Calendar No. 752

110TH CONGRESS
2D SESSION

S. 2307

[Report No. 110–341]

To amend the Global Change Research Act of 1990, and for other purposes.

IN THE SENATE OF THE UNITED STATES

NOVEMBER 5, 2007

Mr. KERRY (for himself, Ms. SNOWE, Ms. KLOBUCHAR, and Mr. NELSON of Florida) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

MAY 22, 2008

Reported by Mr. INOUYE, with amendments

[Omit the part struck through and insert the part printed in italic]

A BILL

To amend the Global Change Research Act of 1990, and for other purposes.

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 ''Global Change Research Improvement Act of 2007''.

★(Star Print)

SEC. 2. TABLE OF CONTENTS.

The table of contents for this Act is as follows:

TITLE I—AMENDMENT OF THE GLOBAL CHANGE RESEARCH ACT OF 1990

SEC. 101. AMENDMENT OF GLOBAL CHANGE RESEARCH ACT OF 1990.

Except as otherwise expressly provided, whenever in this title an amendment or repeal is expressed in terms of an amendment to, or repeal of, a section or other provision, the reference shall be considered to be made to a section or other provision of the Global Change Research Act of 1990 (15 U.S.C. 2921 et seq.).

SEC. 102. CHANGES TO FINDINGS AND PURPOSE.

Section 101 (15 U.S.C. 2931) is amended to read as follows:

"SEC. 101. FINDINGS AND PURPOSE.

''(a) FINDINGS.—The Congress makes the following findings:

''(1) According to the 4th Assessment Report of the Intergovernmental Panel on Climate Change, most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations.

''(2) Human-induced changes, in conjunction with natural fluctuations, may lead to significant al-

terations of world climate patterns. Over this century, these changes could adversely affect world agricultural and marine production, coastal habitability, biological diversity, human health, global social and political stability, and global economic activity.

''(3) Developments in interdisciplinary Earth sciences, global observing systems, and satellite and computing technologies make possible significant scientific understanding and prediction of global changes and their effects, and have resulted in the significant expansion of environmental data and information.

''(4) Development and strengthening of effective policies to mitigate and adapt to global change will rely on improvement in scientific understanding of global environmental and societal processes and on development of information that is of use to decisionmakers at the local, regional, and national levels.

''(5) Although significant Federal global change research efforts are underway, an effective Federal program will require improvements in interagency coordination, coordination with the activities of local, regional, State, private, and international entities, and increased levels of Federal resources.

''(6) Although the United States Global Change Research Program has made significant contributions to understanding Earth's climate and the anthropogenic influences on Earth's climate and its ecosystems, the Program also needs to produce information that better meets the expressed needs of decisionmakers.

''(7) Better predictions of future climate conditions at the regional level are desirable to inform decisions, including those related to land, water, and resource management.

''(8) Improved understanding of global change is needed to identify risks and vulnerabilities under plausible climate futures to assist decisionmakers in the development of policies to help ensure that ecological, social, and economic systems are resilient.

''(9) In order to more effectively meet the needs of decisionmakers and the public, the research agenda of the United States Global Change Research Program and its implementation and products should be informed by continuous feedback from users of information generated by the Program.

''(b) PURPOSE.—The purpose of this title is to provide for the continuation and coordination of a comprehensive and integrated United States observation, research,

assessment, and outreach program which will assist the Nation and the world to better understand, assess, predict, mitigate, and adapt to the effects of human-induced and natural processes of global change.''.

SEC. 103. CHANGES IN DEFINITIONS.

Section 2 (15 U.S.C. 2921) is amended—

(1) by redesignating paragraphs (1) through (6) as paragraphs (2) through (7), respectively;

(2) by inserting before paragraph (2), as redesignated, the following:

''(1) 'climate change' means any change in climate over time, whether due to natural variability or as a result of human activity;'';

(3) by striking ''Earth and Environmental Sciences'' in paragraph (2), as redesignated and inserting ''Global Change Research''; ~~and~~

(4) by striking ''Federal Coordinating Council on Science, Engineering, and Technology;'' in paragraph (3), as redesignated, and inserting ''National Science and Technology Council established by Executive Order 12881, November 23, 1993;''; and

~~(4)~~ *(5)* by striking paragraph (4), as redesignated, and inserting the following:

''(4) 'global change' means human-induced or natural changes in the global environment (including

climate change and other phenomena affecting land productivity, oceans and coastal areas, freshwater resources, atmospheric chemistry, biodiversity, and ecological systems) that may alter the capacity of Earth to sustain life;''.

SEC. 104. CHANGE IN COMMITTEE NAME AND STRUCTURE.

Section 102 (15 U.S.C. 2932) is amended—

(1) by striking ''**EARTH AND ENVIRONMENTAL SCIENCES.**'' in the section heading and inserting ''**GLOBAL CHANGE RESEARCH.**'';

(2) by striking ''Earth and Environmental Sciences.'' in subsection (a) and inserting ''Global Change Research.'';

(3) by redesignating paragraphs (14) and (15) of subsection (b) as paragraphs (15) and (16), respectively, and inserting after paragraph (13) the following:

''(14) the National Institute of Standards and Technology of the Department of Commerce;'';

(4) by striking the last sentence of subsection (b) and inserting ''The representatives shall be the Deputy Secretary or the Deputy Secretary's designee (or, in the case of an agency other than a department, the deputy head of that agency or the deputy's designee).'';

(5) by striking subsection (d) and inserting the following:

''(d) SUBCOMMITTEES AND WORKING GROUPS.—The Committee may establish such additional subcommittees and working groups to carry out its work as it sees fit.'';

and

(6) by striking ''and'' after the semicolon in subsection (e)(6); and

(7) by redesignating paragraph (7) of subsection (e) as paragraph (8) and inserting after paragraph (6) the following:

''(7) work with appropriate Federal, State, regional, and local authorities to ensure that the Program is designed to produce information needed to develop policies to reduce the impacts of global change; and''.

SEC. 105. CHANGE IN NATIONAL GLOBAL CHANGE RESEARCH PLAN.

Section 104 (15 U.S.C. 2934) is amended—

(1) by striking the section heading and inserting the following:

''SEC. 104. NATIONAL GLOBAL CHANGE RESEARCH AND ASSESSMENT PLAN.'' ;

(2) by redesignating subsections (a) through (f) as subsections (b) through (g), respectively, and in-

serting before subsection (b), as redesignated, the following:

''(a) STRATEGIC PLAN; REVISED IMPLEMENTATION PLAN.—The Chairman of the Council, through the Committee, shall develop a strategic plan for the United States Global Climate Change Research Program for the 10-year period beginning in 2008 and submit the plan to the Congress within 1 year after the date of enactment of the Global Change Research Improvement Act of 2007. The strategic plan shall include a detailed plan for research, assessment, information management, public participation, outreach, and ~~budget.~~ *budget and shall be updated at least once every 5 years.'';*

(3) by inserting ''and Assessment'' after ''Research'' in subsection (b), as redesignated;

(4) by striking ''research.'' in subsection (b), as redesignated, and inserting ''research and assessment.'';

(5) by striking ''this title,'' in subsection (b), as redesignated, and inserting ''the Global Change Research Improvement Act of 2007,'';

(6) by inserting ''short-term and long-term'' before ''goals'' in paragraph (1) of subsection (c), as redesignated;

(7) by striking ''usable information on which to base policy decisions related to'' in paragraph (1) of subsection (c), as redesignated, and inserting ''information relevant and readily usable by local, State, and Federal decisionmakers, as well as other end-users, for the formulation of effective decisions and strategies for measuring, predicting, mitigating, and adapting to'';

(8) by inserting ''development of regional scenarios, assessment of model predictability, assessment of climate change impacts,'' after ''predictive modeling,'' in paragraph (2) of subsection (c), as redesignated;

(9) by striking ''priorities;'' in paragraph (2) of subsection (c), as redesignated, and inserting ''priorities and propose measures to address gaps and growing needs for these activities;''

(10) by striking paragraphs (6) and (7) of subsection (c), as redesignated, and inserting the following:

''(6) make recommendations for the coordination of the global change research and assessment activities of the United States with such activities of other Nations and international organizations, including—

''(A) a description of the extent and nature of international cooperative activities;

''(B) bilateral and multilateral efforts to provide worldwide access to scientific data and information, and proposals to improve such access and build capacity for its use; and

''(C) improving participation by developing Nations in international global change research and environmental data collection;

''(7) detail budget requirements for Federal global change research and assessment activities to be conducted under the Plan;

''(8) include a process for identifying information needed by appropriate Federal, State, regional, and local decisionmakers to develop policies to plan for and address projected impacts of global change;

''(9) identify and sustain the observing systems currently employed in collecting data relevant to global and regional climate change research and prioritize additional observation systems that may be needed to ensure adequate data collection and monitoring of global change;

''(10) identify existing capabilities and gaps in national, regional, and local climate prediction and scenario-based modeling capabilities for forecasting

and projecting climate impacts at local and regional levels, and propose measures to address such gaps;

''(11) describe specific activities designed to facilitate outreach and data and information exchange with regional, State, and local governments and other user communities;

''(12) identify and describe ecosystems and geographic regions of the United States that are likely to experience similar impacts of global change or are likely to share similar vulnerabilities to global change; and

''(13) include such additional matter as the Committee deems appropriate.'';

(11) by striking paragraphs (1) and (2) of subsection (d), as redesignated, and inserting the following:

''(1) Global and regional research and measurements to understand the nature of and interaction among physical, chemical, biological, land use, and social processes responsible for changes in the Earth system on all relevant spatial and time scales.

''(2) Development of indicators, baseline databases, and ongoing monitoring to document global change, including changes in species distribution and behavior, changes in oceanic and atmospheric chem-

istry, extent of ice sheets, glaciers, and snow cover, shifts in water distribution and abundance, and changes in sea level.'';

(12) by adding at the end of subsection (d), as redesignated, the following:

''(6) Address emerging priorities for climate change science, such as ice sheet melt and movement, the relationship between climate change and hurricane and typhoon development, including intensity, track, and frequency, decreasing water levels in the Great Lakes, and droughts in the western and southeastern United States.

''~~(6)~~ *(7)* Methods for integrating information to provide predictive and other tools for planning and decisionmaking by governments, communities and the private sector.'';

(13) by striking ''and'' in paragraph (2) of subsection (e), as redesignated;

(14) by striking paragraph (3) of subsection (e), as redesignated, and inserting the following:

''(3) combine and interpret data from various sources to produce information readily usable by local, State, and Federal policymakers, and other end-users, attempting to formulate effective deci-

sions and strategies for mitigating and adapting to the effects of global change; and'';

(15) by adding at the end of subsection (e), as redesignated, the following:

''(4) establish a common assessment and modeling framework that may be used in both research and operations to project, predict, and assess the vulnerability of natural and managed ecosystems and of human society in the context of other environmental and social changes.''; and

~~(16) by striking ''change research.'' in paragraph (2) of subsection (f), as redesignated, and inserting ''and regional climate research and assessment.''.~~

(16) by striking subsection (f), as redesignated, and inserting the following:

''(f) NATIONAL RESEARCH COUNCIL EVALUATION.—

''(1) REVIEW OF STRATEGIC PLAN.—The Chairman of the Council shall enter into an agreement with the National Research Council under which the National Research Council shall—

''(A) evaluate the scientific content of the Plan;

''(B) provide information and advice obtained from United States and international sources,

and recommended priorities for future global and regional climate research and assessment; and

"(C) address such other studies on emerging priorities as the Chairman determines to be warranted.

"(2) ADDITIONAL NATIONAL RESEARCH COUNCIL STUDIES.—The Secretary shall execute an agreement with the National Research Council—

"(A) to examine existing research, potential risks (including adverse impacts to the marine environment), and the effectiveness of ocean iron fertilization or other coastal and ocean carbon sequestration technologies; and

"(B) identify domestic and international regulatory mechanisms and regulatory gaps for controlling the deployment of such technologies and provide recommendations for addressing such regulatory gaps.".

SEC. 106. INTEGRATED PROGRAM OFFICE.

Section 105 (15 U.S.C. 2935) is amended—

(1) by redesignating subsections (a), (b), and (c) as subsections (b), (c), and (d), respectively; and

(2) by inserting before subsection (b), as redesignated, the following:

~~"(a) INTEGRATED PROGRAM OFFICE.—~~

~~"(1) ESTABLISHMENT.—There is established in the Office of Science and Technology Policy an Integrated Program Office for the Program.~~

~~"(2) ORGANIZATION.—The Integrated Program Office established under paragraph (1) shall be headed by the associate director with responsibility for climate change science and technology and shall include, to the maximum extent feasible, a representative from each Federal agency participating in the Program.~~

~~"(3) FUNCTION.—The Integrated Program Office shall—~~

"(a) GLOBAL CHANGE RESEARCH COORDINATION OFFICE.—

"(1) IN GENERAL.—The President shall establish a Global Change Research Coordination Office. The Office shall have a director, who shall be a senior scientist or other qualified professional with research expertise in climate change science, as well as experience in policymaking, planning, or resource management, and a fulltime staff. The Office shall—

"(A) manage, in conjunction with the Committee, interagency coordination and program integration of global change research activities and budget requests;

"(B) ensure that the activities and programs of each Federal agency or department participating in the Program address the goals and objectives identified in the strategic research plan and interagency implementation plans;

"(C) ensure program and budget recommendations of the Committee are communicated to the President and are integrated into the strategic and implementation plans for the Program;

"(D) review, solicit, identify, and arrange funding for partnership projects that address critical research objectives or operational goals of the Program, including projects that would fill research gaps identified by the Program, and for which project resources are shared among at least 2 agencies participating in the Program; ~~and~~

"(E) review and provide recommendations, in conjunction with the Committee, on all annual appropriations requests from Federal agencies or departments participating in the ~~Program."~~; *Program;*

"(F) provide technical and administrative support to the Committee;

"(G) serve as a point of contact on Federal climate change activities for government organizations, academia, industry, professional societies, State climate change programs, interested citizen groups, and others to exchange technical and programmatic information; and

"(H) conduct public outreach, including dissemination of findings and recommendations of the Committee, as appropriate.

"(2) FUNDING.—The Office may be funded through interagency funding in accordance with section 631 of The Treasury and General Government Appropriations Act, 2003 (Pub. L. 108–7; 117 Stat. 471).

"(3) REPORT.—Within 90 days after the date of enactment of the Global Change Research Improvement Act of 2007, the Director of the Office of Science and Technology Policy shall report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science and Technology on the funding of the Office. The report shall include—

"(A) the amount of funding required to adequately fund the Office; and

"(B) the adequacy of existing mechanisms to fund the Office."; and

~~(3) by striking "Committee." in paragraph (2) of subsection (c), as redesignated, and inserting "Committee and the Integrated Program Office."; and~~

~~(4) by inserting "and the Integrated Program Office" after "Committee" in paragraph (1) of subsection (d), as redesignated.~~

(3) by striking "Committee." in paragraph (2) of subsection (c), as redesignated, and inserting "Committee and the Global Change Research Coordination Office.".

SEC. 107. BUDGET COORDINATION.

Section 105 (15 U.S.C. 2935), as amended by section 106, is further amended by striking subsection (d), as redesignated, and inserting the following:

"(d) CONSIDERATION IN PRESIDENT'S BUDGET.—

"(1) IN GENERAL.—Before each annual budget submitted to the Congress under section 1105 of title 31, United States Code, the President shall, in a timely fashion, provide an opportunity to the Committee and the ~~Integrated Program Office~~ *Global*

Change Research Coordination Office to review and comment on the budget estimate of each agency and department involved in global change research in the context of the Plan. *The Committee and the Global Change Research Coordination Office shall transmit a report containing the results of their reviews to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science and Technology no later than the date on which the President submits the annual budget to the Congress under section 1105 of title 31, United States Code.*

''(2) PROGRAM ITEMS.—The President shall submit, at the time of the annual budget request to Congress, an integrated budget plan that would consolidate and highlight Program priorities and include a description of those items in each agency's annual budget which are elements of the Program.''.

SEC. 108. RESEARCH GRANTS.

Section 105 (15 U.S.C. 2935), as amended by sections 106 and 107, is further amended—

(1) by redesignating ~~subsections (b), (c), (d), and (e) as subsections (c), (d), (e), and (f),~~ *subsections (b), (c), and (d) as subsections (c), (d), and (e),* respectively; and

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

''(b) 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 adequately addressed by Federal agencies. *In the list, the Committee shall identify the appropriate agency to lead the such areas of research funded under paragraph (3)(A).*

''(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 2008 and each fiscal year thereafter, there are

authorized to be appropriated to the National Science Foundation not less than $30,000,000, to be made available through the Science and Technology Policy Institute, for research in those priority areas.''.

SEC. 109. EVALUATION OF INFORMATION.

Section 106 (15 U.S.C. 2936) is amended—

(1) by striking ''**SCIENTIFIC**'' in the section heading;

(2) by striking ''On a periodic basis (not less frequently than every 4 years), the Council, through the Committee, shall prepare and submit to the President and the Congress an assessment'' and inserting ''On a periodic basis (not less frequently than every 4 years), the President shall submit to Congress a single, integrated, comprehensive assessment'';

(3) by striking ''and'' after the semicolon in paragraph (2); and

(4) by striking ''years.'' in paragraph (3) and inserting ''years; and''; and

(5) by adding at the end the following:

''(4) evaluates the information being developed under this title, considering in particular its usefulness to local, State, and national decisionmakers, as

well as to other stakeholders such as the private sector, after providing a meaningful opportunity for the consideration of the views of such stakeholders on the effectiveness of the Program and the usefulness of the information.''.

SEC. 110. REPEAL OF OBSOLETE PROVISION.

~~Section 108 (15 U.S.C. 2938) is amended by striking subsection (c).~~

Section 108(c) (15 U.S.C. 2938(c)) is amended by striking ''stratospheric ozone depletion or''.

~~**SEC. 111. ICE SHEET STUDY AND REPORT.**~~

~~(a) STUDY.—~~

~~(1) REQUIREMENT.—The Director of the National Science Foundation and the Administrator of National Oceanic and Atmospheric Administration shall enter into an arrangement with the National Academy of Sciences to complete a study of the current status of ice sheet melt and movement, as caused by climate change, with implications for global sea level rise.~~

~~(2) CONTENTS.—The study shall take into consideration—~~

~~(A) the past research completed related to ice sheet melt as reviewed by Working Group I~~

of the Intergovernmental Panel on Climate Change;

(B) additional research published since the fall of 2005 that was not included in the Working Group I report due to time constraints; and

(C) the need for an accurate assessment of changes in ice sheet spreading, changes in ice sheet flow, self-lubrication, the corresponding effect on ice sheets, and current modeling capabilities.

(3) REPORT.—Not later than 18 months after the date of enactment of this Act, the National Academy of Sciences shall transmit to the Committee on Science and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the key findings of the study conducted under subsection (a), along with recommendations for additional research related to ice sheet melt and corresponding sea level rise.

SEC. 112. HURRICANE FREQUENCY AND INTENSITY STUDY AND REPORT.

(a) STUDY.—

(1) REQUIREMENT.—The Administrator of the National Oceanic and Atmospheric Administration

and the Director of the National Science Foundation shall enter into an arrangement with the National Academy of Sciences to complete a study of the current state of the science on the potential impacts of climate change on patterns of tropical cyclone (hurricane and typhoon) development, including storm intensity, track, and frequency, overall destructive power, precipitation amount and intensity, runoff and flooding, and the implications for hurricane-prone and typhoon-prone coastal regions.

(2) CONTENTS.—The study shall take into consideration—

(A) the past research completed related to hurricane and typhoon development, track, and intensity as reviewed by Working Groups I and II of the Intergovernmental Panel on Climate Change;

(B) additional research completed since the fall of 2005 that was not included in the Working Group I and II reports due to time constraints;

(C) the need for accurate assessment of potential changes in hurricane and typhoon intensity, track, and frequency and of the current modeling and forecasting capabilities and the

need for improvements in forecasting of these parameters; and

(D) the need for additional research, real-time observation, and monitoring to improve forecasting of hurricanes and typhoons and to understand the relationship between climate change and hurricane and typhoon development.

(3) REPORT.—Not later than 18 months after the date of enactment of this Act, the National Academy of Sciences shall transmit to the Committee on Science and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the key findings of the study conducted under subsection (a).

SEC. 111. REPORTING.

Within 30 days after the date of enactment of this Act, the Administrator of the National Oceanic and Atmospheric Administration, in consultation with the Administrator of the National Aeronautics and Space Administration and the Secretary of the Air Force, shall transmit to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science and Technology a report describing the strategy to restore the

decommissioned and scaled down climate sensors scheduled for the National Polar-orbiting Operational Environmental Satellite System and the Geostationary Operational Environmental Satellites-R Series, include a budget and schedule.

SEC. 112. INDEPENDENT REVIEW OF GCRP PRODUCTS.

(a) NSF CONTRACT AUTHORITY.—Within 6 months after the date of enactment of this Act, the National Science Foundation shall execute a contract with the National Academy of Public Administration to conduct the reviews required by subsections (b) and (c) and such additional reviews as the National Academy of Public Administration deems warranted.

(b) IMPLEMENTATION OF ACT.—Within 2 years after the date of enactment of this Act, the National Academy of Public Administration shall—

(1) conduct an independent review of the implementation of the Global Change Research Act of 1990 and the National Climate Service, and the extent to which scientific communications and findings are inappropriately subjected to non-scientific policy considerations, including a review of the process used by participating agencies to contribute information to the Global Change Research Program and the National Climate Service and for clearing testimony and

other communications to the Congress regarding the Global Change Research Program and the National Climate Service; and

(2) report the results of the review, together with any recommendations the National Academy of Public Administration deems appropriate, to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science and Technology.

(c) GLOBAL CHANGE RESEARCH PROGRAM PRODUCTS.—Within 180 days after the date on which each strategic plan required by section 104 and within 180 days after the date on which each national assessment required by section 106 has been submitted to the Congress, the National Academy of Public Administration shall—

(1) conduct an independent review of the process undertaken by the Global Change Research Program in developing the strategic plan and the national assessments that evaluates the extent to which scientific communications and findings were inappropriately subjected to nonscientific policy consideration (including an assessment of whether findings included, or proposed for inclusion, in the reports were modified or not included due to nonscientific policy considerations); and

(2) report the results of the review, together with any recommendations the National Academy of Public Administration deems appropriate, to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science and Technology.

(d) PUBLIC PARTICIPATION.—In conducting the reviews, the National Academy of Public Administration shall provide notice and opportunity for public discussion and comment on any process evaluated under this section.

(e) CONFIDENTIALITY.—Notwithstanding any other provision of law to the contrary, the National Academy of Public Administration shall maintain as confidential, and refuse to disclose publicly, the identity of any individual interviewed as part of a review conducted under this section.

(f) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation $1,000,000 for each of fiscal years 2009 through 2013 to carry out this section.

SEC. 113. SCIENTIFIC COMMUNICATIONS.

The President shall establish guidelines and implement a plan that requires the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, the Environmental Protection

Agency, the National Science Foundation, and other Federal agencies with scientific research programs to adopt policies that ensure the integrity of scientific communications. ~~Such policies shall include provisions that ensure that final text and communications are approved by the scientist or scientists who authored the report or communication, and that enable scientists to disseminate research results and freely communicate with the Congress, the media, and colleagues in a timely fashion.~~ *Such policies shall include provisions regarding the approval of final text and communications, and enable scientists to disseminate research results and freely communicate with the Congress, the media, and colleagues in a timely fashion.*

SEC. 114. AGING WORKFORCE ISSUES PROGRAM.

The Administrator of the National Oceanic and Atmospheric Administration shall implement a program to address aging work force issues in climate science, global change, and other focuses of NOAA research that—

(1) documents technical and management experiences before senior employees leave the Administration, including—

(A) documenting lessons learned;

(B) briefing organizations;

(C) providing opportunities for archiving lessons in a database; and

(D) providing opportunities for near-term retirees to transition out early from their primary assignment in order to document their career lessons learned and brief new employees prior to their separation from the Administration;

(2) provides incentives for retirees to return and teach new employees about their career lessons and experiences; and

(3) provides for the development of an award to recognize and reward outstanding senior employees for their contributions to knowledge sharing.

SEC. 115. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated for the purposes of carrying out this Act such sums as may be necessary for fiscal years ~~2008 through 2012.~~ *2009 through 2013.* Of the amounts appropriated for that fiscal year period—

(1) $4,000,000 shall be made available to *the Global Change Research Coordination Office through* the Office of Science and Technology Policy for each of such fiscal years; and

(2) such sums as may be necessary shall be made available to—

(A) the National Oceanic and Atmospheric Administration for each of such fiscal years;

(B) the National Science Foundation for each of such fiscal years;

(C) the National Aeronautics and Space Administration for each of such fiscal years; and

(D) other Federal agencies participating in the Program, to the extent funds remain available after the application of paragraph (1) and subparagraphs (A), (B), and (C) of this paragraph, for each of such fiscal years.

TITLE II—NATIONAL CLIMATE SERVICE

SEC. 201. AMENDMENT OF NATIONAL CLIMATE PROGRAM ACT.

The National Climate Program Act (15 U.S.C. 2901 et seq.) is amended to read as follows:

"SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

"(a) SHORT TITLE.—This Act may be cited as the "National Climate Service Act of 2007".

"(b) TABLE OF CONTENTS.—The table of contents for this Act is as follows:

''SEC. 2. FINDINGS.

''The Congress finds the following:

''(1) Weather, climate change, and climate variability affect public safety, environmental services and security, human health, agriculture, energy use, water resources, and other factors vital to national security and human welfare.

''(2) The present rate of advance of national efforts in research and development and the application of such advances is inadequate to meet the challenges posed by observed and projected rates of climate change and climate variability and the increasing demand for information to guide planning and response across all sectors.

''(3) The United States lacks adequate research, infrastructure, and coordinated outreach and communication mechanisms to meet national climate monitoring, prediction, and decision support needs for adapting to and mitigating the impacts of climate change and climate variability.

''(4) Information regarding climate change and climate variability is not being fully disseminated or used, and Federal efforts have given insufficient attention to assessing and applying this information.

''(5) Climate change and climate variability occur on a global basis making international cooperation essential for the purpose of sharing the benefits and costs of a global effort to understand and communicate these changes.

''SEC. 3. PURPOSE.

''It is the purpose of this Act to establish a National Climate Service that will advance the national interest and associated international concerns in understanding, forecasting, responding, adapting to, and mitigating the impacts of natural and human-induced climate change and climate variability.

''SEC. 4. NATIONAL CLIMATE SERVICE.

''(a) ESTABLISHMENT.—The Secretary shall establish within the National Oceanic and Atmospheric Administration a National Climate Service not later than a year after the date of the enactment of the Global Change Research Improvement Act of 2007. The Service shall include a national center and a network of regional and local facilities for operational climate monitoring and prediction.

''(1) IN GENERAL.—The Service shall produce and deliver authoritative, timely and usable information about climate change, climate variability,

trends, and impacts on local, State, regional, national, and global scales.

''(2) SPECIFIC SERVICES.—The Service, at a minimum, shall—

''(A) provide comprehensive and authoritative information about the state of the climate and its effects, through observations, monitoring, data, information, and products that accurately reflect climate trends and conditions;

''(B) provide predictions and projections on the future state of the climate in support of adaptation, preparedness, attribution, and mitigation;

''(C) utilize appropriate research from the United States Global Change Research Program activities and conduct focused research, as needed, to enhance understanding, information and predictions of the current and future state of the climate and its impacts that is relevant to policy, planning, and decision making;

''(D) utilize assessments from the Global Change Research Program activities and conduct focused assessments as needed to enhance understanding of the impacts of climate change and climate variability;

''(E) assess and strengthen delivery mechanisms for providing climate information to end users;

''(F) communicate climate data, conditions, predictions, projections, indicators, and risks on an ongoing basis to decision- and policy- makers, the private sector, and to the public;

''(G) coordinate and collaborate on climate change, climate variability, and impacts activities with municipal, state, regional, national and international agencies and organizations, as appropriate; and

''(H) support the Department of State and international agencies and organizations, as well as domestic agencies and organizations, involved in assessing and responding to climate change and climate variability.

''(b) ACTION PLAN.—Within 1 year after the date of enactment of the Global Change Research Improvement Act of 2007, the Secretary shall submit to the Senate Committee on Commerce, Science, and Transportation and the House Committee on Science and Technology a plan of action for the National Climate Service. The plan, at a minimum, shall—

~~"(1) provide for the interpretation and communication of climate data, conditions, predictions, projections, and risks on an on-going basis to decision and policy makers at the local, regional, and national levels;~~

~~"(2) design, deploy, and operate an adequate national climate observing system that closes gaps in existing coverage;~~

~~"(3) support infrastructure and ability to archive and quality ensure climate data, and make federally-funded model simulations and other relevant climate information available from the Global Change Research Program activities and other sources (and related data from paleoclimate studies).~~

~~"(4) include a program for long-term stewardship, quality control, development of relevant climate products, and efficient access to all relevant climate data, products, and model simulations;~~

~~"(5) establish a national coordinated modeling strategy, including a national climate modeling center to provide a dedicated capability for modeling and forecasting, scenarios and planning resources, and a regular schedule of projections on long- and short-term time horizons over a range of scales, including regional scales;~~

~~"(6) improve integrated modeling, assessment, and predictive capabilities needed to document and predict climate changes and impacts, and to guide national, regional, and local planning and decision making;~~

~~"(7) provide a system of regular consultation and coordination with Federal agencies, States, Tribes, non-governmental organizations, the private sector and the academic community to ensure—~~

~~"(A) that the information requirements of these groups are well incorporated; and~~

~~"(B) timely and full sharing, dissemination and use of climate information and services in risk preparedness, planning, decision making, and early warning and natural resources management, both domestically and internationally;~~

~~"(8) develop standards, evaluation criteria and performance objectives to ensure that the Service meets the evolving information needs of the public, policy makers and decision makers in the face of a changing climate;~~

~~"(9) develop funding estimates to implement the plan; and~~

~~"(10) support competitive research programs that will improve elements of the Service described~~

in this Act through the Climate Program Office within the Service headquarter function.

''(c) COORDINATION WITH THE USGCRP.—The Service shall utilize appropriate research from Global Change Research Program activities to enhance understanding, information and predictions of the current and future state of the climate and its impacts that is relevant to policy and decisions. The Service shall provide appropriate information about the current and future state of the climate and its impacts that are useful for research purposes to relevant Global Change Research Program activities. The Director of the Service will serve as a liaison to the Global Change Research Program and a member of the Global Change Research Program should serve on the Advisory Council.

''(d) DIRECTOR.—The Administrator shall appoint a director of the Service, who shall oversee all processes associated with managing the organization and executing the functions and actions described in this Title. The Director will serve as a liaison to the Global Change Research Program to ensure the transition of research into services and to provide services to meet the needs of research.

''(e) NATIONAL CLIMATE SERVICE ADVISORY COUNCIL.—The Administrator shall, in consultation with the majority and minority leaders of the Senate Committee

~~on Commerce, Science, and Transportation and the House of Representatives Committee on Science and Technology, and the National Academy of Sciences, appoint the membership of a National Climate Service Advisory Council, with members serving 4-year terms and include a diverse membership from appropriate Federal, State and local government, universities, non-government and private sectors who use climate information and cover a range of sectors, such as water, drought, fisheries, coasts, agriculture, health, natural resources, transportation, and insurance. The Council shall advise the Director of the Service of key priorities in climate-related issues that require the attention of the Service. The Council shall be responsible for ensuring coordination across regional and national concerns and the assessment of evolving information needs.~~

~~"SEC. 5. CONTRACT AND GRANT AUTHORITY.~~

~~"Functions vested in any Federal officer or agency by this Act or under the Program may be exercised through the facilities and personnel of the agency involved or, to the extent provided or approved in advance in appropriation Acts, by other persons or entities under contracts or grant arrangements entered into by such officer or agency.~~

"SEC. 6. ANNUAL REPORT.

"The Secretary shall prepare and submit to the President and the authorizing committees of the Congress, not later than March 31 of each year, a report on the activities conducted pursuant to this Act during the preceding fiscal year, including—

"(1) a summary of the achievements of the National Climate Service during the previous fiscal year; and

"(2) an analysis of the progress made toward achieving the goals and objectives of the Service.

"SEC. 7. DEFINITIONS.

"In this Act:

"(1) ADMINISTRATOR.—The term 'Administrator' means the Administrator of the National Oceanic and Atmospheric Administration.

"(2) ADVISORY COUNCIL.—The term 'Advisory Council' refers to the Climate Services Advisory Council.

"(3) CLIMATE CHANGE.—The term 'climate change' means any change in climate over time, whether due to natural variability or as a result of human activity.

"(4) CLIMATE VARIABILITY.—The term 'climate variability' means variations in the mean state and other statistics of the climate on all temporal and

spatial scales beyond that of individual weather events.

''(5) DIRECTOR.—The term 'Director' means the Director of the National Oceanic and Atmospheric Administration's National Climate Service.

''(6) GLOBAL CHANGE RESEARCH PROGRAM.—The term 'Global Change Research Program' means the United States Global Change Research Program established under section 103 of the Global Change Research Act of 1990 (15 U.S.C. 2933).

''(7) SECRETARY.—The term 'Secretary' means the Secretary of Commerce.

''(8) SERVICE.—The term 'Service' means the National Oceanic and Atmospheric Administration's National Climate Service.

''SEC. 8. AUTHORIZATION OF APPROPRIATIONS.

''There are authorized to be appropriated to the Secretary to carry out this Act—

''(1) $300,000,000 for fiscal year 2008;

''(2) $350,000,000 for fiscal year 2009;

''(3) $400,000,000 for fiscal year 2010;

''(4) $450,000,000 for fiscal year 2011; and

''(5) $500,000,000 for fiscal year 2012.''.

TITLE II—NATIONAL CLIMATE SERVICE

SEC. 201. AMENDMENT OF NATIONAL CLIMATE PROGRAM ACT.

Except as otherwise expressly provided, whenever in this title an amendment or repeal is expressed in terms of an amendment to, or repeal of, a section or other provision, the reference shall be considered to be made to a section or other provision of the National Climate Program Act (15 U.S.C. 2901 et seq.).

SEC. 202. SHORT TITLE; TABLE OF CONTENTS.

Section 1 of the Act (15 U.S.C. 2901 note) is amended to read as follows:

"SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

"(a) SHORT TITLE.—This Act may be cited as the 'National Climate Service Act of 2007'.

"(b) TABLE OF CONTENTS.—The table of contents for this Act is as follows:

SEC. 203. FINDINGS.

Section 2 of the Act (15 U.S.C. 2901) is amended to read as follows:

"SEC. 2. FINDINGS.

"The Congress finds the following:

"(1) Climate change and related hazards affect public safety, environmental services and security, human health, agriculture, energy use, water resources, wildlife and other natural resources, and other factors vital to national security and human welfare.

"(2) The present rate of advance of national efforts in research and development and the application of such advances is inadequate to meet the challenges posed by observed and projected rates of climate change and the increasing demand for information to guide planning and response across all sectors.

"(3) The United States lacks adequate research, infrastructure, and coordinated outreach and communication mechanisms to meet national climate monitoring, prediction, and decision support needs for adapting to and mitigating the impacts of climate change.

"(4) Information regarding climate change is not being fully disseminated or used, and Federal efforts have given insufficient attention to assessing and applying this information.

"(5) Climate change occurs on a global basis making international cooperation essential for the

purpose of sharing the benefits and costs of a global effort to understand and communicate these changes.".

SEC. 204. PURPOSE.

Section 3 (15 U.S.C. 2902) is amended by striking "implications." and inserting "implications and to establish a National Climate Service that will advance the national interest and associated international concerns in understanding, forecasting, responding, adapting to, and mitigating the impacts of natural and human-induced climate change and climate variability.".

SEC. 205. DEFINITIONS.

Section 4 (15 U.S.C. 2903) is amended—

(1) by striking "As used in this Act, unless the context otherwise requires:" and inserting "In this Act:";

(2) by striking paragraphs (1) and (2) and redesignating paragraphs (3) and (4) as paragraphs (6) and (7), respectively;

(3) by inserting before paragraph (6), as redesignated, the following:

"(1) ADMINISTRATOR.—The term 'Administrator' means the Administrator of the National Oceanic and Atmospheric Administration.

"(2) ADVISORY COUNCIL.—The term 'Advisory Council' refers to the Climate Services Advisory Council.

"(3) CLIMATE CHANGE.—The term 'climate change' means any change in climate over time, whether due to natural variability or as a result of human activity.

"(4) DIRECTOR.—The term 'Director' means the Director of the National Oceanic and Atmospheric Administration's National Climate Service.

"(5) GLOBAL CHANGE RESEARCH PROGRAM.—The term 'Global Change Research Program' means the United States Global Change Research Program established under section 103 of the Global Change Research Act of 1990 (15 U.S.C. 2933).";

(4) by inserting "PROGRAM.—" before "The term" in paragraph (6), as redesignated;

(5) by inserting "SECRETARY.—" before "The term" in paragraph (7), as redesignated;

(6) by striking "Commerce." in paragraph (7), as redesignated, and inserting "Commerce, acting through the Administrator of the National Oceanic and Atmospheric Administration."; and

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

"(8) SERVICE.—The term 'Service' means the National Oceanic and Atmospheric Administration's National Climate Service.".

SEC. 206. NATIONAL CLIMATE SERVICE.

(a) IN GENERAL.—The Act is amended by striking sections 7 and 8 (15 U.S.C. 2906 and 2907, respectively) and inserting after section 5 the following:

"SEC. 6. NATIONAL CLIMATE SERVICE.

"(a) ESTABLISHMENT.—

"(1) IN GENERAL.—The Secretary shall establish within the National Oceanic and Atmospheric Administration a National Climate Service not later than a year after the date of the enactment of the Global Change Research Improvement Act of 2007. The Service shall include a national center and a network of regional and local facilities for operational climate monitoring and prediction.

"(2) DUTIES.—The Service shall produce and deliver authoritative, timely and usable information about climate change, climate variability, trends, and impacts on local, State, regional, national, and global scales.

"(3) SPECIFIC SERVICES.—The Service, at a minimum, shall—

"(A) provide comprehensive and authoritative information about the state of the climate and its effects, through observations, monitoring, data, information, and products that accurately reflect climate trends and conditions;

"(B) provide predictions and projections on the future state of the climate in support of adaptation, preparedness, attribution, and mitigation;

"(C) utilize appropriate research from the United States Global Change Research Program activities and conduct focused research, as needed, to enhance understanding, information and predictions of the current and future state of the climate and its impacts that is relevant to policy, planning, and decision making;

"(D) utilize assessments from the Global Change Research Program activities and conduct focused assessments as needed to enhance understanding of the impacts of climate change and climate variability;

"(E) assess and strengthen delivery mechanisms for providing climate information to end users;

"(F) communicate climate data, conditions, predictions, projections, indicators, and risks on an ongoing basis to decision- and policy- makers, the private sector, and to the public;

"(G) coordinate and collaborate on climate change, climate variability, and impacts activities with municipal, state, regional, national and international agencies and organizations, as appropriate;

"(H) support the Department of State and international agencies and organizations, as well as domestic agencies and organizations, involved in assessing and responding to climate change and climate variability;

"(I) establish an atmospheric monitoring and verification program utilizing aircraft, satellite, ground sensors, ocean and coastal observing systems, and modeling capabilities to monitor, measure, and verify greenhouse gas levels, dates, and emissions throughout the global oceans and atmosphere; and

"(J) issue an annual report that identifies greenhouse emission and trends on a local, regional, and national level and identifies emissions or reductions attributable to individual or multiple sources covered by the program established under subparagraph (I).

"(b) ACTION PLAN.—Within 1 year after the date of enactment of the Global Change Research Improvement Act of 2007, the Secretary shall submit to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science and Technology

a plan of action for the National Climate Service. The plan, at a minimum, shall—

"(1) provide for the interpretation and communication of climate data, conditions, predictions, projections, and risks on an on-going basis to decision and policy makers at the local, regional, and national levels;

"(2) design, deploy, and operate an adequate national climate observing system that closes gaps in existing coverage;

"(3) support infrastructure and ability to archive and quality ensure climate data, and make federally-funded model simulations and other relevant climate information available from the Global Change Research Program activities and other sources (and related data from paleoclimate studies).

"(4) include a program for long-term stewardship, quality control, development of relevant climate products, and efficient access to all relevant climate data, products, and model simulations;

"(5) establish—

"(A) a national coordinated computing strategy, including establishing a new, or supplementing support for existing, national climate computing capability to provide dedicated

computing capacity for modeling and forecasting, scenarios, and planning resources, and a regular schedule of projections on long- and short-term time horizons over a range of scales, including regional scales; and

"(B) a mechanism to allow access to such capacity by the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, and National Science Foundation sponsored researchers;

"(6) improve integrated modeling, assessment, and predictive capabilities needed to document and predict climate changes and impacts, and to guide national, regional, and local planning and decision making;

"(7) provide a system of regular consultation and coordination with Federal agencies, States, Indian tribes, non-governmental organizations, the private sector and the academic community to ensure—

"(A) that the information requirements of these groups are well incorporated; and

"(B) timely and full sharing, dissemination and use of climate information and services in risk preparedness, planning, decision making,

and early warning and natural resources management, both domestically and internationally;

"(8) develop standards, evaluation criteria and performance objectives to ensure that the Service meets the evolving information needs of the public, policy makers and decision makers in the face of a changing climate;

"(9) develop funding estimates to implement the plan; and

"(10) support competitive research programs that will improve elements of the Service described in this Act through the Climate Program Office within the Service headquarter function.

"(c) COORDINATION WITH THE USGCRP.—The Service shall utilize appropriate research from Global Change Research Program activities to enhance understanding, information and predictions of the current and future state of the climate and its impacts that is relevant to policy and decisions. The Service shall provide appropriate information about the current and future state of the climate and its impacts that are useful for research purposes to relevant Global Change Research Program activities. The Director of the Service will serve as a liaison to the Global Change Research Program and a member of the Global

Change Research Program should serve on the Advisory Council.

"(d) DIRECTOR.—The Administrator shall appoint a director of the Service, who shall oversee all processes associated with managing the organization and executing the functions and actions described in this Act. The Director will serve as a liaison to the Global Change Research Program to ensure the transition of research into services and to provide services to meet the needs of research.

"(e) NATIONAL CLIMATE SERVICE ADVISORY COUNCIL.—The Administrator shall, in consultation with the chairmen and ranking minority party members of the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science and Technology, and the National Academy of Sciences, appoint the membership of a National Climate Service Advisory Council composed of 15 members, with members serving 4-year terms and include a diverse membership from appropriate Federal, State and local government, universities, non-government and private sectors who use climate information and cover a range of sectors, such as water, drought, fisheries, coasts, agriculture, health, natural resources, transportation, and insurance. The Council shall advise the Director of the Service of key priorities in climate-related issues that require the attention of the Service. The Council

shall be responsible for ensuring coordination across regional and national concerns and the assessment of evolving information needs.

"SEC. 7. CONTRACT AND GRANT AUTHORITY.

"Functions vested in any Federal officer or agency by this Act or under the Program may be exercised through the facilities and personnel of the agency involved or, to the extent provided or approved in advance in appropriation Acts, by other persons or entities under contracts or grant arrangements entered into by such officer or agency.

"SEC. 8. ANNUAL REPORT.

"The Secretary shall prepare and submit to the President and the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science and Technology, as part of the annual report to meet the requirements of section 102(e)(7) of the Global Change Research Act of 1990 (15 U.S.C. 2932(e)(7)), a report on the activities conducted pursuant to this Act during the preceding fiscal year, including—

"(1) a summary of the achievements of the National Climate Service during the previous fiscal year; and

"(2) an analysis of the progress made toward achieving the goals and objectives of the Service.".

(b) SUNSET OF CURRENT PROVISIONS.—Section 5 (15 U.S.C. 2904) is amended by adding at the end thereof the following:

"(h) SUNSET.—The provisions of this section shall not apply after the date of enactment of the Global Change Research Improvement Act of 2007.".

SEC. 207. REAUTHORIZATION.

Section 9 (15 U.S.C. 2908) is amended to read as follows:

"SEC. 9. AUTHORIZATION OF APPROPRIATIONS.

"There are authorized to be appropriated to the Secretary to carry out sections 6, 7, and 8 of this Act—

"(1) $300,000,000 for fiscal year 2009;

"(2) $350,000,000 for fiscal year 2010;

"(3) $400,000,000 for fiscal year 2011;

"(4) $450,000,000 for fiscal year 2012; and

"(5) $500,000,000 for fiscal year 2013.".

TITLE III—TECHNOLOGY ASSESSMENT

SEC. 301. NATIONAL SCIENCE AND TECHNOLOGY ASSESSMENT SERVICE.

The National Science and Technology Policy, Organization, and Priorities Act of 1976 (42 U.S.C. 6601 et seq.) is amended by adding at the end the following:

"TITLE VII—NATIONAL SCIENCE AND TECHNOLOGY ASSESSMENT SERVICE

"SEC. 701. ESTABLISHMENT.

''There is hereby created a Science and Technology Assessment Service which shall be within and responsible to the legislative branch of the Government.

"SEC. 702. COMPOSITION.

''The Service shall consist of a Science and Technology Board which shall formulate and promulgate the policies of the Service, and a Director who shall carry out such policies and administer the operations of the Service.

"SEC. 703. FUNCTIONS AND DUTIES.

''The Service shall coordinate and develop information for Congress relating to the uses and application of technology to address current national science and technology policy issues. In developing such technical assessments for Congress, the Service shall utilize, to the extent practicable, experts selected in coordination with the National Research Council.

"SEC. 704. INITIATION OF ACTIVITIES.

''Science and technology assessment activities undertaken by the Service may be initiated upon the request of—

''(1) the Chairman of any standing, special, or select committee of either House of the Congress, or of any joint committee of the Congress, acting for himself or at the request of the ranking minority member or a majority of the committee members;

''(2) the Board; or

''(3) the Director.

''SEC. 705. ADMINISTRATION AND SUPPORT.

''The Director of the Science and Technology Assessment Service shall be appointed by the Board and shall serve for a term of 6 years unless sooner removed by the Board. The Director shall receive basic pay at the rate provided for level III of the Executive Schedule under section 5314 of title 5, United States Code. The Director shall contract for administrative support from the Library of Congress.

''SEC. 706. AUTHORITY.

''The Service shall have the authority, within the limits of available appropriations, to do all things necessary to carry out the provisions of this section, including, but without being limited to, the authority to—

''(1) make full use of competent personnel and organizations outside the Office, public or private, and form special ad hoc task forces or make other arrangements when appropriate;

''(2) enter into contracts or other arrangements as may be necessary for the conduct of the work of the Office with any agency or instrumentality of the United States, with any State, territory, or possession or any political subdivision thereof, or with any person, firm, association, corporation, or educational institution, with or without reimbursement, without performance or other bonds, and without regard to section 3709 of the Revised Statutes (41 U.S.C. 51);

''(3) accept and utilize the services of voluntary and uncompensated personnel necessary for the conduct of the work of the Service and provide transportation and subsistence as authorized by section 5703 of title 5, United States Code, for persons serving without compensation; and

''(4) prescribe such rules and regulations as it deems necessary governing the operation and organization of the Service.

''SEC. 707. BOARD.

''The Board shall consist of 13 members as follows—

''(1) 6 Members of the Senate, appointed by the President pro tempore of the Senate, 3 from the majority party and 3 from the minority party;

''(2) 6 Members of the House of Representatives appointed by the Speaker of the House of Rep-

resentatives, 3 from the majority party and 3 from the minority party; and

''(3) the Director, who shall not be a voting member.

''SEC. 708. REPORT TO CONGRESS.

''The Service shall submit to the Congress an annual report which shall include, but not be limited to, an evaluation of technology assessment techniques and identification, insofar as may be feasible, of technological areas and programs requiring future analysis. The annual report shall be submitted not later than March 15 of each year.

''SEC. 709. AUTHORIZATION OF APPROPRIATIONS.

''There are authorized to be appropriated to the Service such sums as are necessary to fulfill the requirements of this title.''.

TITLE IV—CLIMATE CHANGE TECHNOLOGY

SEC. 401. 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. 402. DEVELOPMENT OF NEW MEASUREMENT TECHNOLOGIES.

The Secretary of Commerce 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 sequestration, 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. 403. 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 4 of the Global Climate Change Act of 2002).

''(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 develop and provide standards, measurements, and innovative technologies for reducing greenhouse gas emissions in existing industries;

''(C) to develop and provide standards, measurements, measurement tools, and calibrations that will enhance and promote remote sensing technologies;

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

''(E) to develop and provide standards, measurements, measurement tools, calibrations, data, models, and other innovative technologies

to support the validation and accreditation of a greenhouse gas trading industry;

''(F) to assist in developing improved industrial processes designed to reduce or eliminate greenhouse gases, including the development of measurement tools and standards to validate and accredit a carbon offset industry; and

''(G) 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.

''(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 Na-

tional 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. 404. 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 business manufacturers.

SEC. 405. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Director of the National Institute of Standards and Technology to carry out this title and section 17 of the National Institute of Standards and Technology Act as added by section 403 of this title, $15,000,000 for each of fiscal years ~~2008 through 2010.~~ *2009 through 2013.*

TITLE V—ABRUPT CLIMATE CHANGE

SEC. 501. ABRUPT CLIMATE CHANGE RESEARCH PROGRAM.

The Secretary of Commerce shall establish within the Office of Oceanic and Atmospheric Research of the National Oceanic and Atmospheric Administration, and shall carry out, a program of scientific research on abrupt climate change.

SEC. 502. PURPOSES OF PROGRAM.

The purposes of the program are—

(1) to develop a global array of terrestrial and oceanographic indicators of paleoclimate in order to sufficiently 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 such mechanisms into advanced geophysical models of climate change; and

(4) to test the output of such models against an improved global array of records of past abrupt climate changes.

SEC. 503. ABRUPT CLIMATE CHANGE DEFINED.

In this title, the term ''abrupt climate change'' means a change in the climate that occurs so rapidly or unexpect-

edly that human or natural systems have difficulty adapting to the climate as changed.

SEC. 504. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Department of Commerce for each of fiscal years 2009 through ~~2014,~~ *2013,* to remain available until expended, such sums as are necessary, not to exceed $10,000,000, to carry out the research program required by section 501.

Calendar No. 752

110TH CONGRESS
2D SESSION

S. 2307

[Report No. 110–341]

A BILL

To amend the Global Change Research Act of 1990, and for other purposes.

MAY 22, 2008

Reported with amendments