and available for use  
3                     therein; and  
4

5  
6                     “(B) the ease of use of the forms and procedures for having emissions reductions certified under this section.  
7  
8

9                     “(2) AGRICULTURAL AND SMALL BUSINESS  
10                     OUTREACH.—The Secretary of Agriculture and the Administrator of the Small Business Administration  
11                     shall assist the Secretary in creating and implementing a targeted public awareness program to encourage voluntary participation by small businesses  
12                     and farmers.”.

13                     **16 SEC. 8. REVIEW OF FEDERALLY FUNDED ENERGY TECHNOLOGY RESEARCH AND DEVELOPMENT.**

14                     (a) IN GENERAL.—Title XVI of the Energy Policy  
15                     Act of 1992 (42 U.S.C. 13381 et seq.) is amended by adding the following new section:

16                     **21 “SEC. 1610. REVIEW OF FEDERALLY FUNDED ENERGY TECHNOLOGY RESEARCH AND DEVELOPMENT.**

22  
23  
24                     “(a) DEPARTMENT OF ENERGY REVIEW.—

1           “(1) IN GENERAL.—The Secretary shall review  
2           annually all federally funded research and develop-  
3           ment activities carried out with respect to energy  
4           technology; and submit to a report to Congress by  
5           October 15 of each year.

6           “(2) ASSESSMENT OF TECHNOLOGY READINESS  
7           AND BARRIERS TO DEPLOYMENT.—As part of this  
8           review, the Secretary shall—

9               “(A) assess the status and readiness (in-  
10           cluding the potential commercialization) of each  
11           energy technology and any regulatory or market  
12           barriers to deployment;

13               “(B) consider—

14                   “(i) the length of time it will take for  
15                   deployment and use of the energy tech-  
16                   nology and for the technology to have a  
17                   meaningful impact on emission reductions;

18                   “(ii) the cost of deploying the energy  
19                   technology; and

20                   “(iii) the safety of the energy tech-  
21                   nology;

22               “(C) assess the available resource base for  
23               any energy resources used by the energy tech-  
24               nology, and the potential for expanded sustain-  
25               able use of the resource base; and

1                   “(D) recommend to Congress any changes  
2                   in law or regulation deemed appropriate by the  
3                   Secretary to hasten deployment and use of the  
4                   energy technology.

5                   “(b) ENERGY TECHNOLOGY RESEARCH AND DEVEL-  
6                   OPMENT CLEARINGHOUSE.—The Secretary shall establish  
7                   an information clearinghouse to facilitate the transfer and  
8                   dissemination of the results of federally funded research  
9                   and development activities being carried out on energy  
10                   technology subject to any restrictions or safeguards estab-  
11                   lished for national security or the protection of intellectual  
12                   property rights (including trade secrets and confidential  
13                   business information protected under section 552(b)(4) of  
14                   title 5, United States Code).”.

15                   (b) TECHNICAL AMENDMENT.—The table of contents  
16                   of the Energy Policy Act of 1992 (106 Stat. 2776) is  
17                   amended by inserting after the item relating to section  
18                   1609 the following:

“Sec. 1610. Review of federally funded energy technology research and development.”.

19                   **SEC. 9. OFFICE OF APPLIED ENERGY TECHNOLOGY AND**  
20                   **GREENHOUSE GAS-MANAGEMENT.**

21                   Section 1603 of the Energy Policy Act of 1992 (42  
22                   U.S.C. 13383) is amended to read as follows:

1   **“SEC. 1603. OFFICE OF APPLIED ENERGY TECHNOLOGY**2                   **AND GREENHOUSE GAS MANAGEMENT.**3        “(a) ESTABLISHMENT.—There is established by this  
4    section in the Department of Energy an Office of Applied  
5    Energy Technology and Greenhouse Gas Management.

6        “(b) FUNCTION.—The Office shall—

7                   “(1) establish appropriate quantitative perform-  
8    ance and deployment goals for energy technologies  
9    that reduce, avoid, or sequester emissions of green-  
10   house gases, provided that such goals are consistent  
11   with any national climate change strategy;12                  “(2) manage domestic and international energy  
13   technology demonstration and deployment programs  
14   for energy technologies that reduce, avoid or seque-  
15   ster emissions of greenhouse gases, including those  
16   authorized under this title; provided that such pro-  
17   grams supplement and do not replace existing en-  
18   ergy research and development activities within the  
19   Department;20                  “(3) facilitate the development of domestic and  
21   international cooperative research and development  
22   agreements (as that term is defined in section  
23   12(d)(1) of the Stevenson-Wydler Technology Inno-  
24   vation Act of 1980 (15 U.S.C. 3710a(d)(1)), or  
25   similar cooperative, cost-shared partnerships with  
26   non-Federal organizations to accelerate the rate of

1 domestic and international demonstration and de-  
2 ployment of energy technologies that reduce, avoid  
3 or sequester emissions of greenhouse gases;

4 “(4) conduct necessary programs of monitoring,  
5 experimentation, and analysis of the technological,  
6 scientific, and economic viability of energy tech-  
7 nologies that reduce, avoid, or sequester greenhouse  
8 gas emissions; and

9 “(5) coordinate issues, policies, and activities  
10 for the Department regarding climate change and  
11 related energy matters pursuant to this title, and co-  
12 ordinate the issuance of such reports as many be re-  
13 quired under this title.

14 “(c) DIRECTOR.—The Secretary shall appoint a di-  
15 rector of the Office, who—

16 “(1) shall report to the Secretary;

17 “(2) shall be compensated at no less than level  
18 IV of the Executive Schedule; and

19 “(3) at the request of the Committees of the  
20 Senate and House of Representatives with appro-  
21 priation and legislative jurisdiction over programs  
22 and activities of the Department of Energy, shall re-  
23 port to Congress on the activities of the Office.

1       “(d) DUTIES.—The Director shall, in addition to per-  
2 forming all functions necessary to carry out the functions  
3 of the Office—

4           “(1) in the absence of the Secretary, serve as  
5 the Secretary’s representative for interagency and  
6 multilateral policy discussions of global climate  
7 change, including the activities of the Committee on  
8 Earth and Environmental Sciences as established by  
9 the Global Change Research Act of 1990 (15 U.S.C.  
10 292 et seq.);

11           “(2) participate, in cooperation with other fed-  
12 eral agencies, in the development and monitoring of  
13 domestic and international policies for their effects  
14 on any kind of climate change globally and domesti-  
15 cally and on the generation, reduction, avoidance,  
16 and sequestration of greenhouse gases;

17           “(3) develop and implement a balanced, sci-  
18 entific, non-advocacy educational and informational  
19 public awareness program on—

20           “(A) potential climate change, including  
21 any known adverse and beneficial effects on the  
22 United States and the economy of the United  
23 States and the world economy, taking into con-  
24 sideration whether those effects are known or

1                   expected to be temporary, long-term, or permanent;

3                   “(B) the role of national energy policy in  
4                   the determination of current and future emissions  
5                   of greenhouse gases, particularly measures  
6                   that develop advanced energy technologies,  
7                   improve energy efficiency, or expand the use of  
8                   renewable energy or alternative fuels; and

9                   “(C) the development of voluntary means  
10                  and measures to mitigate or minimize significant  
11                  adverse effects of climate change and, where appropriate, to adapt, to the greatest extent practicable, to climate change.

14                  “(4) provide, consistent with applicable provisions of law, public access to all information on climate change, effects of climate change, and adaptation to climate change; and

18                  “(5) in accordance with all law administered by the Secretary and other applicable Federal law and contracts, including patent and intellectual property laws, and in furtherance of the United Nations Framework Convention of Climate Change—

23                  “(A) identify for, and transfer, deploy, diffuse, and apply to, Parties to such Convention, including the United States, any technologies,

1           practices, or processes which reduce, avoid, or  
2           sequester emissions of greenhouse gases if such  
3           technologies, practices or processes have been  
4           developed with funding from the Department of  
5           Energy or any of its facilities or laboratories;  
6           and

7           “(B) support reasonable efforts by the  
8           Parties to such convention, including the  
9           United States, to identify and remove legal,  
10           trade, financial, and other barriers to the use  
11           and application of any technologies, practices,  
12           or processes which reduce, avoid or sequester  
13           emissions of greenhouse gases.”.

14 **SEC. 10. COORDINATION OF GLOBAL CHANGE RESEARCH.**

15           (a) **DEFINITIONS.**—As used in this Section, the  
16           term—

17           (1) “Committee” means the Committee on  
18           Earth and Environmental Sciences established under  
19           Section 102 of the Global Change Research Act of  
20           1990 (15 U.S.C. 2933).

21           (2) “Program” means the United States Global  
22           Change Research Program established under Section  
23           103 of the Global Change Research Act of 1990 (15  
24           U.S.C. 2933).

1       (b) COORDINATION OF CLIMATE OBSERVATION ACTIVITIES.—At the direction of the Committee, the Director of the Program shall develop and implement activities within the Program that—

5               (1) coordinate system design and implementation and operation of a multi-user, multi-purpose long-term climate observing system for the measurement and monitoring of relevant climatic variables;

9               (2) carry out basic research, development and deployment of innovative scientific techniques and instruments (both in-situ and space-based) for measurement and monitoring of relevant climatic variables;

14               (3) coordinate Program activities to ensure the integrity and continuity of data records; including—

16                       (A) calibration and inter-comparison of multiple instruments that measure the same climatic variable or set of variables;

19                       (B) backup instruments to ensure data record continuity; and

21                       (C) documentation of changes in instruments, observing practices, observing locations, sampling rates, processing algorithms and other changes;

1 (4) establish ongoing activities for the develop-  
2 ment, implementation, operation and management of  
3 climatic-specific observational programs, with special  
4 emphasis on activities that seek the most efficient  
5 and reliable means of observing the climate system;

6 (5) coordinate activities of the Program that  
7 contribute to the design, implementation, operation,  
8 and data management activities of international cli-  
9 mate system observation networks; and

10 (6) establish and maintain a free and openly ac-  
11 cessible national data management system for the  
12 storage, maintenance, and archival of climate obser-  
13 vation data, with an emphasis on facilitation access  
14 to, use of and interpretation of such data by the sci-  
15 entific research community and the public.

16 (c) COORDINATION OF CLIMATE MODELING ACTIVI-  
17 TIES.—At the direction of the Committee, the Director of  
18 the Program shall develop and implement activities within  
19 the Program that—

20 (1) establish and periodically revise a national  
21 climate system modeling strategy designed to posi-  
22 tion the United States as a world leader in all as-  
23 pects of climate system modeling;

4 (3) carry out basic research, development and  
5 deployment of innovative computational techniques  
6 for climate system modeling;

11 (5) carry out the continued development and  
12 inter-comparison of United States climate models  
13 with special emphasis on activities that—

14 (A) establish the ability of United States  
15 climate models to successfully reproduce the  
16 historical climate observational record;

17 (B) incorporate new climate system proc-  
18 esses or improve spatial or temporal resolution  
19 of climate model simulations:

20 (C) develop standardized tools and struc-  
21 tures for climate model output, evaluation and  
22 programming design;

23 (D) improve the accuracy and completeness of supporting data sets used to drive climate models; and  
24  
25

(E) reduce uncertainty in assessments of climate change and its impacts on the United States.

4 (6) coordinate activities of the Program that  
5 contribute to the design, implementation, operation,  
6 and data analysis activities of international climate  
7 system modeling inter-comparisons and assessments;  
8 and

16 (d) AUTHORIZATION OF APPROPRIATIONS.—There  
17 are authorized to be appropriated to carry out this section  
18 \$50,000,000 for each of fiscal years 2002 through 2004,  
19 to remain available until expended, and thereafter such  
20 sums are necessary.

21 (e) USE OF EXISTING INFRASTRUCTURE.—In car-  
22 rying out new activities under subsections (b) and (c) of  
23 this section, the Program shall, where possible, use and

- 1 incorporate existing Program activities and resources,
- 2 such as Program Working Groups.

○