

106TH CONGRESS  
1ST SESSION

# S. 882

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.

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## IN THE SENATE OF THE UNITED STATES

APRIL 27, 1999

Mr. MURKOWSKI (for himself, Mr. HAGEL, Mr. SMITH of Oregon, Mr. BYRD, Mr. CRAIG, Mr. ROBERTS, Mr. GRAMS, Mr. HUTCHINSON, Mr. ENZI, and Mr. MCCAIN), introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

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## A BILL

To 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 “Energy and Climate  
5 Policy Act of 1999”.

### 6 **SEC. 2. FINDINGS AND PURPOSES.**

7 (a) FINDINGS.—Congress finds that—

1           (1) although there are significant uncertainties  
2           surrounding the science of climate change, human  
3           activities may contribute to increasing global con-  
4           centrations of greenhouse gases in the atmosphere,  
5           which in turn may ultimately contribute to global cli-  
6           mate change beyond that resulting from natural var-  
7           iability;

8           (2) the characteristics of greenhouse gases and  
9           the physical nature of the climate system require  
10          that any stabilization of atmospheric greenhouse gas  
11          concentrations must be a long-term effort under-  
12          taken on a global basis;

13          (3) since developing countries will constitute the  
14          major source of greenhouse gas emissions early in  
15          the 21st century, all nations must share in an effec-  
16          tive international response to potential climate  
17          change;

18          (4) environmental progress and economic pros-  
19          perity are interrelated;

20          (5) effective greenhouse gas management ef-  
21          forts depend on the development of long-term, cost-  
22          effective technologies and practices that can be de-  
23          veloped, refined, and deployed commercially in an or-  
24          derly manner in the United States and around the  
25          world;

1           (6) in its present form as signed by the Admin-  
2           istration, the Kyoto Protocol to the United Nations  
3           Framework Convention on Climate Change fails to  
4           meet the minimum conditions of Senate Resolution  
5           98, 105th Congress, which was adopted by the Sen-  
6           ate on July 25, 1997, by a vote of 95–0;

7           (7) the President has not submitted the Kyoto  
8           protocol to the Senate for debate and advice and  
9           consent to ratification under article II, section 2,  
10          clause 2 of the United States Constitution and has  
11          indicated that the Administration has no intention  
12          to do so in the foreseeable future, or to implement  
13          any portion of the Kyoto protocol prior to its ratifi-  
14          cation in the Senate.

15          (b) PURPOSE.—The purpose of this Act is to  
16          strengthen provisions of the Energy Policy Act of 1992  
17          (42 U.S.C. 13381 et seq.) and the Federal Nonnuclear  
18          Energy Research and Development Act of 1974 (42  
19          U.S.C. 5901 et seq.) to—

20                (1) further promote voluntary efforts to reduce  
21                or avoid greenhouse gas emissions and improve en-  
22                ergy efficiency;

23                (2) focus Department of Energy efforts in this  
24                area; and

1           (3) authorize and undertake a long-term re-  
 2       search, development, and demonstration program  
 3       to—

4                   (A) develop new and enhance existing tech-  
 5       nologies that reduce or avoid anthropogenic  
 6       emissions of greenhouse gases;

7                   (B) develop new technologies that could re-  
 8       move and sequester greenhouse gases from  
 9       emissions streams; and

10                  (C) develop new technologies and practices  
 11       to remove and sequester greenhouse gases from  
 12       the atmosphere.

13 **SEC. 3. OFFICE OF GLOBAL CLIMATE CHANGE.**

14       Section 1603 of the Energy Policy Act of 1992 (42  
 15       U.S.C. 13383) is amended—

16           (1) in the section heading, by striking “**DI-**  
 17       **RECTOR OF CLIMATE PROTECTION**”  
 18       and inserting “**OFFICE OF GLOBAL CLI-**  
 19       **MATE CHANGE**”; and

20           (2) by striking the first sentence and inserting  
 21       the following:

22       “(a) ESTABLISHMENT.—There is established by this  
 23       Act in the Department of Energy an Office of Global Cli-  
 24       mate Change.

1       “(b) FUNCTION.—The Office shall serve as a focal  
2 point for coordinating for the Secretary and Congress all  
3 departmental issues and policies regarding climate change  
4 and related matters.

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

7               “(1) shall be compensated at no less than level  
8 IV of the Executive Schedule;

9               “(2) shall report to the Secretary; and

10              “(3) at the request of the Committees of the  
11 Senate and House of Representatives with appro-  
12 priation and legislative jurisdiction over programs  
13 and activities of the Department of Energy, shall re-  
14 port to Congress on the activities of the Office.”;

15              (3) in the second sentence, by striking “The Di-  
16 rector” and inserting the following:

17       “(d) DUTIES.—The Director”; and

18              (4) in subsection (c) (as designated by para-  
19 graph (2)), by striking paragraphs (2) and (3) and  
20 inserting the following:

21              “(2) participate, in cooperation with other fed-  
22 eral agencies, in the development and monitoring of  
23 domestic and international policies for their effects  
24 on any kind of climate change globally and domesti-

1 cally and on the generation, reduction, avoidance,  
2 and sequestration of greenhouse gases;

3 “(3) develop and implement a balanced, sci-  
4 entifically sound, nonadvocacy educational and in-  
5 formative public awareness program on—

6 “(A) potential global climate change, in-  
7 cluding any known adverse and beneficial ef-  
8 fects on the United States and the economy of  
9 the United States and the world economy, tak-  
10 ing into consideration whether those effects are  
11 known or expected to be temporary, long-term,  
12 or permanent; and

13 “(B) voluntary means and measures to  
14 mitigate or minimize significant adverse effects  
15 and, where appropriate, to adapt, to the great-  
16 est extent practicable, to climate change;

17 “(4) provide, consistent with applicable provi-  
18 sions of law (including section 1605 (b)(3)), public  
19 assess to all information on climate change, effects  
20 of climate change, and adaptation to climate change;

21 “(5) promote and cooperate in the research, de-  
22 velopment, demonstration, and diffusion of environ-  
23 mentally sound, cost-effective and commercially  
24 practicable technologies, practices and processes that  
25 avoid, sequester, control, or reduce anthropogenic

1 emissions of greenhouse gases not controlled by the  
2 Montreal Protocol for all relevant economic sectors,  
3 including, where appropriate, the transfer of envi-  
4 ronmentally sound, cost-effective and commercially  
5 practicable technologies, practices, and processes de-  
6 veloped with Federal funds by the Department of  
7 Energy or any of its facilities and laboratories to in-  
8 terested persons in the United States and to devel-  
9 oping country Parties to the United Nations Frame-  
10 work Convention on Climate Change, and Parties  
11 thereto with economies in transition to market-based  
12 economies, consistent with, and subject to, any ap-  
13 plicable Federal law, including patent and intellec-  
14 tual property laws, and any applicable contracts, and  
15 taking into consideration the provisions and pur-  
16 poses of section 1608; and

17 “(6) have the authority to participate in the  
18 planning activities of relevant Department of Energy  
19 programs.”.

20 **SEC. 4. NATIONAL INVENTORY AND VOLUNTARY REPORT-**  
21 **ING OF GREENHOUSE GASES.**

22 (a) Section 1605 of the Energy Policy Act of 1992  
23 (42 U.S.C. 13385) is amended—

24 (1) by amending the second sentence of sub-  
25 section (a) to read as follows—

1           “The Administrator of the Energy Infor-  
2           mation Administration shall annually update  
3           and analyze such inventory using available data,  
4           including beginning in calendar year 2001, in-  
5           formation collected as a result of voluntary re-  
6           porting under subsection (b). The inventory  
7           shall identify for calendar year 2001 and there-  
8           after the amount of emissions reductions attrib-  
9           uted to those reported under subsection (b).”;  
10          (2) by amending subsection (b)(1)(B) and (C)  
11          to read as follows—

12           “(B) annual reductions or avoidance of green-  
13           house gas emissions and sequestration and carbon  
14           fixation achieved through any measures, including  
15           agricultural activities, cogeneration, appliance effi-  
16           ciency, energy efficiency, forestry activities that in-  
17           crease carbon sequestration stocks (including the use  
18           of forest products), fuel switching, management of  
19           grasslands and drylands, manufacture or use of ve-  
20           hicles with reduced greenhouse gas emissions, meth-  
21           ane recovery, ocean seeding, use of renewable en-  
22           ergy, chlorofluorocarbon capture and replacement,  
23           and power plant heat rate improvement; and

24           “(C) reductions in, or avoidance of, greenhouse  
25           gas emissions achieved as a result of voluntary ac-



1       tivities domestically, or internationally, plant or fa-  
 2       cility closings, and State or Federal requirements.”;

3           (3) by striking in the first sentence of sub-  
 4       section (b)(2) the word “entities” and inserting  
 5       “persons or entities” and in the second sentence of  
 6       such subsection, by inserting after “Persons” the  
 7       words “or entities”;

8           (4) by inserting in the second sentence of sub-  
 9       section (b)(4) the words “persons or” before “enti-  
 10      ty”; and

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

13      “(5) RECOGNITION OF VOLUNTARY REDUCTIONS OR  
 14      AVOIDED EMISSIONS OF GREENHOUSE GASES.—In order  
 15      to encourage and facilitate new and increased voluntary  
 16      efforts on a continuing basis, particularly by persons and  
 17      entities in the private sector, to reduce global emissions  
 18      of greenhouse gases, including voluntary efforts to limit,  
 19      control, sequester, and avoid such emissions, the Secretary  
 20      shall promptly develop and establish, after an opportunity  
 21      for public comment of at least 60 days, a program of giv-  
 22      ing annual public recognition, beginning not later than  
 23      January 31, 2001, to all reporting persons and entities  
 24      demonstrating, pursuant to the voluntary collections and  
 25      reporting guidelines issued under this section, voluntarily

1 achieved greenhouse gases reductions, including such in-  
2 formation reported prior to the enactment of this para-  
3 graph. Such recognition shall be based on the information  
4 certified, subject to 18 U.S.C. 1001, by such persons or  
5 entities for accuracy as provided in paragraph 2 of this  
6 subsection. At a minimum such recognition shall annually  
7 be published in the Federal Register.

8 “(6) CHANGES IN GUIDELINES TO IMPROVE ACCU-  
9 RACY AND RELIABILITY.—The Secretary of Energy,  
10 through the Administrator of the Energy Information Ad-  
11 ministration, shall conduct a review, which shall include  
12 an opportunity for public comment, of what, if any,  
13 changes should be made to the guidelines established  
14 under this section regarding the accuracy and reliability  
15 of greenhouse gas reductions and related information re-  
16 ported under this section. Any such review shall give con-  
17 siderable weight to the voluntary nature of this section  
18 and to the purpose of encouraging voluntary greenhouse  
19 gas emission reductions by the private sector. Changes to  
20 be reviewed shall include the need for, and the appro-  
21 priateness of—

22 “(A) a random or other verification process  
23 using the authorities available to the Administrator  
24 under other provisions of law;

1           “(B) a range of reference cases for reporting of  
2           project-based activities in sectors, including, but not  
3           limited to, the measures specified in subparagraph  
4           (1)(B) of this subsection, and the inclusion of bench-  
5           mark and default methodologies for use in the ref-  
6           erence cases for ‘greenfield’ projects; and

7           “(C) provisions to address the possibility of re-  
8           porting, inadvertently or otherwise, of some or all of  
9           the same greenhouse gas emissions reductions by  
10          more than one reporting entity or person and to  
11          make corrections where necessary.

12          The review should consider the costs and benefits of  
13          any such changes, the impacts on encouraging participa-  
14          tion in this section, including by farmers and small busi-  
15          nesses, and the need to avoid creating undue economic ad-  
16          vantages or disadvantages for persons or entities of the  
17          private sector. The review should provide, where appro-  
18          priate, a range of reasonable options that are consistent  
19          with the voluntary nature of this section and that will help  
20          further the purposes of this section. The review should be  
21          available in draft form for public comment at least 45 days  
22          before it is submitted to the Committee on Energy and  
23          Natural Resources of the Senate and the Committee on  
24          Commerce of the House of Representatives. Such sub-  
25          mittal should be made by December 31, 2000. If the Sec-

1   retary, in consultation with the Administrator, finds,  
 2   based on the study results, that such changes are likely  
 3   to be beneficial and cost effective in improving the accu-  
 4   racy and reliability of reported greenhouse gas reductions  
 5   and related information, are consistent with the voluntary  
 6   nature of this section, and furthers the purposes of this  
 7   section, the Secretary shall propose and promulgate, con-  
 8   sistent with such finding, such guidelines, together with  
 9   such findings. In carrying out the provisions of this para-  
 10   graph, the Secretary shall consult with the Secretary of  
 11   Agriculture and the Administrator of the Small Business  
 12   Administration to facilitate greater participation by small  
 13   business and farmers in this subsection for the purpose  
 14   of addressing greenhouse gas emission reductions and re-  
 15   porting such reductions.”.

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”.

21       (b) The Secretary shall revise, after opportunity for  
 22   public comment, the guidelines issued under section  
 23   1605(b) of the Energy Policy Act of 1992 to reflect the  
 24   amendments made to such section 1605(b) by subsection  
 25   (a)(2) through (4) of this section not later than 18 months

1 after the date of enactment of this Act. Such revised  
 2 guidelines shall specify their effective date.

3 (c) The provisions of subsection (a) (5) and (6) of  
 4 this section shall be effective on the date of enactment of  
 5 this Act.

6 **SEC. 5. CLIMATE TECHNOLOGY RESEARCH, DEVELOPMENT**  
 7 **AND DEMONSTRATION PROGRAM.**

8 Subtitle B of title XXI of the Energy Policy Act of  
 9 1992 (42 U.S.C. 13471) is amended by adding the fol-  
 10 lowing new subsection:

11 **“SEC. 2120. CLIMATE TECHNOLOGY RESEARCH, DEVELOP-**  
 12 **MENT AND DEMONSTRATION PROGRAM.**

13 “(a) PURPOSE.—The purpose of this section is to di-  
 14 rect the Secretary to further the goals of development and  
 15 commercialization of technologies, through widespread ap-  
 16 plication and utilization of which will assist in stabilizing  
 17 global concentrations of greenhouse gases, by the conduct  
 18 of a long-term research, development, and demonstration  
 19 program undertaken with selected industry participants or  
 20 consortia.

21 “(b) PROGRAM.—The Secretary, in consultation with  
 22 the Advisory Board established under section 2302, shall  
 23 establish a long-term Climate Technology Research, De-  
 24 velopment, and Demonstration Program, in accordance  
 25 with sections 3001 and 3002.

1       “(c) PROGRAM OBJECTIVES.—The program shall  
2 foster—

3               “(1) development of new technologies and the  
4       enhancement of existing technologies that reduce or  
5       avoid anthropogenic emissions of greenhouse gases  
6       and improve energy efficiency;

7               “(2) development of new technologies that are  
8       able to remove and sequester greenhouse gases from  
9       emissions streams; and

10              “(3) development of new technologies and prac-  
11       tices to remove and sequester greenhouse gases from  
12       the atmosphere.

13       “(d) PROGRAM PLAN.—

14              “(1) INITIAL PLAN.—Not later than 180 days  
15       after the date of enactment of this section, the Sec-  
16       retary, in consultation with appropriate representa-  
17       tives of industry, institutions of higher education,  
18       Department of Energy national laboratories, and  
19       professional and technical societies, shall prepare  
20       and submit to the Congress a 10-year program plan  
21       to guide activities under this section.

22              “(2) BIENNIAL UPDATE.—The Secretary shall  
23       biennially update and resubmit the program plan to  
24       the Congress.

25       “(e) PROPOSALS.—

1           “(1) SOLICITATION.—Not later than one year  
2           after the date of submittal of the 10-year program  
3           plan, and consistent with sections 3001 and 3002,  
4           the Secretary shall solicit proposals for conducting  
5           activities consistent with the 10-year program plan  
6           and select one or more proposals not later than 180  
7           days after such solicitations.

8           “(2) QUALIFICATIONS.—In order for a proposal  
9           to be considered by the Secretary, an applicant shall  
10          provide evidence that the applicant has in  
11          existence—

12                 “(A) the technical capability to enable it to  
13                 make use of existing research support and fa-  
14                 cilities in carrying out its research objectives;

15                 “(B) a multi-disciplinary research staff ex-  
16                 perienced in—

17                         “(i) energy generation, transmission,  
18                         distribution and end-use technologies; or

19                         “(ii) technologies or practices able to  
20                         sequester, avoid, or capture greenhouse gas  
21                         emissions; or

22                         “(iii) other directly related tech-  
23                         nologies or practices;

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

1 demonstration of technologies or related proc-  
2 esses undertaken through the program.

3 “(3) PROPOSAL CRITERIA.—Each proposal  
4 shall—

5 “(A) demonstrate the support of the rel-  
6 evant industry by describing—

7 “(i) how the relevant industry has  
8 participated in deciding what research ac-  
9 tivities will be undertaken;

10 “(ii) how the relevant industry will  
11 participate in the evaluation of the appli-  
12 cant’s progress in research and develop-  
13 ment activities; and

14 “(iii) the extent to which industry  
15 funds are committed to the applicant’s  
16 submission;

17 “(B) have a commitment for matching  
18 funds from non-Federal sources, which shall  
19 consist of—

20 “(i) cash; or

21 “(ii) as determined by the Secretary,  
22 the fair market value of equipment, serv-  
23 ices, materials, appropriate technology  
24 transfer activities, and other assets directly  
25 related to the proposal’s cost;



1           “(C) include a single-year and multi-year  
2           management plan that outline how the research  
3           and development activities will be administered  
4           and carried out;

5           “(D) state the annual cost of the proposal  
6           and a breakdown of those costs; and

7           “(E) describe the technology transfer  
8           mechanisms that the applicant will use to make  
9           available research results to industry and to  
10          other researchers.

11          “(4) CONTENTS OF PROPOSAL.—A proposal  
12          under this subsection shall include—

13               “(A) an explanation of how the proposal  
14               will expedite the research, development, dem-  
15               onstration, and commercialization of tech-  
16               nologies capable of—

17                       “(i) reducing or avoiding anthropo-  
18                       genic emissions of greenhouse gases;

19                       “(ii) removing and sequestering green-  
20                       house gases from emissions streams; or

21                       “(iii) removing and sequestering  
22                       greenhouse gases from the atmosphere.

23               “(B) evidence of consideration of whether  
24               the unique capabilities of Department of En-  
25               ergy national laboratories warrant collaboration

1 with those laboratories, and the extent of the  
2 collaboration proposed;

3 “(C) a description of the extent to which  
4 the proposal includes collaboration with relevant  
5 industry or other groups or organizations;

6 “(D) evidence of the ability of the appli-  
7 cant to undertake and complete the proposed  
8 project;

9 “(E) evidence of applicant’s ability to suc-  
10 cessfully introduce the technology into com-  
11 merce, as demonstrated by past experience and  
12 current relationships with industry; and

13 “(F) a demonstration of continued finan-  
14 cial commitment during the entire term of the  
15 proposal from all industrial sectors involved in  
16 the technology development.

17 “(f) SELECTION OF PROPOSALS.—From the pro-  
18 posals submitted, the Secretary shall select for funding  
19 one or more proposals that—

20 “(1) will best result in carrying out needed re-  
21 search, development, and demonstration related to  
22 technologies able to assist in the stabilization of  
23 global greenhouse gas concentrations through one or  
24 more of the following approaches—

1           “(A) improvement in the performance of  
2 fossil-fueled energy technologies;

3           “(B) development of greenhouse gas cap-  
4 ture and sequestration technologies and proc-  
5 esses;

6           “(C) cost reduction and acceleration of de-  
7 ployment of renewable resource and distributed  
8 generation technologies;

9           “(D) development of an advanced nuclear  
10 generation design; and

11           “(E) improvement in the efficiency of elec-  
12 trical generation, transmission, distribution,  
13 and end use;”

14           “(F) design and use of—

15           “(i) closed-loop multi-stage industrial  
16 processes that minimize raw material con-  
17 sumption and waste streams;

18           “(ii) advanced co-production systems  
19 (such as coal-based chemical processing  
20 and biomass fuel processing); and

21           “(iii) recycling and industrial-ecology  
22 programs integrating energy efficiency.

23           “(2) represent research and development in spe-  
24 cific areas identified in the program plan developed

1 biennially by the Secretary and submitted to Con-  
2 gress under subsection (c);

3 “(3) demonstrate strong industry support;

4 “(4) ensure the timely transfer of technology to  
5 industry; and

6 “(5) otherwise best carry out this section.

7 “(g) ANNUAL PROGRESS REPORTS.—The Director of  
8 the Office of Science and Technology, in consultation with  
9 the Director of the Office of Management and Budget,  
10 shall prepare and submit an annual report to Congress  
11 that—

12 “(1) certifies that the program objectives are  
13 adequately focused, peer-reviewed and merit-re-  
14 viewed, and not unnecessarily duplicative with the  
15 science and technology research being conducted by  
16 other Federal agencies and agents, and

17 “(2) states whether the program as conducted  
18 in the prior year addresses an adequate breadth and  
19 range of technologies and solutions to address an-  
20 thropogenic climate change, including—

21 “(A) capture and sequestration of green-  
22 house gas emissions;

23 “(B) development of photovoltaic, high-ef-  
24 ficiency coal, advanced nuclear, and fuel cell  
25 generation technologies;

1                   “(C) cost reduction and acceleration of de-  
 2                   ployment of renewable resource and distributed  
 3                   generation technologies; and

4                   “(D) improvement in the efficiency of elec-  
 5                   trical generation, transmission, distribution,  
 6                   and end use;

7           “(h) AUTHORIZATION OF APPROPRIATIONS.—There  
 8 are authorized to be appropriated to carry out this section  
 9 \$200,000,000 for each of fiscal years 2001 through 2010,  
 10 to remain available until expended. This authorization is  
 11 supplemental to existing authorities and shall not be con-  
 12 strued as a cap on the Department of Energy’s Research,  
 13 Development and Demonstration programs.”.

14 **SEC. 6. COMPREHENSIVE PLAN AND IMPLEMENTING PRO-**  
 15 **GRAM FOR ENERGY RESEARCH, DEVELOP-**  
 16 **MENT, AND DEMONSTRATION.**

17           Section 6 of the Federal Nonnuclear Energy Re-  
 18 search and Development Act of 1974 (42 U.S.C. 5905)  
 19 is amended—

20                   (1) in subsection (a)—

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

23                   (B) in paragraph (3) by striking the period  
 24                   at the end and inserting “, and”; and

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

1 “(4) solutions to the effective management of  
 2 greenhouse gas emissions in the long term by the de-  
 3 velopment of technologies and practices designed  
 4 to—

5 “(A) reduce or avoid anthropogenic emis-  
 6 sions of greenhouse gases;

7 “(B) remove and sequester greenhouse  
 8 gases from emissions streams; and

9 “(C) remove and sequester greenhouse  
 10 gases from the atmosphere.”; and

11 (2) in subsection (b)—

12 (A) in paragraph (2), by striking “sub-  
 13 section (a)(1) through (3)” and inserting  
 14 “paragraphs (1) through (4) of subsection (a);  
 15 and

16 (B) in paragraph (3)—

17 (i) in subparagraph (R), by striking  
 18 “and” at the end;

19 (ii) in subparagraph (S), by striking  
 20 the period at the end and inserting “;  
 21 and”; and

22 (iii) by adding at the end the fol-  
 23 lowing:

24 “(T) to pursue a long-term climate tech-  
 25 nology strategy designed to demonstrate a vari-

1 ety of technologies by which stabilization of  
2 greenhouse gases might be best achieved,  
3 including—

4 “(i) the accelerated commercial dem-  
5 onstration of low-cost and high efficiency  
6 photovoltaic power systems;

7 “(ii) advanced clean coal technology;

8 “(iii) advanced nuclear power plant  
9 design;

10 “(iv) fuel cell technology development  
11 for cost-effective application in residential,  
12 industrial and transportation applications;

13 “(v) low cost carbon sequestration  
14 practices and technologies including bio-  
15 technology, tree physiology, soil produc-  
16 tivity and remote sensing;

17 “(vi) hydro and other renewables;

18 “(vii) electrical generation, trans-  
19 mission and distribution technologies and  
20 end use technologies; and

21 “(viii) bio-energy technology.”

22 **SEC. 7. DEFINITIONS.**

23 For the purpose of this Act and the provisions of the  
24 Energy Policy Act of 1992 (42 U.S.C. 13381, et seq.) and  
25 the provisions of the Federal Nonnuclear Energy Research

1 and Development Act of 1974 (42 U.S.C. 5901, et seq.)  
2 which statutes are amended by this Act, these terms are  
3 defined as follows:

4 “(1) AGRICULTURAL ACTIVITY.—The term ‘ag-  
5 ricultural activity’ means livestock production, crop-  
6 land cultivation, biogas recovery and nutrient man-  
7 agement.

8 “(2) CLIMATE CHANGE.—The term ‘climate  
9 change’ means a change of climate which is attrib-  
10 uted directly or indirectly to human activity which is  
11 in addition to natural climate variability observed  
12 over comparable time periods.

13 “(3) CLIMATE SYSTEM.—The term ‘climate sys-  
14 tem’ means the totality of the atmosphere, hydro-  
15 sphere, biosphere and geosphere and their inter-  
16 actions.

17 “(4) GREENHOUSE GASES.—The term ‘green-  
18 house gases’ means those gaseous constituents of the  
19 atmosphere, both natural and anthropogenic, that  
20 absorb and re-emit infrared radiation.

21 “(5) GREENHOUSE GAS REDUCTION.—The term  
22 ‘greenhouse gas reduction’ means 1 metric ton of  
23 greenhouse gas (expressed in terms of carbon diox-  
24 ide equivalent) that is voluntarily certified to have



1       been achieved under section 1605 of the Energy Pol-  
2       icy Act of 1992 (42 U.S.C. 13385).

3               “(6) GREENHOUSE GAS SEQUESTRATION.—The  
4       term ‘greenhouse gas sequestration’ means extract-  
5       ing one or more greenhouse gases from the atmos-  
6       phere or an emissions stream through a techno-  
7       logical process designed to extract and isolate those  
8       gases from the atmosphere or an emissions stream;  
9       or the natural process of photosynthesis that ex-  
10      tracts carbon dioxide from the atmosphere and  
11      stores it as carbon in trees, roots, stems, soils, foli-  
12      age, and durable wood products.

13              “(7) FOREST PRODUCTS.—The term ‘forest  
14      products’ means all products or goods manufactured  
15      from trees.

16              “(8) FORESTRY ACTIVITY.—

17                      “(A) IN GENERAL.—The term ‘forestry ac-  
18      tivity’ means any ownership or management ac-  
19      tion that has a discernible impact on the use  
20      and productivity of forests.

21                      “(B) INCLUSIONS.—Forestry activities in-  
22      clude, but are not limited to, the establishment  
23      of trees on an area not previously forested, the  
24      establishment of trees on an area previously  
25      forested if a net carbon benefit can be dem-

onstrated, enhanced forest management (e.g.,  
 thinning, stand improvement, fire protection,  
 weed control, nutrient application, pest manage-  
 ment, other silvicultural practices), forest pro-  
 tection or conservation if a net carbon benefit  
 can be demonstrated, and biomass energy  
 (using wood, grass or other biomass in lieu of  
 fossil fuel).

“(C) EXCLUSIONS.—The term ‘forest ac-  
 tivity’ does not include a land use change asso-  
 ciated with—

“(i) an act of war; or

“(ii) an act of nature, including  
 floods, storms, earthquakes, fires, hurri-  
 canes, and tornadoes.

“(9) MANAGEMENT OF GRASSLANDS AND  
 DRYLANDS.—The term ‘management of grasslands  
 and drylands’ means seeding, cultivation, and nutri-  
 ent management.

“(10) OCEAN SEEDING.—The term ‘ocean seed-  
 ing’ means adding nutrients to oceans to enhance  
 the biological fixation of carbon dioxide.”.

