By Mr. LIEBERMAN (for himself and Mr. MCCAIN):

S. 139. A bill to provide for a program of scientific research on abrupt climate change, to accelerate the reduction of greenhouse gas emissions in the United States by establishing a market-driven system of greenhouse gas tradeable allowances that could be used interchangably with passenger vehicle fuel economy standard credits, to limit greenhouse gas emissions in the United States and reduce dependence upon foreign oil, and ensure benefits to consumers from the trading in such allowances; to the Committee on Environment and Public Works.

Mr. LIEBERMAN. Mr. President, I rise today to join my friend and colleague, Senator MCCAIN, to introduce the first ever comprehensive legislation to limit the emissions of greenhouse gases in the United States. Today we take the first step up a long mountain road, a road that will culminate with this country taking credible action to address the global problems of our warming planet. The rest of the world is now taking on the challenge this problem presents. The United States, as the world's largest emitter of the gases and the home of the world's strongest economy, must not have its head in the clouds.

Climate change is not a new problem. Recently, I had come across my desk a 1979 document produced by the National Academy of Sciences at the request of then-President Carter. The document says, ''When it is assumed that the CO2 content of the atmosphere has doubled, the more realistic of the modeling efforts predict a global surface warming of between 2 degrees and 3.5 degrees with greater increases at higher altitudes.'' That is remarkably similar to last year's national communication on climate change that predicted a warming of 2.5 degrees to 4 degrees over the next century. So in some sense, we have known about this problem for over two decades. That's two decades of neglect. We don't need to spin our wheels in the mud any longer. It is time to get traction. It is time to take action.

I do not believe there is any longer any credible dissent on the central question: namely, whether human-caused climate change is happening. The thermometer mercury is creeping up, glaciers are melting, and waters are rising. According to a NASA study released last month, the permanent, summer ice cap over the Arctic Ocean is disappearing far faster than previously thought and will at this rate be gone by the end of the century. And just last week, two major new research studies said global warming is already posing a dire threat to the world's plants and animals, a danger that is likely to rise dramatically, with the temperature, in the coming years.

The scientific evidence is potent and persuasive. But we've witnessed other changes across the globe that have anecdotally announced the arrival of global warming to human populations. I noticed two examples recently that resonated with me; both come from the Arctic north, and in my view are canaries in the climate change coalmine.

The first example comes from the Native American populations of Alaska and Northern Canada. In just the past few years, a robin appeared in an Inupiat village in Alaska. Unfortunately, the elders, despite an intimate awareness of their 10,000 year old language, did not know what to call the bird. You see, there is no word for robin in their language.

A second example comes from the town of Nenana, AK, which has an annual lottery to determine when a tripod placed on the frozen Tenana River would break through the ice. And over the past 50 years, that breakthrough has occurred earlier and earlier.

So, it's not only in the language of statistics that climate change is occurring. It's in the language of everyday life.

The nature of this problem is that it gets worse every year we fail to face it head on. It's not unlike the federal budget deficit. The weight of the interest payments bearing down on us grow over time and dig us deeper and deeper into a hole of our own making. So too with global warming. Today the problem is manageable. Tomorrow, quite literally, we could be up to our waists in it.

There are a few remaining skeptics who still doubt that human greenhouse gas emissions are contributing to climate change but even they should understand the wisdom of taking preventive action. Even they should realize that reducing greenhouse gas emissions now is the best insurance policy against the possibility of future catastrophe.

The question remains, then, what we should do about it. There is no easy fix. Carbon dioxide, once released, stays in our atmosphere for about a century, so any solution needs to be long-term. But I believe that the legislation we have drafted and will soon introduce will take us on the path to that ultimate solution, and do so in a way that can provide an economic boost, not an economic burden, to American businesses. Given our flagging economy, this is a critical point for us all to absorb.

Our approach works like this. The country's overall emissions will be capped, then individual companies will have the flexibility to find the most innovative and cost-effective ways to drive their emissions down. They will trade pollution credits, also called allowances, with each other rather than paying penalties to the government.

The result of that innovative model is that we will unleash and focuses the genius of American enterprise to take on a critical common challenge. And the innovation unleashed as companies compete will create a boomlet of new, high-paying jobs. It's no wonder the Wall Street Journal editorial page endorsed this approach saying that it would achieve the same amount of overall pollution reduction at a lower cost than traditional regulation, and urging the Bush Administration to sign on.

In making its endorsement, The Wall Street Journal looked, as we did, at the record. Many similar programs have helped solve pollution problems throughout the country and the world. The most well-known example is the Acid Rain Trading Program in the 1990 Clean Air Act, one of the most successful environmental programs in history and something I was proud to have a hand in creating. This program secured strict cuts in sulfur dioxide emissions from power plants at less than a quarter of the predicted costs to industry.

We have some initial reaction to our proposal from our country's leading economists, and the response has been positive. For instance, Steven DeCanio, a professor of economics at the University of California, Santa Barbara and the former staff economist on this issue in the Reagan White House, stated the following about our proposal:

The Climate Stewardship Act of 2003 is a good first step towards the ultimate goal of stabilizing levels of greenhouse gas emissions that will prevent dangerous anthropogenic interference with the climate. The Bill embodies market mechanisms that will enable emissions reductions to be accomplished efficiently, and has provisions for an equitable allocation of the emissions permits. Funds are set aside to assist workers and communities that may be adversely affected by the transition. The Bill permits flexibility in the manner by which the emissions reductions are achieved, including allowing credits for verifiable enhancement of carbon sinks and limited international emissions trading. The proposed legislation also encourages investment in energy-efficiency technologies, as well as the establishment of a national emissions database and funding for new research. All of these features of the Bill are components of a strategy that can enable the United States to begin to make meaningful reductions in greenhouse gas emissions in a way that is supportive of economic growth and beneficial to our standard of living. It is entirely appropriate that the risks of global climate change be addressed in specific legislation at this time.

But this bill is more than a broad policy proposal. It is a detailed legislative design for the system. Our staffs have been working ardently over the past 16 months to craft a detailed proposal that could find support both in the halls of industry and amongst the nation's leading environmental organizations. Hopefully that means that both sides of the aisle in Congress will find something to their liking. I hope all involved realized that this is no marker bill; it is a comprehensive proposal. Please indulge me as I run through a few of the key details.

Our bill covers the four main sectors of the U.S. economy that emit greenhouse gases: electric utilities, industrial plants, transportation, and large commercial facilities. For each of these sectors, we ease back on the greenhouse gas accelerator, spreading the burden equally amongst the companies. The progress required is real but

realistic. By the year 2010, we ask only that they return to 2000 levels. By 2016, we ask that they return to their 1990 levels, in keeping with our treaty commitment under the Rio Convention.

In doing so, we provide each participant with a generous amount of flexibility on how to comply with their obligations. There is no limit on the amount of allowances that they may obtain from other participants in the system. Moreover, companies in the system can avail themselves of ''alternative compliance'' options, including sequestration projects, international reductions, and verified reductions made by parties outside the system. Such ''alternative compliance'' options can be used to satisfy 300 percent of the average companies' obligation.

These alternative compliance options will have other benefits as well. As many members of this committee already know, sequestration projects can produce environmental benefits beyond the benefit to the climate, including reduced deforestation and more sustainable agricultural practices. Such projects also bring a needed infusion of money into the farm economy not through subsidies, but through the sale of a new ''crop,'' sequestered carbon dioxide. Even now, with a purely speculative market in greenhouse gases, Entergy Services and Pacific Northwest Direct Seed Association brokered a deal for 30,000 million metric tons of carbon over 10 years. The sale price was not divulged, but the point is that the deal was made even in the absence of a real market. Our program would greatly increase the opportunity for these types of sales by farmers.

Our businesses will benefit dramatically from the regulatory certainty that our bill will provide. Businesses now receive a confusing set of messages from the Federal Government. On the one hand, they know that, with climate change worsening every year, government will somehow and sometime have to require them to reduce their emissions. As the Conference Board recently noted in a June 2002 report, ''climate change is an issue business executives ignore at their peril.'' On the other hand, businesses are being left uncertain about Washington's ultimate global warming policy plans, and therefore have a perverse incentive to put off any real anti-pollution technology investments.

Indeed, our innovation economy more broadly is unwilling or unable to engage while the Federal Government continues to vacillate. As a result, we are losing countless dollars in new market and job opportunities. Europe and Japan already have an early head start in the pollution reduction industry. That lead will only grow if our government stands pat.

Finally, I want to mention one other, perhaps unlikely reason to support this legislation beyond our economic and environmental well being, and that's foreign policy. Many of our most important allies are much more worried about climate change than we in the United States have historically been. When the Bush administration plays down the risks of global warming and shows no interest in devising a serious solution, it frays our relationship with those allies. That's especially true since we as a nation are responsible for about a quarter of the world's total climate change problem.

We should never compromise critical American policy simply to satisfy the international community. But in this case, doing what's in our own best environmental and economic interests will also earn respect and support around the world. And lest we forget it also happens to be the right thing to do.

The Earth is not only ours to use; we are stewards of it, who must hold it in trust for future generations to live in, breathe in, and, yes, prosper in. Regrettably, this Nation's climate change policy to date has not respected our role as stewards. It is time we reverse that trend, and our bill will help do exactly that.

I ask unanimous consent that the text of the bill be printed in the RECORD.

There being no objection, the bill was ordered to be printed in the RECORD, as follows:

S. 139

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

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Climate Stewardship Act of 2003''.

SEC. 2. TABLE OF CONTENTS.

The table of contents for this Act is as follows:

Sec. 1. Short title.
Sec. 2. Table of contents.
Sec. 3. Definitions.
TITLE I—FEDERAL CLIMATE CHANGE RESEARCH AND RELATED ACTIVITIES
Sec. 101. National Science Foundation scholarships.
Sec. 102. Commerce Department study of technology transfer barriers.
Sec. 103. Report on United States impact of Kyoto protocol.
Sec. 104. Research grants.
Sec. 105. Abrupt climate change research.
Sec. 106. NIST greenhouse gas functions.
Sec. 107. Development of new measurement technologies.
Sec. 108. Enhanced environmental measurements and standards.
Sec. 109. Techonolgy development and diffusion.
TITLE II—NATIONAL GREENHOUSE GAS DATABASE
Sec. 201. National greenhouse gas database and registry established.
Sec. 202. Inventory of greenhouse gas emissions for covered entities.
Sec. 203. Greenhouse gas reduction reporting.
Sec. 204. Measurement and verification.
TITLE III—MARKET-DRIVEN GREENHOUSE GAS REDUCTIONS
Subtitle A—Emission Reduction Requirements; Use of Tradeable Allowances
Sec. 311. Covered entities must submit allowances for emissions.
Sec. 312. Compliance.
Sec. 313. Tradeable allowances and fuel economy standard credits.
Sec. 314. Borrowing against future reductions.
Sec. 315. Other uses of tradable allowances.
Sec. 316. Exemption of source categories.
Subitle B—Establishment and Allocation of Tradeable Allowances.
Sec. 331. Establishment of tradeable allowances.
Sec. 332. Determination of tradeable allowances allocations.
Sec. 333. Allocation of tradeable allowances.
Sec. 334. Initial allocations for early participation and accelerated participation.
Sec. 335. Bonus for accelerated participation.
Sec. 336. Ensuring target adequacy.
Subtitle C—Climate Change Credit Corporation
Sec. 351. Establishment.
Sec. 352. Purposes and functions.
Subtitle D—Sequestration Accounting; Penalties
Sec. 371. Sequestration accounting.
Sec. 372. Penalties.

SEC. 3. DEFINITIONS.

In this Act:

(1) ADMINISTRATOR.—The term ''Administrator'' means the Administrator of the Environmental Protection Agency.

(2) BASELINE.—The term ''baseline'' means the historic greenhouse gas emission levels of an entity, as adjusted upward by the Administrator to reflect actual reductions that are verified in accordance with—

(A) regulations promulgated under section 201(c)(1); and

(B) relevant standards and methods developed under this title.

(3) COVERED SECTORS.—The term ''covered sectors'' means the electricity, transportation, industry, and commercial sectors, as such terms are used in the Inventory.

(4) COVERED ENTITY.—The term ''covered entity'' means an entity (including a branch, department, agency, or instrumentality of Federal, State, or local government) that—

(A) owns or controls a source of greenhouse gas emissions in the electric power, industrial, or commercial sectors of the United States economy (as defined in the Inventory), refines or imports petroleum products for use in transportation, or produces or imports hydrofluorocarbons, perfluorocarbons, or sulfur hexaflouride; and

(B) emits over 10,000 metric tons of greenhouse gas per year, measured in units of carbon dioxide equivalance, or produces or imports—

(i) petroleum products that, when combusted, will emit,

(ii) hydrofluorocarbons, perfluorocarbons, or sulfur hexafluoride that, when used, will emit, or

(iii) other greenhouse gases that, when used, will emit,

over 10,000 metric tons of greenhouse gas per year, measured in units of carbon dioxide equivalence.

(5) DATABASE.—The term ''database'' means the National Greenhouse Gas Database established under section 201.

(6) DIRECT EMISSIONS.—The term ''direct emissions'' means greenhouse gas emissions by an entity from a facility that is owned or controlled by that entity.

(7) FACILITY.—The term ''facility'' means a building, structure, or installation located on any 1 or more contiguous or adjacent properties of an entity in the United States.

(8) GREENHOUSE GAS.—The term ''greenhouse gas'' means—

(A) carbon dioxide;

(B) methane;

(C) nitrous oxide;

(D) hydrofluorocarbons;

(E) perfluorocarbons; and
(F) sulfur hexafluoride.
(9) INDIRECT EMISSIONS.—The term ''indirect emissions'' means greenhouse gas emissions that are—
(A) a result of the activities of an entity; but
(B) emitted from a facility owned or controlled by another entity; and
(C) not reported as direct emissions by the entity from which they were emitted.
(10) INVENTORY.—The term ''Inventory'' means the Inventory of U.S. Greenhouse Gas Emissions and Sinks, prepared in compliance with the United Nations Framework Convention on Climate Change Decision 3/CP.5.).
(11) PHASE I ALLOTMENT.—The term ''Phase I allotment'' means—
(A) the amount of emissions emitted by a covered sector, as identified in the Inventory for the calendar year preceding the calendar year in which this Act is enacted (reduced by the amount of allowances allocated by early and accelerated participants under section 334 of this Act); multiplied by—
(B) the result of—
(i) the total greenhouse emissions for all covered sectors for the year 2000, as identified in the 2000 Inventory; divided by
(ii) the total greenhouse emissions for all covered sectors for the calendar year preceding the date of enactment of this Act, as identified in the Inventory.
(12) PHASE II ALLOTMENT.—The term ''Phase II allotment'' means—
(A) the amount of emissions emitted by a covered sector, as identified in the Inventory for the calendar year preceding the calendar year in which this Act is enacted (reduced by the amount of allowances allocated to early and accelerated participants under section 334 of this Act); multiplied by—
(B) the result of—
(i) the total greenhouse emissions for all covered sectors for the year 1990, as identified in the 1990 Inventory; divided by
(ii) the total greenhouse emissions for all covered sectors for the calendar year preceding the date of enactment of this Act, as identified in the Inventory.
(13) REGISTRY.—The term ''registry'' means the registry of greenhouse gas emission reductions established under section 201(b)(2).
(14) SECRETARY.—The term ''Secretary'' means the Secretary of Commerce.
(15) SEQUESTRATION.—
(A) IN GENERAL.—The term ''sequestration'' means the capture, long-term separation, isolidation, or removal of greenhouse gases from the atmosphere.
(B) INCLUSIONS.—The term ''sequestration'' includes—
(i) agricultural and conservation practices;
(ii) reforestation;
(iii) forest preservation; and
(iv) any other appropriate method of capture, long-term separation, isolation, or removal of greenhouse gases from the atmosphere, as determined by the Administrator.
(C) EXCLUSIONS.—The term ''sequestration'' does not include—
(i) any conversion of, or negative impact on, a native ecosystem; or
(ii) any introduction of non-native species or genetically modified organisms.
(16) SOURCE CATEGORY.—The term ''source category'' means a process or activity that leads to direct emissions of greenhouse gases, as listed in the Inventory.

TITLE I—FEDERAL CLIMATE CHANGE RESEARCH AND RELATED ACTIVITIES.

SEC. 101. NATIONAL SCIENCE FOUNDATION SCHOLARSHIPS.

The Director of the National Science Foundation shall establish a scholarship program for post-secondary students studying global climate change, including capability in observation, analysis, modeling, paleoclimatology, consequences, and adaptation.

SEC. 102. COMMERCE DEPARTMENT STUDY OF TECHNOLOGY TRANSFER BARRIERS.

(a) STUDY.—The Assistant Secretary of Technology Policy at Department of Commerce shall conduct a study of technology transfer barriers, best practices, and outcomes of technology transfer activities at Federal laboratories related to the licensing and commercialization of energy efficient technologies. The study shall be submitted to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science within 6 months after the date of enactment of this Act. The Assistant Secretary shall work with the existing interagency working group to address identified barriers.
(b) AGENCY REPORT TO INCLUDE INFORMATION ON TECHNOLOGY TRANSFER INCOME AND ROYALTIES.—Paragraph (2)(B) of section 11(f) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3710(f) is amended—
(1) by striking ''and'' after the semicolon in clause (vi);
(2) by redesignating clause (vii) as clause (ix); and
(3) by inserting after clause (vi) the following:
''(vii) the number of fully-executed licenses which received royalty income in the preceding fiscal year for climate-change or energy-efficient technology;
''(viii) the total earned royalty income for climate-change or energy-efficient technology; and''.
(c) INCREASED INCENTIVES FOR DEVELOPMENT OF CLIMATE-CHANGE OR ENERGY-EFFICIENT TECHNOLOGY.—Section 14(a) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3710c(a)) is amended—
(1) by striking ''15 percent,'' in paragraph (1)(A) and inserting ''15 percent (25 percent for climate change-related technologies),''; and
(2) by inserting ''($250,000 for climate change-related technologies)'' after ''$150,000'' each place it appears in paragraph (3).

SEC. 103. REPORT ON UNITED STATES IMPACT OF KYOTO PROTOCOL.

Within 6 months after the date of enactment of this Act, the Secretary shall submit a report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science on the effects that the entry into force of the Kyoto Protocol will have on—
(1) United States industry and its ability to compete globally;
(2) international cooperation on scientific research and development; and
(3) United States participation in international environmental climate change mitigation efforts and technology deployment.

SEC. 104. RESEARCH GRANTS.

Section 105 of the Global Change Research Act of 1990 (15 U.S.C. 2935) is amended—
(1) by redesignating subsection (c) as subsection (d); and
(2) by inserting after subsection (b) the following:
(c) RESEARCH GRANTS.
''(1) COMMITTEE TO DEVELOP LIST OF PRIORITY RESEARCH AREAS.—The Committee shall develop a list of priority areas for research and development on climate change that are not being addressed by Federal agencies.
''(2) DIRECTOR OF OSTP TO TRANSMIT LIST TO NSF.—the Director of the Office of Science and Technology Policy shall transmit the list to the National Science Foundation.
''(3) FUNDING THROUGH NSF.
''(A) BUDGET REQUEST.—The National Science Foundation shall include, as part of the annual request for appropriations for the Science and Technology Policy Institute, a request for appropriations to fund research in the priority areas on the list developed under paragraph (1).
''(B) AUTHORIZATION.—For fiscal year 2004 and each fiscal year thereafter, there are authorized to be appropriated to the National Science Foundation not less than $17,000,000, to be made available through the Science and Technology Policy Institute, for research in those priority areas.''.

SEC. 105. ABRUPT CLIMATE CHANGE RESEARCH.

''(a) IN GENERAL.—The Secretary, through the National Oceanic and Atmospheric Administration, shall carry out a program of scientific research on potential abrupt climate change designed—
(1) to develop a global array of terrestrial and oceanographic indicators of paleoclimate in order sufficiently to identify and describe past instances of abrupt climate change;
(2) to improve understanding of thresholds and nonlinearities in geophysical systems related to the mechanisms of abrupt climate change;
(3) to incorporate these mechanisms into advanced geophysical models of climate change; and
(4) to test the output of these models against an improved global array of records of past abrupt climate changes.
(b) ABRUPT CLIMATE CHANGE DEFINED.—In this section, the term ''abrupt climate change'' means a change in climate that occurs so rapidly or unexpectedly that human or natural systems may have difficulty adapting to it.

SEC. 106. NIST GREENHOUSE GAS FUNCTIONS.

Section 2(c) of the National Institute of Standards and Technology Act (15 U.S.C. 272(c)) is amended—
(1) by striking ''and'' after the semicolon in paragraph (21);
(2) by redesignating paragraph (22) as paragraph (23); and
(3) by inserting after paragraph (21) the following;
''(22) perform research to develop enhanced measurements, calibrations, standards, and technologies which will enable the reduced production in the United States of greenhouse gases associated with global warming, including carbon dioxide, methane, nitrous oxide, ozone, perfluorocarbons, hydrofluorocarbons, and sulfur hexafluoride; and''.

SEC. 107. DEVELOPMENT OF NEW MEASUREMENT TECHNOLOGIES.

The Secretary shall initiate a program to develop, with technical assistance from appropriate Federal agencies, innovative standards and measurement technologies (including technologies to measure carbon changes due to changes in land use cover) to calculate—
(1) greenhouse gas emissions and reductions from agriculture, forestry, and other land use practices;
(2) noncarbon dioxide greenhouse gas emissions from transportation;
(3) greenhouse gas emissions from facilities or sources using remote sensing technology; and
(4) any other greenhouse gas emission or reductions for which no accurate or reliable measurement technology exists.

SEC. 108. ENHANCED ENVIRONMENTAL MEASUREMENTS AND STANDARDS.

The National Institute of Standards and Technology Act (15 U.S.C. 271 et seq.) is amended—
(1) by redesignating sections 17 through 32 as sections 18 through 33, respectively; and
(2) by inserting after section 16 the following:

"SEC. 17. CLIMATE CHANGE STANDARDS AND PROCESSES.

''(a) IN GENERAL.—The Director shall establish within the Institute a program to perform and support research on global climate change standards and processes, with the goal of providing scientific and technical knowledge applicable to the reduction of greenhouse gases (as defined in section 3(8) of the Climate Stewardship Act of 2003).

''(b) RESEARCH PROGRAM.

''(1) IN GENERAL.—The Director is authorized to conduct, directly or through contracts or grants, a global climate change standards and processes research program.

''(2) RESEARCH PROJECTS.—The specific contents and priorities of the research program shall be determined in consultation with appropriate Federal agencies, including the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, and the National Aeronautics and Space Administration. The program generally shall include basic and applied research—

''(A) to develop and provide the enhanced measurements, calibrations, data, models, and reference material standards which will enable the monitoring of greenhouse gases;

''(B) to assist in establishing a baseline reference point for future trading in greenhouse gases and the measurement of progress in emissions reduction;

''(C) that will be exchanged internationally as scientific or technical information which has the stated purpose of developing mutually recognized measurements, standards, and procedures for reducing greenhouse gases; and

''(D) to assist in developing improved industrial processes designed to reduce or eliminate greenhouse gases.

''(c) NATIONAL MEASUREMENT LABORATORIES.—

''(1) IN GENERAL.—In carrying out this section, the Director shall utilize the collective skills of the National Measurement Laboratories of the National Institute of Standards and Technology to improve the accuracy of measurements that will permit better understanding and control of these industrial chemical processes and result in the reduction or elimination of greenhouse gases.

''(2) MATERIAL, PROCESS, AND BUILDING RESEARCH.—The National Measurement Laboratories shall conduct research under this subsection that includes—

''(A) developing material and manufacturing processes which are designed for energy efficiency and reduced greenhouse gas emissions into the environment;

''(B) developing environmentally-friendly, 'green' chemical processes to be used by industry; and

''(C) enhancing building performance with a focus in developing standards or tools which will help incorporate low- or no-emission technologies into building designs.

''(3) STANDARDS AND TOOLS.—The National Measurement Laboratories shall develop standards and tools under this subsection that include software to assist designers in selecting alternate building materials, performance data on materials, artificial intelligence-aided design procedures for building subsystems and 'smart buildings', and improved test methods and rating procedures for evaluating the energy performance of residential and commercial appliances and products.

''(d) NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM.—The Director shall utilize the National Voluntary Laboratory Accreditation Program under this section to establish a program to include specific calibration or test standards and related methods and protocols assembled to satisfy the unique needs for accreditation in measuring the production of greenhouse gases. In carrying out this subsection the Director may cooperate with other departments and agencies of the Federal Government, State and local governments, and private organizations.''.

SEC. 109. TECHNOLOGY DEVELOPMENT AND DIFFUSION.

The Director of the National Institute of Standards and Technology, through the Manufacturing Extension Partnership Program, may develop a program to support the implementation of new ''green'' manufacturing technologies and techniques by the more than 380,000 small manufacturers.

TITLE II—NATIONAL GREENHOUSE GAS DATABASE

SEC. 201. NATIONAL GREENHOUSE GAS DATABASE AND REGISTRY ESTABLISHED.

(a) ESTABLISHMENT.—As soon as practicable after the date of enactment of this Act, the Administrator, in coordination with the Secretary, the Secretary of Energy, the Secretary of Agriculture, and private sector and non-governmental organizations, shall establish, operate, and maintain a database, to be known as the ''National Greenhouse Gas Database'', to collect, verify, and analyze information on greenhouse gas emissions by entities.

(b) NATIONAL GREENHOUSE GAS DATABASE COMPONENTS.—The database shall consist of—

(1) an inventory of greenhouse gas emissions; and

(2) a registry of greenhouse gas emission reductions and increases in greenhouse gas sequestrations.

(c) COMPREHENSIVE SYSTEM.—

(1) IN GENERAL.—Not later than 2 years after the date of enactment of this Act, the Administrator shall promulgate regulations to implement a comprehensive system for greenhouse gas emissions reporting, inventorying, and reductions registration.

(2) REQUIREMENTS.—The Administrator shall ensure, to the maximum extent practicable, that—

(A) the comprehensive system described in paragraph (1) is designed to—

(i) maximize completeness, transparency, and accuracy of information reported; and

(ii) minimize costs incurred by entities in measuring and reporting greenhouse gas emissions; and

(B) the regulations promulgated under paragraph (1) establish procedures and protocols necessary—

(i) to prevent the reporting of some or all of the same greenhouse gas emissions or emission reductions by more than 1 reporting entity;

(ii) to provide for corrections to errors in data submitted to the database;

(iii) to provide for adjustment to data by reporting entities that have had a significant organizational change (including mergers, acquisitions, and divestiture), in order to maintain comparability among data in the database over time;

(iv) to provide for adjustments to reflect new technologies or methods for measuring or calculating greenhouse gas emissions;

(v) to account for changes in registration of ownership of emission reductions resulting from a voluntary private transaction between reporting entities; and

(vi) to clarify the responsibility for reporting in the case of any facility owned or controlled by more than 1 entity.

(3) SERIAL NUMBERS.—Through regulations promulgated under paragraph (1), the Administrator shall develop and implement a system that provides—

(A) for the verification of submitted emissions reductions;

(B) for the provision of unique serial numbers to identify the verified emission reductions made by an entity relative to the baseline of the entity; and

(C) for the tracking of the reductions associated with the serial numbers.

SEC. 202. INVENTORY OF GREENHOUSE GAS EMISSIONS FOR COVERED ENTITIES.

(a) IN GENERAL.—Not later than July 1st of each calendar year after 2008, a covered entity shall submit to the Administrator a report that describes, for the preceding calendar year, the entity-wide greenhouse gas emissions (as reported at the facility level), including—

(1) the total quantity of direct greenhouse gas emissions from stationary sources, expressed in units of carbon dioxide equivalence;

(2) the amount of petroleum products sold or imported and the amount of greenhouse gases, expressed in carbon dioxide equivalents, that would be produced when these products are used for transportation; and

(3) such other categories of emissions as the Administrator determines in the regulations promulgated under section 201(c)(1) may be practicable and useful for the purposes of this Act, such as—

(A) indirect emissions from imported electricity, heat, and steam;

(B) process and fugitive emissions; and

(C) production or importation of greenhouse gases.

(b) COLLECTION AND ANALYSIS OF DATA.—The Administrator shall collect and analyze information reported under subsection (a) for use under title III.

SEC. 203. GREENHOUSE GAS REDUCTION REPORTING.

(a) IN GENERAL.—Subject to the requirements described in subsection (b)—

(1) a covered entity may register greenhouse gas emission reductions achieved after 1990 and before 2010 under this section; and

(2) an entity that is not a covered entity may register greenhouse gas emission reductions achieved at any time since 1990 under this section.

(b) REQUIREMENTS.—

(1) IN GENERAL.—The requirements referred to in subsection (a) are that an entity (other than an entity described in paragraph (2)) shall—

(A) establish a baseline; and

(B) submit the report described in subsection (c)(1).

(2) REQUIREMENTS APPLICABLE TO ENTITIES ENTERING INTO CERTAIN AGREEMENTS.—An entity that enters into an agreement with a participant in the registry for the purpose of a carbon sequestration project shall not be required to comply with the requirements specified in paragraph (1) unless that entity is required to comply with the requirements by reason of an activity other than the agreement.

(c) REPORTS.—

(1) REQUIRED REPORT.—Not later than July 1st of the calendar year beginning more than 2 years after the date of enactment of this Act, but subject to paragraph (3), an entity described in subsection (a) shall submit to the Administrator a report that describes, for the preceding calendar year, the entity-wide greenhouse gas emissions (as reported at the facility level), including—

(A) the total quantity of direct greenhouse gas emissions from stationary sources, expressed in units of carbon dioxide equivalence;

(B) the amount of petroleum products sold or imported and the amount of greenhouse gases, expressed in carbon dioxide equivalents, that would be produced when these products are used by vehicles; and

(C) such other categories of emissions as the Administrator determines in the regulations promulgated under section 201(c)(1)

may be practicable and useful for the purposes of this Act, such as—

(i) indirect emissions from imported electricity, heat, and steam;

(ii) process and fugitive emissions; and

(iii) production or importation of greenhouse gases.

(2) VOLUNTARY REPORTING.—An entity described in subsection (a) may (along with establishing a baseline and reporting emissions under this section)—

(A) submit a report described in paragraph (1) before the date specified in that paragraph for the purposes of achieving and commoditizing greenhouse gas reductions through use of the registry; and

(B) submit to the Administrator, for inclusion in the registry, information that has been verified in accordance with regulations promulgated under section 201(c)(1) and that relates to—

(i) any entity-wide greenhouse gas emission reductions activities of the entity that were carried out during or after 1990 and before the establishment of the National Greenhouse Gas Database, verified in accordance with regulations promulgated under section 201(c)(1), and submitted to the Administrator before the date that is 4 years after the date of enactment of this Act; and

(ii) with respect to the calendar year preceding the calendar year in which the information is submitted, any project or activity that results in an entity-wide reduction of greenhouse gas emissions or an increase in net sequestration of a greenhouse gas that is carried out by the entity.

(3) *Provision of verification information by reporting entities*.—Each entity that submits a report under this subsection shall provide information sufficient for the Administrator to verify, in accordance with measurement and verification methods and standards developed under section 203, that the greenhouse gas report of the reporting entity—

(A) has been accurately reported; and

(B) in the case of each voluntary report under paragraph (2), represents—

(i) actual reductions in direct greenhouse gas emissions—

(I) relative to historic emission levels of the entity; and

(II) after accounting for any increases in indirect emissions described in paragraph (1)(C)(i); or

(ii) actual increases in net sequestration.

(4) FAILURE TO SUBMIT REPORT.—An entity that participates or has participated in the registry and that fails to submit a report required under this subsection shall be prohibited from using, or allowing another entity to use, its registered emissions reductions or increases in sequestration to satisfy the requirements of section 311.

(5) INDEPENDENT THIRD-PARTY VERIFICATION.—To meet the requirements of this section and section 203, an entity that is required to submit a report under this section may—

(A) obtain independent third-party verification; and

(B) present the results of the third-party verification to the Administrator.

(6) AVAILABILITY OF DATA.—

(A) IN GENERAL.—The Administrator shall ensure that information in the database is—

(i) published; and

(ii) accessible to the public, including in electronic format on the Internet.

(B) Exception.—Subparagraph (A) shall not apply in any case in which the Administrator determines that publishing or otherwise making available information described in that subparagraph poses a risk to national security.

(7) DATA INFRASTRUCTURE.—The Administrator shall ensure, to the maximum extent practicable, that the database uses, and is integrated with, Federal, State, and regional greenhouse gas data collection and reporting systems in effect as of the date of enactment of this Act.

(8) ADDITIONAL ISSUES TO BE CONSIDERED.—In promulgating the regulations under section 201(c)(1) and implementing the database, the Administrator shall take into consideration a broad range of issues involved in establishing an effective database, including—

(A) the appropriate allowances for reporting each greenhouse gas;

(B) the data and information systems and measures necessary to identify, track, and verify greenhouse gas emissions in a manner that will encourage private sector trading and exchanges;

(C) the greenhouse gas reduction and sequestration methods and standards applied in other countries, as applicable or relevant;

(D) the extent to which available fossil fuels, greenhouse gas emissions, and greenhouse gas production and importation data are adequate to implement the database; and

(E) the differences in, and potential uniqueness of, the facilities, operations, and business and other relevant practices of persons and entities in the private and public sectors that may be expected to participate in the database.

(d) ANNUAL REPORT.—The Administrator shall publish an annual report that—

(1) describes the total greenhouse gas emissions and emission reductions reported to the database during the year covered by the report;

(2) provides entity-by-entity and sector-by-sector analyses of the emissions and emission reductions reported;

(3) describes the atmospheric concentrations of greenhouse gases; and

(4) provides a comparison of current and past atmospheric concentrations of greenhouse gases.

SEC. 204. MEASUREMENT AND VERIFICATION.

(a) STANDARDS.—

(1) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Secretary shall develop comprehensive measurement and verification methods and standards to ensure a consistent and technically accurate record of greenhouse gas emissions, emission reductions, sequestration, and atmospheric concentrations for use in the registry.

(2) REQUIREMENTS.—The development of methods and standards under paragraph (1) shall include—

(A) a requirement that a covered entity use a continuous emissions monitoring system, or another system of measuring or estimating emissions that is determined by the Secretary to provide information with the same precision, reliability, accessibility, and timeliness as a continuous emissions monitoring system provides;

(B) establishment of standardized measurement and verification practices for reports made by all entities participating in the registry, taking into account—

(i) protocols and standards in use by entities desiring to participate in the registry as of the date of development of the methods and standards under paragraph (1);

(ii) boundary issues, such as leakage and shifted use;

(iii) avoidable of double counting of greenhouse gas emissions and emission reductions;

(iv) protocols to prevent a covered entity from avoiding the requirements of this Act by reorganization into multiple entities that are under common control; and

(v) such other factors as the Secretary, in consultation with the Administrator, determines to be appropriate;

(C) establishment of measurement and verification standards applicable to actions taken to reduce, avoid, or sequester greenhouse gas emissions;

(D) in coordination with the Secretary of Agriculture, standards to measure the results of the use of carbon sequestration and carbon recapture technologies, including—

(i) organic soil carbon sequestration practices; and

(ii) forest preservation and reforestation activities that adequately address the issues of permanence, leakage, and verification;

(E) establishment of such other measurement and verification standards as the Secretary, in consultation with the Secretary of Agriculture, the Administrator, and the Secretary of Energy, determines to be appropriate;

(F) establishment of standards for obtaining the Secretary's approval of the suitability of geological storage sites that include evaluation of both the geology of the site and the entity's capacity to manage the site; and

(G) establishment of other features that, as determined by the Secretary, will allow entities to adequately establish a fair and reliable measurement and reporting system.

(b) REVIEW AND REVISION.—The Secretary shall periodically review, and revise as necessary, the methods and standards developed under subsection (a).

(c) PUBLIC PARTICIPATION.—The Secretary shall—

(1) make available to the public for comment, in draft form and for a period of at least 90 days, the methods and standards developed under subsection (a); and

(2) after the 90-day period referred to in paragraph (1), in coordination with the Secretary of Energy, the Secretary of Agriculture, and the Administrator, adopt the methods and standards developed under subsection (a) for use in implementing the database.

(d) EXPERTS AND CONSULTANTS.—

(1) IN GENERAL.—The Secretary may obtain the services of experts and consultants in the private and nonprofit sectors in accordance with section 3109 of title 5, United States Code, in the areas of greenhouse gas measurement, certification, and emission trading.

(2) AVAILABLE ARRANGEMENTS.—In obtaining any service described in paragraph (1), the Secretary may use any available grant, contract, cooperative agreement, or other arrangement authorized by law.

TITLE III—MARKET-DRIVEN GREENHOUSE GAS REDUCTIONS

SUBTITLE A—EMISSION REDUCTION REQUIREMENTS; USE OF TRADEABLE ALLOWANCES

SEC. 311. COVERED ENTITIES MUST SUBMIT ALLOWANCES FOR EMISSIONS.

(a) IN GENERAL.—Beginning with calendar year 2010—

(1) each covered entity in the electric generation, industrial, and commercial sectors shall submit to the Administrator one tradeable allowance for every metric ton of greenhouse gases, measured in units of carbon dioxide equivalence, that it emits;

(2) producer or importer of hydrofluorocarbons, perfluorocarbons, or sulfur hexafluoride that is a covered entity shall submit to the Administrator one tradeable allowance for every metric ton of hydrofluorocarbons, perfluorocarbons, or sulfur hexafluoride it produces or imports, measured in units of carbon dioxide equivalence; and

(3) each petroleum refiner or importer that is a covered entity shall submit one tradeable allowance for every unit of petroleum product it sells that will produce one metric ton of greenhouse gases, measured in units of carbon dioxide equivalence, when used for transportation.

(b) DETERMINATION OF TRANSPORTATION SECTOR AMOUNT.—For the transportation

sector, the Administrator shall determine the amount of greenhouse gases, measured in units of carbon dioxide equivalence, that will be emitted when petroleum products are used for transportation.

(c) EXCEPTION FOR CERTAIN DEPOSITED EMISSIONS.—Notwithstanding subsection (a), a covered entity is not required to submit a tradeable allowance for any amount of greenhouse gas that would otherwise have been emitted from a source under the ownership or control of that entity if—

(1) the emission is deposited in a geological storage facility approved by the Administrator under section 204(a)(2)(F); and

(2) the entity agrees to submit tradeable allowances for any portion of the deposited emission that is subsequently emitted from that facility.

SEC. 312. COMPLIANCE.

(a) IN GENERAL.—

(1) SOURCE OF TRADEABLE ALLOWANCES USED.—A covered entity may use a tradeable allowance to meet the requirements of this section without regard to whether the tradeable allowance was allocated to it under subtitle B or acquired from another entity or the Climate Change Credit Corporation established under section 351.

(2) VERIFICATION OF ADMINISTRATOR.—At various times during each year, the Administrator shall determine whether each covered entity has met the requirements of this section. In making that determination, the Administrator shall—

(A) take into account tradeable allowances allocated to, or acquired by, that covered entity; and

(B) retire the serial number assigned to each such tradeable allowance so used.

(b) ALTERNATIVE MEANS OF COMPLIANCE FROM 2010 THROUGH 2015.—For the years 2010, 2011, 2012, 2013, 2014, and 2015, a covered entity may satisfy 15 percent of its total allowance submission requirement under this section by—

(1) submitting tradeable allowances from another nation's market in greenhouse gas emissions if—

(A) the Secretary certifies that the other nation's system for trading in greenhouse gas emissions is complete, accurate, and transparent and reviews that determination at least once every 5 years;

(B) the other nation has adopted enforceable limits on its greenhouse gas emissions which the tradeable allowances were issued to implement; and

(C) the covered entity certifies that the tradeable allowance has been retired unused in the other nation's market;

(2) submitting a registered net increase in sequestration, as registered in the National Greenhouse Gas Database established under section 201, adjusted, if necessary, to comply with the accounting standards and methods established under section 372;

(3) submitting a greenhouse gas emissions reduction (other than a registered net increase in sequestration) that was registered in the National Greenhouse Gas Database by a person that is not a covered entity; or

(4) submitting credits obtained from the Administrator under section 314

(c) ALTERNATIVE MEANS OF COMPLIANCE AFTER 2015.—For years beginning after 2015, a covered entity may meet the requirements of this section by any means described in subsection (b), except that for the purpose of applying subsection (d) after 2015, ''10 percent'' shall be substituted for ''15 percent''.

SEC. 313. TRADEABLE ALLOWANCES AND FUEL ECONOMY STANDARD CREDITS.

(a) IN GENERAL.—Section 32903 of title 49, United States Code, is amended by striking the second sentence of subsection (a) and inserting ''The credits may be—

''(1) applied to any of the 3 model years immediately following the model year for which the credits are earned; or

''(2) if the average fuel economy of a manufacturer exceeds the fuel efficiency standards by more than 20 percent, sold to the registry established under section 201 of the Climate Stewardship Act of 2003.''.

(b) CONVERSION RATIO.—The Secretary of Transportation, in consultation with the Administrator, shall determine the conversion factor to be used for purposes of credits purchased from, or sold to, the registry established under section 201 of this Act and fuel economy standard credits under section 32903 of title 49, United States Code.

(c) REDUCTION OF TRANSPORTATION SECTOR ALLOCATION.—If any manufacturer sells credits under section 32903(a)(2) of title 49, United States Code, to the registry established under section 201 of this Act in any calendar year, the amount of tradeable allowances allocated to the transportation sector under section 311(b) for the next calendar year, and the total allocation of tradeable allowance available for allocation in the next calendar years, shall be reduced by an amount equivalent to the sum of the credits, measured in units of carbon dioxide equivalents, sold to the registry by such manufacturers during the preceding calendar year.

SEC. 314. BORROWING AGAINST FUTURE REDUCTIONS.

(a) IN GENERAL.—The Administrator shall establish a program under which a covered entity may—

(1) receive a credit in the current calendar year for anticipated reductions in emissions in a future calendar year; and

(2) use the credit in lieu of a tradeable allowance to meet the requirements of this Act for the current calendar year, subject to the limitation imposed by section 312(b).

(b) DETERMINATION OF TRADEABLE ALLOWANCE CREDITS.—The Administrator may make credits available under subsection (a) only for anticipated reductions in emissions that—

(1) are attributable to the realization of capital investments in equipment, the construction, reconstruction, or acquisition of facilities, or the deployment of new technologies—

(A) for which the covered entity has executed a binding contract and secured, or applied for, all necessary permits and operating or implementation authority;

(B) that will not become operational within the current calendar year; and

(C) that will become operational and begin to reduce emissions from the covered source within 5 years after the year in which the credit is used; and

(2) will be realized within 5 years after the year in which the credit is used.

(c) CARRYING COST.—If a covered entity uses a credit under this section to meet the requirements of this Act for a calendar year (referred to as the use year), the tradeable allowance requirement for the year from which the credit was taken (referred to as the source year) shall be increased by an amount equal to—

(1) 10 percent for each credit borrowed from the source year; multiplied by

(2) the number of years beginning after the use year and before the source year.

(d) MAXIMUM BORROWING PERIOD.—A credit from a year beginning more than 5 years after the current year may not be used to meet the requirements of this Act for the current year.

(e) FAILURE TO ACHIEVE REDUCTIONS GENERATING CREDIT.—If a covered entity that uses a credit under this section fails to achieve the anticipated reduction for which the credit was granted for the year from which the credit was taken, then—

(1) the covered entity's requirements under this Act for that year shall be increased by the amount of the credit, plus the amount determined under subsection (c);

(2) any tradeable allowances submitted by the covered entity for that year shall be counted first against the increase in those requirements; and

(3) the covered entity may not use credits under this section to meet the increased requirements.

SEC. 315. OTHER USES OF TRADEABLE ALLOWANCES.

(a) IN GENERAL.—Tradeable allowances may be sold, exchanged, purchased, retired, or used as provided in this section.

(b) INTERSECTOR TRADING.—Covered entities may purchase or otherwise acquire tradeable allowances from other covered sectors to satisfy the requirements of section 311.

(c) CLIMATE CHANGE CREDIT ORGANIZATION.—The Climate Change Credit Corporation established under section 351 may sell tradeable allowances allocated to it under section 332(a)(2) to any covered entity or to any investor, broker, or dealer in such tradeable allowances. The Climate Change Credit Corporation shall use all proceeds from such sales in accordance with the provisions of section 352.

(d) BANKING OF TRADEABLE ALLOWANCES.—Not withstanding the requirements of section 311, a covered entity that has more than a sufficient amount of tradeable allowances to satisfy the requirements of section 311, may refrain from submitting a tradeable allowance to satisfy the requirements in order to sell, exchange, or use the tradeable allowance in the future.

SEC. 316. EXEMPTION OF SOURCE CATEGORIES.

(a) IN GENERAL.—The Administrator may grant an exemption from the requirements of this Act to a source category if the Administrator determines, after public notice and comment, that it is not feasible to measure or estimate emissions from that source category.

(b) REDUCTION OF LIMITATIONS.—If the Administrator exempts a source category under subsection (a), the Administrator shall also reduce the total tradeable allowances under section 321(a) as follows:

(1) 2010 LIMITATION.—For the tradeable allowances under section 311(a)(1), the Administrator shall reduce the total by the amount of greenhouse gas emissions that the exempted source category emitted in calendar year 2000, as identified in the 2000 Inventory.

(2) 2016 LIMITATION.—For the tradeable allowances under subsection 311(a)(2), the Administrator shall reduce the total by the amount of green-house gas emissions that the exempted source category emitted in calendar year 1990, as identified in the 1990 Inventory.

(c) LIMITATION ON EXEMPTION.—The Administrator may not grant an exemption under subsection (a) to carbon dioxide produced from fossil fuel.

Subtitle B—Establishment and Allocation of Tradeable Allowances

SEC. 331. ESTABLISHMENT OF TRADEABLE ALLOWANCES.

(a) IN GENERAL.—The Administrator shall promulgate regulations to establish tradeable allowances, denominated in units of carbon dioxide equivalence—

(1) for calendar years beginning after 2009 and before 2016, equal to—

(A) 5896 million metric tons, measured in units of carbon dioxide equivalence, reduced by

(B) the amount of emissions of greenhouse gases in calendar year 2000 from non-covered entities; and

(2) for calendar years beginning after 2015, equal to—

(A) 5123 million metric tons, measured in units of carbon dioxide equivalence, reduced by

(B) the amount of emissions of greenhouse gases in calendar year 1990 from non-covered entities.

(b) SERIAL NUMBERS.—The Administrator shall assign a unique serial number to each tradeable allowance established under subsection (a), and shall take such action as may be necessary to prevent counterfeiting of tradeable allowances.

(c) NATURE OF TRADEABLE ALLOWANCES.—A tradeable allowance is not a property right, and nothing in this title or any other provision of law limits the authority of the United States to terminate or limit a tradeable allowance.

(d) NON-COVERED ENTITY.—In this section:

(1) IN GENERAL.—The term ''non-covered entity'' means an entity that—

(A) owns or controls a source of greenhouse gas emissions in the electric power, industrial, or commercial sectors of the United States economy (as defined in the Inventory), refines or imports petroleum products for use in transportation, or produces or imports hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride; and

(B) is not a covered entity, determined by applying the definition in section 3(4) for the year 2000 (for the purpose of subsection (a)(1)(B)) or the year 1990 (for the purpose of subsection (a)(2)(B)).

(2) EXCEPTION.—Notwithstanding paragraph (1), an entity that is a covered entity for any calendar year beginning after 2009 shall not be considered to be a non-covered entity for the purpose of either subsection (a)(1)(B) or subsection (a)(2)(B) only because it emitted, or its products would have emitted, 10,000 metric tons or less of greenhouse gas, measured in units of carbon dioxide equivalence, in the year 2000 or 1990, respectively.

SEC. 332. DETERMINATION OF TRADEABLE ALLOWANCE ALLOCATIONS.

(a) IN GENERAL.—The Secretary shall determine—

(1) the amount of tradeable allowances to be allocated to each covered sector of that sector's Phase I and Phase II allotments; and

(2) the amount of tradeable allowances to be allocated to the Climate Change Credit Corporation established under section 351.

(b) ALLOCAITON FACTORS.—In making the determination required by subsection (a), the Secretary shall consider—

(1) the distributive effect of the allocations on household income and net worth of individuals

(2) the impact of the allocations on corporate income, taxes, and asset value;

(3) the impact of the allocations on income levels of consumers and on their energy consumption;

(4) the effects of the allocations in terms of economic efficiency;

(5) the ability of covered entities to pass through compliance costs to their customers; and

(6) the degree to which the amount of allocations to the covered sectors should decrease over time.

(c) ALLOCATION RECOMMENDATIONS AND IMPLEMENTATIONS.—Before allocating or providing tradeable allowances under subsection(a) and within 24 hours after the date of enactment of this Act, the Secretary shall submit the determinations under subsection (a) to the Senate Committee on Commerce, Science, and Transportation, the Senate Committee on Environment and Public Works, the House of Representatives Committee on Science, and the House of Representatives Committee on Energy and Commerce. The Secretary's determinations under paragraph (1), including the allocations and provision of tradeable allowances pursuant to that determination, are deemed to be a major rule (as defined in section 804(2) of title 5, United States Code), and subject to the provisions of chapter 8 of that title.

SEC. 333. ALLOCATION OF TRADEABLE ALLOWANCES.

(a) IN GENERAL.—Beginning with calendar year 2010 and after taking into account any initial allocations under section 334, the Administrator shall—

(1) allocate to each covered sector that sector's Phase I and Phase II allotments determined by the Administrator under section 332 (adjusted for any such initial allocations and the allocation to the Climate Change Credit Corporation established under section 351); and

(2) allocate to the Climate Change Credit Corporation established under section 351 the tradeable allowances allocable to that Corporation.

(b) INTRASECTORIAL ALLOTMENTS.—The Administrator shall, by regulation, establish a process for the allocation of tradeable allowances under this section, without cost to facilities within each sector, that will—

(1) encourage investments that increase the efficiency of the processes that produce greenhouse gas emissions;

(2) minimize the costs to the government of allocating the tradeable allowances;

(3) not penalize a covered entity for registered emissions reductions made before 2010; and

(4) provide sufficient allocation for new entrants into the sector.

(c) POINT SOURCE ALLOCATION.—The Administrator shall allocate the tradeable allowances for the electricity generation, industrial, and commercial sectors to the entities owning or controlling the point sources of greeenhouse gas emissions within that sector.

(d) HYDROFLUOROCARBONS, PERFLUOROCARBONS, AND SULFUR HEXAFLUORIDE.—The Administrator shall allocate the tradeable allowances for producers or importers of hydrofluorocarbons, perfluorocarbons, or sulfur hexafluoride one tradeable allowance for every metric ton of hydrofluorocarbons, perfluorocarbons, or sulfur hexafluoride produced or imported, measured in units of carbon dioxide equivalence.

(e) SPECIAL RULE FOR ALLOCATION WITHIN THE TRANSPORTATION SECTOR.—The Administrator shall allocate the tradeable allowances for the transportation sector to petroleum refiners or importers that produce or import petroleum products that will be used as fuel for transportation.

SEC. 334. INITIAL ALLOCATIONS FOR EARLY PARTICIPATION AND ACCELERATED PARTICIPATION.

Before making allocations under section 333, the Administrator shall allocate—

(1) to any covered entity an amount of tradeable allowances equivalent to the amount of greenhouse gas emissions reductions registered by that covered entity in the national greenhouse gas database if—

(A) the covered entity has requested to use the registered reduction in the year of allocation;

(B) the reduction was registered prior to 2010; and

(C) the Administrator retires the unique serial number assigned to the reduction under section 201(c)(3); and

(2) to any covered entity that has entered into an accelerated participation agreement under section 335, such tradeable allowances as the Administrator has determined to be appropriate under that section.

SEC. 335. BONUS FOR ACCELERATED PARTICIPATION.

(A) IN GENERAL.—If a covered entity executes an agreement with the Administrator under which it agrees to reduce its level of greenhouse gas emissions to a level no greater than the level of its greenhouse gas emissions for calendar year 1990 by the year 2010, then, for the 6-year period beginning with calendar year 2010, the Administrator shall—

(1) provide additional tradeable allowances to that entity when allocating allowances under section 334 in order to recognize the additional emissions reductions that will be required of the covered entity;

(2) allow that entry to satisfy 20 percent of its requirements under section 311 by—

(A) submitting tradeable allowances from another nation's market in greenhouse gas emission under the conditions described in section 312(b)(1);

(B) submitting a registered net increase in sequestration, as registered in the National Greenhouse Gas Database established under section 201, and as adjusted by the appropriate sequestration discount rate established under section 372; or

(C) submitting a greenhouse gas emission reduction (other than a registered net increase in sequestration) that was registered in the National Greenhouse Gas Database by a person that is not a covered entity.

(b) TERMINATION.—An entity that executes an agreement described in subsection (a) may terminate the agreement at any time.

(c) FAILURE TO MEET COMMITMENT.—If an entity that executes an agreement described in subsection (a) fails to achieve the level of emissions to which it committed by calendar year 2010—

(1) its requirements under section 311 shall be increased by the amount of any tradeable allowances provided to it under subsection (a)(1); and

(2) any tradeable allowances submitted thereafter shall be counted first against the increase in those requirements.

SEC. 336. ENSURING TARGET ADEQUACY.

(a) IN GENERAL.—Beginning 2 years after the date of enactment of this Act, the Under Secretary of Commerce for Oceans and Atmosphere shall review the allowances established by subsection (a) no less frequently than biennially—

(1) to re-evaluate the levels established by that subsection, after taking into account the best available science and the most currently available data, and

(2) to re-evaluate the environmental and public health impacts of specific concentration levels of greenhouse gases,

to determine whether the allowances established by subsection (a) continue to be consistent with the objective of the United Nations' Framework Convention on Climate Change of stabilizing levels of greenhouse gas emissions at a level that will prevent dangerous anthropogenic interference with the climate system.

(b) REVIEW OF 2010 AND 2016 LEVELS.—The Under Secretary shall specifically review in 2008 the level established under section 311(a)(1) and, in 2012, the level established under section 311(a)(2), and transmit a report on his reviews, together with any recommendations, including legislative recommendations, for modification of the levels, to the Senate Committee on Commerce, Science, and Transportation, the Senate Committee on Environment and Public Works, the House of Representatives Committee on Science, and the House of Representatives Committee on Energy and Commerce.

Subtitle C—Climate Change Credit Corporation

SEC. 351. ESTABLISHMENT.

(a) IN GENERAL.—The Climate Change Credit Corporation is established as a nonprofit corporation without stock. The Corporation shall not be considered to be an

agency or establishment of the United States Government.

(b) APPLICABLE LAWS.—The Corporation shall be subject to the provisions of this title and, to the extent consistent with this title, to the District of Columbia Business Corporation Act.

(c) BOARD OF DIRECTORS.—The Corporation shall have a board of directors of 5 individuals who are citizens of the United States, of whom 1 shall be elected annually by the board to serve as chairman. No more than 3 members of the board serving at any time may be affiliated with the same political party. The members of the board shall be appointed by the President of the United States, by and with the advice and consent of the Senate and shall serve for terms of 5 years.

SEC. 352. PURPOSES AND FUNCTIONS.

(a) TRADING.—The Corporation—

(1) shall receive and manage tradeable allowances allocated to it under section 333(a)(2); and

(2) shall buy and sell tradeable allowances, whether allocated to it under that section or obtained by purchase, trade, or donation from other entities; but

(3) may not retire tradeable allowances unused.

(b) USE OF TRADEABLE ALLOWANCES AND PROCEEDS.—

(1) IN GENERAL.—The Corporation shall use the tradeable allowances, and proceeds derived from its trading activities in tradeable allowances, to reduce costs borne by consumers as a result of the greenhouse gas reduction requirements of this Act. The reductions—

(A) may be obtained by buy-down, subsidy, negotiation of discounts, consumer rebates, or otherwise;

(B) shall be, as nearly as possible, equitably distributed across all regions of the United States; and

(C) may include arrangements for preferential treatment to consumers who can least afford any such increased costs.

(2) TRANSITION ASSISTANCE TO DISLOCATED WORKERS AND COMMUNITIES.—The Corporation shall allocate a percentage of the proceeds derived from its trading activities in tradeable allowances to provide transition assistance to dislocated workers and communities. Transition assistance may take the form of—

(A) grants to employers, employer associations, and representatives of employees—

(i) to provide training, adjustment assistance, and employment services to dislocated workers; and

(ii) to make income-maintenance and needs-related payments to dislocated workers; and

(B) grants to State and local governments to assist communities in attracting new employers or providing essential local government services.

(3) PHASE-OUT OF TRANSITION ASSISTANCE.—The percentage allocated by the Corporation under paragraph (2)—

(A) shall be 20 percent for 2010;

(B) shall be reduced by 2 percentage points each year thereafter; and

(C) may not be reduced below zero.

(c) ANNUAL REPORT.—The Corporation shall issue an annual report setting forth the results of its operations for the year.

SUBTITLE D—SEQUESTRATION ACCOUNTING; PENALTIES

SEC. 371. SEQUESTRATION ACCOUNTING.

(a) SEQUESTRATION ACCOUNTING.—If a covered entity uses a registered net increase in sequestration to satisfy the requirements of section 311 for any year, that covered entity shall submit information to the Administrator every 5 years thereafter sufficient to allow the Administrator to determine, using the methods and standards created under section 204, whether that net increase in sequestration still exists. Unless the Administrator determines that the net increase in sequestration continues to exist, the covered entity shall offset any loss of sequestration by submitting additional tradeable allowances of equivalent amount in the calendar year following that determination.

(b) REGULATIONS REQUIRED.—The Secretary, acting through the Under Secretary of Commerce for Science and Technology, in coordination with the Secretary of Agriculture, the Secretary of Energy, and the Administrator, shall issue regulations establishing the sequestration accounting rules for all classes of sequestration projects.

(c) CRITERIA FOR REGULATIONS.—In issuing regulations under this section, the Secretary shall use the following criteria:

(1) If the range of possible amounts of net increase in sequestration for a particular class of sequestration project is not more than 10 percent of the median of that range, the amount of sequestration awarded shall be equal to the median value of that range.

(2) If the range of possible amounts of net increase in sequestration for a particular class of sequestration project is more than 10 percent of the median of that range, the amount of sequestration awarded shall be equal to the fifth percentile of that range.

(3) The regulations shall include procedures for accounting for potential leakage from sequestration projects and for ensuring that any registered increase in sequestration is in addition that which would have occurred if this Act had not been enacted.

(d) UPDATES.—The Secretary shall update the sequestration accounting rules for every class of sequestration project at least once every 5 years.

SEC. 372. PENALTIES.

Any covered entity that fails to meet the requirements of section 311 for a year shall be liable for a civil penalty, payable to the Administrator, equal to thrice the market value (determined as of the last day of the year at issue) of the tradeable allowances that would be necessary for that covered entity to meet those requirements on the date of the emission that resulted in the violation.

Mr. MCCAIN. Mr. President, the National Academy of Science has said, ''Greenhouse gases are accumulating in the Earth's atmosphere as a result of human activities, causing surface air temperatures and subsurface ocean temperatures to rise. Temperatures are, in fact, rising. The changes observed over the last several decades are likely mostly due to human activities, but we cannot rule out that some significant part of these changes is also a reflection of natural variability.''

Over the past five years, the Commerce Committee has held eight hearings on climate change. Two the last five years, 1998 and 2002, have been the warmest, in terms of average global temperatures, ever recorded. According to a recent report from the National Oceanic and Atmospheric Administration NOAA, nine of the warmest years have occurred since 1990. As reported in the New York Times on December 31, 2002, many experts think it is more likely than not 2003 will either match or exceed the 1998 average temperature record of 58 degrees Fahrenheit.

Researchers at the University of Texas, Wesleyan University, and Stanford University recently reported in the journal Nature that global warming is forcing species around the world, from California starfish to Alpine herbs, to move into new ranges or alter habits that could disrupt ecosystems. The report states there is ''very high confidence,'' defined as having more than 95 percent of observed changes which were principally caused by climate change, that climate change is already affecting living systems. The end result off these changes could be substantial ecological disruption, local losses in wildlife, and extinction of certain species.

This and many other reports over the years have highlighted time and again the consequences of a warming climate system. We have seen the destruction of over 70 percent of the heat-sensitive corals reefs, the melting of glaciers at unprecedented levels, the increase of wildfires, and the spreading of diseases. A large German insurance company has estimated that global warming could cost $300 billion annually by 2050 in weather damage, pollution, industrial and agricultural losses, and other expenses.

Our international partners, the States, and private industry are reacting to this challenge. For example, California has enacted legislation that will regulate tailpipe emissions of greenhouse gases. The European Union just recently approved an emissions trading system. The World Bank has estimated that greenhouse gas trading will be a $10 billion market by 2005. Financial ratification of the Kyoto Protocol rests with Russia.

Industry is also paying attention to what's happening. Laws firms and insurance companies are setting up business units to deal with climate-related risks.

Thus far, however, little has actually been accomplished to reduce greenhouse gas emissions. The United States must do something, but it must also do the right thing. Many have focused on what we do not know or the uncertainties are climate change. I prefer a more sound and scientific approach of starting with what is known or given and then proceeding to solve the problem at hand.

While we cannot say with 100 percent confidence what will happen in the future, we do know the mission of greenhouse gases is not healthy for the environment. As many of the top scientists through the world have stated, the sooner we start to reduce these emissions, the better off we will be in the future.

In 2001, Senator LIEBERMAN and I announced our intention to develop legislation to require mandatory reductions in greenhouse gases emissions and provide for the trading of emission allowances. We have been working with industry and the environmental community to develop legislation to move the country in the right direction and demonstrate leadership on this important issue. It will be the first comprehensive

piece of legislation in this area. Not only will it not place the burden on any one sector, it would allow for the partnering across sectors through the trading system to most effectively meet the required reductions.

The bill we are introducing will propose a ''cap and trade'' approach to reducing greenhouse gases emissions. It would require the promulgation of regulations to limit greenhouse gases emissions from the electricity generation, transportation, industrial and commercial economic sectors. The affected sectors request approximately 85 percent of the overall U.S. emissions for the year 2000. The bill also would provide for the trading of emissions allowances and reductions through the government provided greenhouse gas database, which would contain an inventory of emissions and a registry of reduction.

I thank Senator LIEBERMAN for his commitment and leadership in bringing this piece of legislative initiative. We hope that our colleagues in the Senate and the Administration will work with us to improve upon and ultimately adopt this much needed legislation.

The U.S. is responsible for 25 percent of the worldwide greenhouse gases emissions. It is time for the U.S. government to do its part to address this global problem, and legislation on mandatory reductions is the form of leadership that is required to address this global problem.

STATEMENTS ON SUBMITTED RESOLUTIONS

SENATE RESOLUTION 15—COMMENDING DAN L. CRIPPEN FOR HIS SERVICE TO CONGRESS AND THE NATION

Mr. DOMENICI (for himself, Mr. CONRAD, Mr. GRASSLEY, Mr. HOLLINGS, Mr. NICKLES, Mr. SARBANES, Mr. BOND, Mrs. MURRAY, Mr. GREGG, Mr. WYDEN, Ms. SNOWE, Mr. FEINGOLD, Mr. FRIST, Mr. JOHNSON, Mr. SMITH, Mr. BYRD, Mr. ALLARD, Mr. NELSON of Florida, Mr. HAGEL, Ms. STABENOW, Mrs. CLINTON, and Mr. CORZINE) submitted the following resolution; which was considered and agreed to:

S. RES. 15

Whereas Dr. Dan L. Crippen has served as the fifth Director of the Congressional Budget Office since February 3, 1999 and now has ended his service on January 3, 2003;

Whereas during his tenure as Director, he has continued to encourage the highest standards of analytical excellence within the staff of the Congressional Budget Office while maintaining the independent and nonpartisan character of the organization;

Whereas he has provided expert testimony to all committees of the United States Senate;

Whereas during his tenure as Director, he has expanded and improved the accessibility of the Congressional Budget Office's work products to the Congress and the public;

Whereas he has led the agency's development of an independent long-term economic modeling capability that examines demographic changes and their critical impact on economic and budget estimates;

Whereas he has performed his duties as Director at a time of extreme personal loss with courage, dignity, and intelligence; and

Whereas he has earned the respect and esteem of the United States Senate: Now, therefore, be it

Resolved, That the Senate of the United States commends Dr. Dan L. Crippen for his dedicated, faithful, and outstanding service to his country and to the Senate.

SENATE RESOLUTION 16—HONORING THE HILLTOPPERS OF WESTERN KENTUCKY UNIVERSITY FROM BOWLING GREEN, KENTUCKY, FOR WINNING THE 2002 NATIONAL COLLEGIATE ATHLETIC ASSOCIATION DIVISION I–AA FOOTBALL CHAMPIONSHIP

Mr. BUNNING (for himself and Mr. MCCONNELL) submitted the following resolution; which was considered and agreed to:

S. RES. 16

Whereas on December 20, 2002, the Western Kentucky University Hilltoppers from Bowling Green, Kentucky, won the 2002 NCAA Division I–AA Collegiate Football Championship;

Whereas this championship is Western Kentucky University's first NCAA Football Championship since its football program began in 1913;

Whereas the Hilltoppers had an impressive and overall record of 12 wins and 3 losses, including 10 consecutive wins and winning the championship game;

Whereas the Hilltoppers showed tremendous dedication to each other, appreciation to their fans, sportsmanship to their opponents, and respect for the game of football throughout their 2002 season;

Whereas Western Kentucky University was represented with integrity and principled leadership under the direction of its head coach Jack Harbaugh, athletic director Dr. Wood Selig, and president Dr. Gary A. Ransdell; and

Whereas on December 20, 2002, the 15th ranked Western Kentucky University Hilltoppers faced the number 1 ranked McNeese State University Cowboys for the 2002 NCAA Division I–AA Football Championship in Chattanooga, Tennessee, and came away victorious by a score of 34 to 14: Now, therefore, be it

Resolved, That the Senate honors the Western Kentucky University football team from Bowling Green, Kentucky, for winning the 2002 NCAA Division I–AA Football Championship.

SENATE CONCURRENT RESOLUTION 1—EXPRESSING THE SENSE OF CONGRESS THAT THERE SHOULD CONTINUE TO BE PARITY BETWEEN THE ADJUSTMENTS IN THE COMPENSATION OF MEMBERS OF THE UNIFORMED SERVICES AND THE ADJUSTMENTS IN THE COMPENSATION OF CIVILIAN EMPLOYEES OF THE UNITED STATES

Mr. SARBANES (for himself, Mr. BINGAMAN, Mr. DURBIN, Ms. MIKULSKI, Mrs. MURRAY, Mr. LEVIN, Mr. WARNER, Ms. CANTWELL, Mr. NELSON of Nebraska, Mrs. CLINTON, Mr. AKAKA, Mr. KENNEDY, and Mr. LIEBERMAN) submitted the following concurrent resolution; which was referred to the Committee on Governmental Affairs:

S. CON. RES. 1

Whereas members of the uniformed services of the United States and civilian employees of the United States make significant contributions to the general welfare of the United States and are on the front lines in the fight against terrorism;

Whereas civilian employees of the United States play a crucial role in the fight against terrorism, as exemplified by the civilian employees of the new Department of Homeland Security who are working to ensure the security of the United States, the civilian employees of the Central Intelligence Agency and the Federal Bureau of Investigation who are investigating the September 11, 2001, terrorist attacks and working to prevent further terrorist attacks, the numerous civilian employees of the Federal Government who participated in disaster response teams after such attacks, and the civilian employees of the Transportation Security Agency who are working to make our skies safer;

Whereas civilian employees of the United States will continue to support and defend the United States during this difficult time;

Whereas for fiscal year 2003 the Administration granted a 4.1 percent pay raise for members of the uniformed services but only a 3.1 percent pay raise for the dedicated civilian employees of the United States, a disparity in adjustments that violates the traditional principle of parity of pay adjustments; and

Whereas this disparity in pay adjustments goes against the longstanding policy of parity for all those who have chosen to serve the United States: Now, therefore, be it

Resolved by the Senate (the House of Representatives concurring), That it is the sense of Congress that there should continue to be parity between the adjustments in the compensation of members of the uniformed services and the adjustments in the compensation of civilian employees of the United States.

Mr. SARBANES. Mr. President, I am called to join with Senators AKAKA, BINGAMAN, CANTWELL, CLINTON, DURBIN, KENNEDY, LEVIN, LIEBERMAN, MIKULSKI, MURRAY, NELSON, E. BENJAMIN, and WARNER in introducing a resolution that would express the sense of the Congress that parity in the pay increases granted to Federal civilian and military employees should be maintained. A comparison of military and civilian pay increases by the Congressional Research Service finds that in 14 of the last 17 years military and civilian pay increases have been identical. Disparate treatment of civilian and military pay goes against the longstanding policy of parity for all those who have chosen to serve our Nation, whether that service be in the civilian workforce or in the armed services.

During this unpredented time in our Nation's history, both members of the armed services and civilian Federal employees are fighting the war on terrorism and making remarkable contributions to the safety of this country and our citizens. Both the armed forces and civilian employees are on the front lines in the fight against terrorism, and civilian employees are playing a significant role in that fight.