109TH CONGRESS
1ST SESSION

S. 1281

AN ACT

To authorize appropriations for the National Aeronautics and Space Administration for science, aeronautics, exploration, exploration capabilities, and the Inspector General, and for other purposes, for fiscal years 2006, 2007, 2008, 2009, and 2010.

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

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as ''National Aeronautics and Space Administration Authorization Act of 2005''.

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

SEC. 2. FINDINGS.

The Congress finds the following:

(1) It is the policy of the United States to advance United States scientific, security, and eco-

nomic interests through a healthy and active space exploration program.

(2) Basic and applied research in space science, Earth science, and aeronautics remain a significant part of the Nation's goals for the use and development of space. Basic research and development is an important component of NASA's program of exploration and discovery.

(3) Maintaining the capability to safely send humans into space is essential to United States national and economic security, United States preeminence in space, and inspiring the next generation of explorers. Thus, a gap in United States human space flight capability is harmful to the national interest.

(4) The exploration, development, and permanent habitation of the Moon will inspire the Nation, spur commerce, imagination, and excitement around the world, and open the possibility of further exploration of Mars. NASA should return to the Moon within the next decade.

(5) The establishment of the capability for consistent access to and stewardship of the region between the Moon and Earth is in the national security and commercial interests of the United States.

(6) Commercial development of space, including exploration and other lawful uses, is in the interest of the United States and the international community at large.

(7) Research and access to capabilities to support a national laboratory facility within the United States segment of the ISS in low-Earth orbit are in the national policy interests of the United States, including maintenance and development of an active and healthy stream of research from ground to space in areas that can uniquely benefit from access to this facility.

(8) NASA should develop vehicles to replace the Shuttle orbiter's capabilities for transporting crew and heavy cargo while utilizing the current program's resources, including human capital, capabilities, and infrastructure. Using these resources can ease the transition to a new space transportation system, maintain an essential industrial base, and minimize technology and safety risks.

(9) The United States must remain the leader in aeronautics and aviation. Any erosion of this preeminence is not in the Nation's economic or security interest. NASA should align its aerospace leadership to ensure United States leadership. A national effort

is needed to ensure that NASA's aeronautics programs are leading contributors to the Nation's civil and military aviation needs, as well as to its exploration capabilities.

SEC. 3. DEFINITIONS.

In this Act:

(1) ADMINISTRATOR.—The term ''Administrator'' means the Administrator of the National Aeronautics and Space Administration.

(2) ISS.—The term ''ISS'' means the International Space Station.

(3) NASA.—The term ''NASA'' means the National Aeronautics and Space Administration.

(4) SHUTTLE-DERIVED VEHICLE.—The term ''shuttle-derived vehicle'' means any new space transportation vehicle, piloted or unpiloted, that—

(A) is capable of supporting crew or cargo missions; and

(B) uses a major component of NASA's Space Transportation System, such as the solid rocket booster, external tank, engine, and orbiter.

(5) IN-SITU RESOURCE UTILIZATION.—The term ''in-situ resource utilization'' means the technology or systems that can convert indigenous or lo-

cally-situated substances into useful materials and products.

TITLE I—AUTHORIZATION OF APPROPRIATIONS

Subtitle A—Authorizations

SEC. 101. FISCAL YEAR 2006.

There are authorized to be appropriated to the National Aeronautics and Space Administration, for fiscal year 2006, $16,556,400,000, as follows:

(1) For science, aeronautics and exploration, $9,661,000,000 for the following programs (including amounts for construction of facilities).

(2) For exploration capabilities, $6,863,000,000, (including amounts for construction of facilities), which shall be used for space operations, and out of which $100,000,000 shall be used for the purposes of section 202 of this Act.

(3) For the Office of Inspector General, $32,400,000.

SEC. 102. FISCAL YEAR 2007.

There are authorized to be appropriated to the National Aeronautics and Space Administration, for fiscal year 2007, $17,052,900,000, as follows:

(1) $10,549,800,000 for science, aeronautics and exploration (including amounts for construction of facilities).

(2) For exploration capabilities, $6,469,600,000, for the following programs (including amounts for construction of facilities), of which $6,469,600,000 shall be for space operations.

(3) For the Office of Inspector General, $33,500,000.

SEC. 103. FISCAL YEAR 2008.

There are authorized to be appropriated to the National Aeronautics and Space Administration, for fiscal year 2008, $17,470,900,000.

SEC. 104. FISCAL YEAR 2009.

There are authorized to be appropriated to the National Aeronautics and Space Administration, for fiscal year 2009, $17,995,000,000.

SEC. 105. FISCAL YEAR 2010.

There are authorized to be appropriated to the National Aeronautics and Space Administration, for fiscal year 2010, $18,534,900,000.

SEC. 106. EVALUATION CRITERIA FOR BUDGET REQUEST.

It is the sense of the Congress that each budget of the United States submitted to the Congress after the date of enactment of this Act should be evaluated for compli-

ance with the findings and priorities established by this Act and the amendments made by this Act.

Subtitle B—General Provisions

SEC. 131. IMPLEMENTATION OF A SCIENCE PROGRAM THAT EXTENDS HUMAN KNOWLEDGE AND UNDERSTANDING OF THE EARTH, SUN, SOLAR SYSTEM, AND THE UNIVERSE.

The Administrator shall—

(1) conduct a rich and vigorous set of science activities aimed at better comprehension of the universe, solar system, and Earth, and ensure that the various areas within NASA's science portfolio are developed and maintained in a balanced and healthy manner, and, as part of this balanced science research program, provide, to the maximum extent feasible, continued support and funding for the Magnetospheric Multiscale Mission, SIM-Planet Quest, and Future Explorers programs, including determining whether these delayed missions and planned missions can be expedited to meet previous schedules, and may place a greater emphasis on science, including the programs described in this paragraph, throughout the fiscal years for which funds are authorized by this Act (and for this purpose, of the funds authorized by section 101(1) of

this Act, no less than $5,341,200,000 shall be for science, and of the funds authorized by section 102(1) of this Act, no less than $5,960,300,000 shall be for science);

(2) plan projected Mars exploration activities in the context of planned lunar robotic precursor missions, ensuring the ability to conduct a broad set of scientific investigations and research around and on the Moon's surface;

(3) upon successful completion of the planned return-to-flight schedule of the Space Shuttle, determine the schedule for a Shuttle servicing mission to the Hubble Space Telescope, unless such a mission would compromise astronaut or safety or the integrity of NASA's other missions;

(4) ensure that, in implementing the provisions of this section, appropriate inter-agency and commercial collaboration opportunities are sought and utilized to the maximum feasible extent;

(5) seek opportunities to diversify the flight opportunities for scientific Earth science instruments and seek innovation in the development of instruments that would enable greater flight opportunities;

(6) develop a long term sustainable relationship with the United States commercial remote sensing

industry, and, consistent with applicable policies and law, to the maximum practical extent, rely on their services;

(7) in conjunction with United States industry and universities, develop Earth science applications to enhance Federal, State, local, and tribal governments that use government and commercial remote sensing capabilities and other sources of geospatial information to address their needs;

(8) plan, develop, and implement a near-Earth object survey program to detect, track, catalogue, and characterize the physical characteristics of near-Earth asteroids and comets in order to assess the threat of such near-Earth objects in impacting the Earth; and

(9) ensure that, of the amount expended for aeronautics, a significant portion is directed toward the Vehicle System Program, as much of the basic, long-term, high-risk, and innovative research in aeronautical disciplines is performed within that program.

SEC. 132. BIENNIAL REPORTS TO CONGRESS ON SCIENCE PROGRAMS.

(a) IN GENERAL.—Within 180 days after the date of enactment of this Act and every 2 years thereafter, the

Administrator shall transmit a report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science setting forth in detail—

(1) the findings and actions taken on NASA's assessment of the balance within its science portfolio and any efforts to adjust that balance among the major program areas, including the areas referred to in section 131;

(2) any activities undertaken by the Administration to conform with the Sun-Earth science and applications direction provided in section 131; and

(3) efforts to enhance near-Earth object detection and observation.

(b) EXTERNAL REVIEW FINDINGS.—The Administrator shall include in each report submitted under this section a summary of findings and recommendations from any external reviews of the Administration's science mission priorities and programs.

SEC. 133. STATUS REPORT ON HUBBLE SPACE TELESCOPE SERVICING MISSION.

Within 60 days after the landing of the second Space Shuttle mission for return-to-flight certification, the Administrator shall transmit to the Senate Committee on Commerce, Science, and Transportation and the House of

Representatives Committee on Science a one-time status report on a Hubble Space Telescope servicing mission.

SEC. 134. DEVELOP EXPANDED PERMANENT HUMAN PRESENCE BEYOND LOW-EARTH ORBIT.

(a) IN GENERAL.—As part of the programs authorized under the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451 et seq.), the Administrator shall establish a program to develop a permanently sustained human presence on the Moon, in tandem with an extensive precursor program, to support security, commerce, and scientific pursuits, and as a stepping-stone to future exploration of Mars. The Administrator is further authorized to develop and conduct international collaborations in pursuit of these goals, as appropriate.

(b) REQUIREMENTS.—In carrying out this section, the Administrator shall—

(1) implement an effective exploration technology program that is focused around the key needs to support lunar human and robotic operations;

(2) as part of NASA's annual budget submission, submit to the Congress the detailed mission, schedule, and budget for key lunar mission-enabling technology areas, including areas for possible innovative governmental and commercial activities and partnerships;

(3) as part of NASA's annual budget submission, submit to the Congress a plan for NASA's lunar robotic precursor and technology programs, including current and planned technology investments and scientific research that support the lunar program;

(4) conduct an intensive in-situ resource utilization technology program in order to develop the capability to use space resources to increase independence from Earth, and sustain exploration beyond low-Earth orbit;

(5) conduct a program to assure the health and safety of astronauts during extended space exploration missions which include more effective countermeasures to mitigate deleterious effects of such missions, and the means to provide in-space exploration medical care delivery to crews with little or no real-time support from Earth, relevant issues such as radiation exposure, exercise countermeasures, cardiac health, diagnostic and monitoring devices, and medical imaging;

(6) utilize advanced power and propulsion technologies, including nuclear and electric technologies, to enable or enhance robotic and human exploration missions when feasible; and

(7) develop a robust technology development program to provide surface power for use on the Moon and other locations relevant to NASA space exploration goals which, to the extent feasible, address needs for modular, scalable power sources for a range of applications on the Moon including human and vehicular uses.

SEC. 135. GROUND-BASED ANALOG CAPABILITIES.

(a) IN GENERAL.—The Administrator shall establish a ground-based analog capability in remote United States locations in order to assist in the development of lunar operations, life support, and in-situ resource utilization experience and capabilities.

(b) LOCATIONS.—The Administrator shall select locations for subsection (a) in places that—

(1) are regularly accessible;

(2) have significant temperature extremes and range; and

(3) have access to energy and natural resources (including geothermal, permafrost, volcanic, and other potential resources).

(c) INVOLVEMENT OF LOCAL POPULATIONS; PRIVATE SECTOR PARTNERS.—In carrying out this section, the Administrator shall involve local populations, academia, and industrial partners as much as possible to en-

sure that ground-based benefits and applications are encouraged and developed.

SEC. 136. SPACE LAUNCH AND TRANSPORTATION TRANSITION, CAPABILITIES, AND DEVELOPMENT.

(a) POST-ORBITER TRANSITION.—The Administrator shall develop an implementation plan for the transition to a new crew exploration vehicle and heavy-lift launch vehicle that uses the personnel, capabilities, assets, and infrastructure of the Space Shuttle to the fullest extent possible and addresses how NASA will accommodate the docking of the crew exploration vehicle to the ISS.

(b) AUTOMATED RENDEZVOUS AND DOCKING.—The Administrator is directed to pursue aggressively automated rendezvous and docking capabilities that can support ISS and other mission requirements and include these activities, progress reports, and plans in the implementation plan.

(c) CONGRESSIONAL SUBMISSION.—Within 120 days after the date of enactment of this Act the Administrator shall submit a copy of the implementation plan to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science.

SEC 137. LESSONS LEARNED AND BEST PRACTICES.

(a) IN GENERAL.—The Administrator shall provide an implementation plan describing NASA's approach for

obtaining, implementing, and sharing lessons learned and best practices for its major programs and projects within 180 days after the date of enactment of this Act. The implementation plan shall be updated and maintained to assure that it is current and consistent with the burgeoning culture of learning and safety that is emerging at NASA.

(b) REQUIRED CONTENT.—The implementation plan shall contain as a minimum the lessons learned and best practices requirements for NASA, the organizations or positions responsible for enforcement of the requirements, the reporting structure, and the objective performance measures indicating the effectiveness of the activity.

(c) INCENTIVES.—The Administrator shall provide incentives to encourage sharing and implementation of lessons learned and best practices by employees, projects, and programs; as well as penalties for programs and projects that are determined not to have demonstrated use of those resources.

SEC. 138. SAFETY MANAGEMENT.

Section 6 of the National Aeronautics and Space Administration Authorization Act, 1968 (42 U.S.C. 2477) is amended—

(1) by inserting ''(a) IN GENERAL.—'' before ''There'';

(2) by striking ''to it'' and inserting ''to it, including evaluating NASA's compliance with the return-to-flight and continue-to-fly recommendations of the Columbia Accident Investigation Board,'';

(3) by inserting ''and the Congress'' after ''advise the Administrator'';

(4) by striking ''and with respect to the adequacy of proposed or existing safety standards and shall'' and inserting ''with respect to the adequacy of proposed or existing safety standards, and with respect to management and culture. The Panel shall also''; and

(5) by adding at the end the following:

''(b) ANNUAL REPORT.—The Panel shall submit an annual report to the Administrator and to the Congress. In the first annual report submitted after the date of enactment of the National Aeronautics and Space Administration Authorization Act of 2005, the Panel shall include an evaluation of NASA's safety management culture.

''(c) SENSE OF THE CONGRESS.—It is the sense of the Congress that the Administrator should—

''(1) ensure that NASA employees can raise safety concerns without fear of reprisal;

''(2) continue to follow the recommendations of the Columbia Accident Investigation Board for safely returning and continuing to fly; and

''(3) continue to inform the Congress from time to time of NASA's progress in meeting those recommendations.''.

SEC. 139. CREATION OF A BUDGET STRUCTURE THAT AIDS EFFECTIVE OVERSIGHT AND MANAGEMENT.

In developing NASA's budget request for inclusion in the Budget of the United States for fiscal year 2007 and thereafter, the Administrator shall—

(1) include line items for—

(A) science, aeronautics, and exploration;

(B) exploration capabilities; and

(C) the Office of the Inspector General;

(2) enumerate separately, within the science, aeronautics, and exploration account, the requests for—

(A) space science;

(B) Earth science; and

(C) aeronautics;

(3) include, within the exploration capabilities account, the requests for—

(A) the Space Shuttle; and

(B) the ISS; and

(4) enumerate separately the specific request for the independent technical authority within the appropriate account.

SEC. 140. EARTH OBSERVING SYSTEM.

(a) IN GENERAL.—Within 6 months after the date of enactment of this Act, the Administrator, in consultation with the Administrator of the National Oceanic and Atmospheric Administration and the Director of the United States Geological Survey, shall submit a plan to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science to ensure the long-term vitality of the earth observing system at NASA.

(b) PLAN REQUIREMENTS.—The plan shall—

(1) address such issues as—

(A) out-year budgetary projections;

(B) technical requirements for the system; and

(C) integration into the Global Earth Observing System of Systems; and

(2) evaluate—

(A) the need to proceed with any NASA missions that have been delayed or canceled;

(B) plans for transferring needed capabilities from some canceled or de-scoped missions

to the National Polar-orbiting Environmental Satellite System;

(C) the technical base for exploratory earth observing systems, including new satellite architectures and instruments that enable global coverage, all-weather, day and night imaging of the Earth's surface features;

(D) the need to strengthen research and analysis programs; and

(E) the need to strengthen the approach to obtaining important climate observations and data records.

(c) EARTH OBSERVING SYSTEM DEFINED.—In this section, the term ''earth observing system'' means the series of satellites, a science component, and a data system for long-term global observations of the land surface, biosphere, solid Earth, atmosphere, and oceans.

SEC. 141. NASA HEALTHCARE PROGRAM.

The Administrator shall develop policies, procedures, and plans necessary for—

(1) the establishment of a lifetime healthcare program for NASA astronauts and their families; and

(2) the study and analysis of the healthcare data obtained in order to understand the longitudinal health effects of space flight on humans better.

SEC. 142. ASSESSMENT OF EXTENSION OF DATA COLLECTION FROM ULYSSES AND VOYAGER SPACECRAFT.

(a) ASSESSMENT.—Not later than 60 days after the date of the enactment of this Act, the Administrator shall carry out an assessment of the costs and benefits of extending, to such date as the Administrator considers appropriate for purposes of the assessment, the date of the termination of data collection from the Ulysses spacecraft and the Voyager spacecraft.

(b) REPORT.—Not later than 30 days after completing the assessment required by subsection (a), the Administrator shall submit a report on the assessment to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science.

SEC. 143. PROGRAM TO EXPAND DISTANCE LEARNING IN RURAL UNDERSERVED AREAS.

(a) IN GENERAL.—The Administrator shall develop or expand programs to extend science and space educational outreach to rural communities and schools through video conferencing, interpretive exhibits, teacher

education, classroom presentations, and student field trips.

(b) PRIORITIES.—In carrying out subsection (a), the Administrator shall give priority to existing programs, including Challenger Learning Centers—

(1) that utilize community-based partnerships in the field;

(2) that build and maintain video conference and exhibit capacity;

(3) that travel directly to rural communities and serve low-income populations; and

(4) with a special emphasis on increasing the number of women and minorities in the science and engineering professions.

SEC. 144. INSTITUTIONS IN NASA'S MINORITY INSTITUTIONS PROGRAM.

The matter appearing under the heading ''SMALL AND DISADVANTAGED BUSINESS'' in title III of the Departments of Veterans Affairs and House and Urban Development, and Independent Agencies Appropriations Act, 1990 (42 U.S.C. 2473b; 103 Stat. 863) is amended by striking ''Historically Black Colleges and Universities and'' and inserting ''Historically Black Colleges and Universities that are part B institutions (as defined in section 322(2) of the Higher Education Act of 1965 (20 U.S.C.

1061(2))), Hispanic-serving institutions (as defined in section 502(a)(5) of that Act (20 U.S.C. 1101a(a)(5)), Tribal Colleges or Universities (as defined in section 316(b)(3) of that Act (20 U.S.C. 1059c(b)(3)), Alaskan Native-serving institutions (as defined in section 317(b)(2) of that Act (20 U.S.C. 1059d)(b)(2)), Native Hawaiian-serving institutions (as defined in section 317(b)(4) of that Act (20 U.S.C. 1059d(b)(4)), and''.

SEC. 145. AVIATION SAFETY PROGRAM.

The Administrator shall make available upon request satellite imagery of remote terrain to the Administrator of the Federal Aviation Administration, or the Director of the Five Star Medallion Program, for aviation safety and aerial photography programs to assist and train pilots in navigating challenging topographical features of such terrain.

SEC. 146. ATMOSPHERIC, GEOPHYSICAL, AND ROCKET RESEARCH AUTHORIZATION.

There are authorized to be appropriated to the Administrator for atmospheric, geophysical, or rocket research at the Poker Flat Research Range and the Kodiak Launch Complex, not more than $1,000,000 for each of fiscal years 2006 through 2010.

SEC. 147. ORBITAL DEBRIS.

The Administrator, in conjunction with the heads of other Federal agencies, shall take steps to develop or acquire technologies that will enable NASA to decrease the risks associated with orbital debris.

SEC. 148. CONTINUATION OF CERTAIN EDUCATIONAL PROGRAMS.

From amounts appropriated to NASA for educational programs, the Administrator shall ensure continuation of the Space Grant Program, the Experimental Program to Stimulate Competitive Research, and the NASA Explorer School to motivate and develop the next generation of explorers.

SEC. 149. ESTABLISHMENT OF THE CHARLES "PETE" CONRAD ASTRONOMY AWARDS PROGRAM.

(a) IN GENERAL.—The Administrator shall establish a program to be known as the Charles ''Pete'' Conrad Astronomy Awards Program.

(b) AWARDS.—The Administrator shall make an annual award under the program of—

(1) $3,000 to the amateur astronomer or group of amateur astronomers who in the preceding calendar year discovered the intrinsically brightest near-Earth asteroid among the near-Earth asteroids that were discovered during that year by amateur astronomers or groups of amateur astronomers; and

(2) $3,000 to the amateur astronomer or group of amateur astronomers who made the greatest contribution to the Minor Planet Center's mission of cataloging near-Earth asteroids during the preceding year.

(c) QUALIFICATION FOR AWARD.—

(1) RECOMMENDATION.—These awards shall be made based on the recommendation of the Minor Planet Center of the Smithsonian Astrophysical Observatory.

(2) LIMITATION.—No individual who is not a citizen or permanent resident of the United States at the time of that individual's discovery or contribution may receive an award under this program.

SEC. 150. GAO ASSESSMENT OF FEASIBILITY OF MOON AND MARS EXPLORATION MISSIONS.

Within 9 months after the date of enactment of this Act, the Comptroller General shall transmit to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science an assessment of the feasibility of NASA's planning for exploration of the Moon and Mars, giving special consideration to the long-term cost implications of program architecture and schedules. The Comptroller General shall include in this assessment the short- and long-term impact

of the exploration program on other NASA program areas, including aeronautics, space science, earth science and NASA's overall research and technology development budget.

SEC. 151. WORKFORCE.

(a) IN GENERAL.—The Administrator shall develop a human capital strategy to ensure that NASA has a workforce of the appropriate size and with the appropriate skills to carry out the programs of NASA, consistent with the policies and plans developed pursuant to this section. The strategy shall ensure that current personnel are utilized, to the maximum extent feasible, in implementing the vision for space exploration and NASA's other programs. The strategy shall cover the period through fiscal year 2011.

(b) CONTENT.—The strategy shall describe, at a minimum—

(1) any categories of employees NASA intends to reduce, the expected size and timing of those reductions, the methods NASA intends to use to make the reductions, and the reasons NASA no longer needs those employees;

(2) any categories of employees NASA intends to increase, the expected size and timing of those increases, the methods NASA intends to use to recruit

the additional employees, and the reasons NASA needs those employees;

(3) the steps NASA will use to retain needed employees; and

(4) the budget assumptions of the strategy, which for fiscal years 2006 and 2007 shall be consistent with the authorizations provided in subtitle A, and any expected additional costs or savings from the strategy by fiscal year.

(c) SCHEDULE.—The Administrator shall transmit the strategy developed under this section to the Senate Committee on Commerce, Science, and Transportation and House of Representatives Committee on Science not later than the date on which the President submits the proposed budget for the Federal Government for fiscal year 2007 to the Congress. At least 60 days before transmitting the strategy, NASA shall provide a draft of the strategy to its Federal Employee Unions for a 30-day consultation period after which NASA shall respond in writing to any written concerns provided by the Unions.

(d) LIMITATION.—

(1) IN GENERAL.—NASA may not initiate any buyout offer after the date of enactment of this Act until 60 days after the strategy required by this subsection has been transmitted to the Senate Com-

mittee on Commerce, Science, and Transportation and House of Representatives Committee on Science in accordance with subsection (c). NASA may not implement any reduction-in-force or other involuntary separations (except for cause) prior to June 1, 2007, except as provided in paragraph (2).

(2) EXCEPTIONS.—

(A) SPECIFIC BUY-OUTS.—Notwithstanding paragraph (1), NASA may make exceptions can be made for specific buy-outs on a case-by-case basis, if NASA provides information to the Committees that justifies those specific buy-outs, including why the relevant employees could not be utilized to fulfill other NASA missions.

(B) EMERGENCY REDUCTIONS-IN-FORCE.—NASA may also request an exception for an emergency reduction-in-force of management personnel by transmitting to the Committees—

(i) a detailed rationale for the proposed reduction-in-force;

(ii) an explanation of why the proposed reduction-in-force cannot wait until after the workforce strategy has been

transmitted to the Committees in accordance with the requirements of this section; and

(iii) an explanation of why the relevant employees could not be utilized to fulfill other NASA missions.

SEC. 152. MAJOR RESEARCH EQUIPMENT AND FACILITIES.

(a) IN GENERAL.—Notwithstanding any other provision of law, the National Science Foundation may use funds in the major research equipment and facilities construction account for the design and development of projects that—

(1) have been given a very high rating by relevant scientific peer review panels in the relevant discipline;

(2) have substantial cost-sharing with non-Foundation entities; and

(3) have passed a critical design review.

(b) NATIONAL SCIENCE BOARD APPROVAL.—Nothing in subsection (a) shall be construed to eliminate the need for approval by the National Science Board before such equipment and facilities are eligible for acquisition, construction, commissioning, or upgrading.

SEC. 153. DATA ON SPECIFIC FIELDS OF STUDY.

(a) IN GENERAL.—The National Science Foundation shall collect statistically reliable data through the American Community Survey on the field of degree of college-educated individuals.

(b) ADDITIONAL CENSUS QUESTION.—In order to facilitate the implementation of subsection (a), the Secretary of Commerce shall expand the American Community Survey to include a question to elicit information concerning the field of study in which college-educated individuals received their degrees. The Director of the Bureau of the Census shall consult with the Director of the National Science Foundation concerning the wording of the question or questions to be added to the Survey.

Subtitle C—Limitations and Special Authority

SEC. 161. OFFICIAL REPRESENTATIONAL FUND.

Amounts appropriated pursuant to paragraphs (1) and (2) of section 101 may be used, but not to exceed $70,000, for official reception and representation expenses.

SEC. 162. FACILITIES MANAGEMENT.

NASA shall develop a facilities investment plan through fiscal year 2015 that takes into account uniqueness, mission dependency, and other studies required by this Act.

TITLE II—INTERNATIONAL SPACE STATION

SEC. 201. INTERNATIONAL SPACE STATION COMPLETION.

(a) ELEMENTS, CAPABILITIES, AND CONFIGURATION CRITERIA.—The Administrator shall ensure that the ISS will be able to—

(1) fulfill international partner agreements and provide a diverse range of research capacity, including a high rate of human biomedical research protocols, countermeasures, applied bio-technologies, technology and exploration research, and other priority areas;

(2) have an ability to support crew size of at least 6 persons;

(3) support crew exploration vehicle docking and automated docking of cargo vehicles or modules launched by either heavy-lift or commercially-developed launch vehicles; and

(4) be operated at an appropriate risk level.

(b) CONTINGENCY PLAN.—The transportation plan to support ISS shall include contingency options to ensure sufficient logistics and on-orbit capabilities to support any potential hiatus between Space Shuttle availability and follow-on crew and cargo systems, and provide sufficient pre-

positioning of spares and other supplies needed to accommodate any such hiatus.

(c) CERTIFICATION.—Within 60 days after the date of enactment of this Act, and before making any change in the ISS assembly sequence in effect on the date of enactment of this Act, the Administrator shall certify in writing to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science NASA's plan to meet the requirements of subsections (a) and (b).

(d) COST LIMITATION FOR THE ISS.—Within 6 months after the date of enactment of this Act, the Administrator shall submit to the Congress information pertaining to the impact of the Columbia accident and the implementation of full cost accounting on the development costs of the International Space Station. The Administrator shall also identify any statutory changes needed to section 202 of the NASA Authorization Act of 2000 to address those impacts.

SEC. 202. RESEARCH AND SUPPORT CAPABILITIES ON INTERNATIONAL SPACE STATION.

(a) IN GENERAL.—The Administrator shall—

(1) within 60 days after the date of enactment of this Act, provide an assessment of biomedical and life science research planned for implementation

aboard the ISS that includes the identification of research which can be performed in ground-based facilities and then, if appropriate, validated in space to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science;

(2) ensure the capacity to support ground-based research leading to spaceflight of scientific research in a variety of disciplines with potential direct national benefits and applications that can advance significantly from the uniqueness of micro-gravity;

(3) restore and protect such potential ISS research activities as molecular crystal growth, animal research, basic fluid physics, combustion research, cellular biotechnology, low temperature physics, and cellular research at a level which will sustain the existing scientific expertise and research capabilities until such time as additional funding or resources from sources other than NASA can be identified to support these activities within the framework of the National Laboratory provided for in section 203 of this Act;

(4) consider the need for a life sciences centrifuge and any associated holding facilities; and

(5) within 1 year after the date of enactment of this Act, develop a research plan that will demonstrate the process by which NASA will evolve the ISS research portfolio in a manner consistent with the planned growth and evolution of ISS on-orbit and transportation capabilities.

(b) MAINTENANCE OF ON-ORBIT ANALYTICAL CAPABILITIES.—The Administrator shall ensure that on-orbit analytical capabilities to support diagnostic human research, as well as on-orbit characterization of molecular crystal growth, cellular research, and other research products and results are developed and maintained, as an alternative to Earth-based analysis requiring the capability of returning research products to Earth.

(c) ASSESSMENT OF POTENTIAL SCIENTIFIC USES.—The Administrator shall assess further potential possible scientific uses of the ISS for other applications, such as technology development, development of manufacturing processes, Earth observation and characterization, and astronomical observations.

(d) TRANSITION TO PUBLIC-PRIVATE RESEARCH OPERATIONS.—By no later than the date on which the assembly of the ISS is complete (as determined by the Administrator), the Administrator shall initiate steps to transition research operations on the ISS to a greater private–

public operating relationship pursuant to section 203 of this Act.

SEC. 203. NATIONAL LABORATORY STATUS FOR INTERNATIONAL SPACE STATION.

(a) IN GENERAL.—In order to accomplish the objectives listed in section 202, the United States segment of the ISS is hereby designated a national laboratory facility. The Administrator, after consultation with the Director of the Office of Science and Technology Policy, shall develop the national laboratory facility to oversee scientific utilization of an ISS national laboratory within the organizational structure of NASA.

(b) NATIONAL LABORATORY FUNCTIONS.—The Administrator shall seek to use the national laboratory to increase the utilization of the ISS by other national and commercial users and to maximize available NASA funding for research through partnerships, cost-sharing agreements, and arrangements with non-NASA entities.

(c) IMPLEMENTATION PLAN.—Within 1 year after the date of enactment of this Act, the Administrator shall provide an implementation plan to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science for establishment of the ISS national laboratory facility which, at a minimum, shall include—

(1) proposed on-orbit laboratory functions;

(2) proposed ground-based laboratory facilities;

(3) detailed laboratory management structure, concept of operations, and operational feasibility;

(4) detailed plans for integration and conduct of ground and space-based research operations;

(5) description of funding and workforce resource requirements necessary to establish and operate the laboratory;

(6) plans for accommodation of existing international partner research obligations and commitments; and

(7) detailed outline of actions and timeline necessary to implement and initiate operations of the laboratory.

(d) U.S. SEGMENT DEFINED.—In this section the term ''United States Segment of the ISS'' means those elements of the ISS manufactured—

(1) by the United States; or

(2) for the United States by other nations in exchange for funds or launch services.

SEC. 204. COMMERCIAL SUPPORT OF INTERNATIONAL SPACE STATION OPERATIONS AND UTILIZATION.

The Administrator shall purchase commercial services for support of the ISS for cargo and other needs, and for enhancement of the capabilities of the ISS, to the maximum extent possible, in accordance with Federal procurement law.

SEC. 205. USE OF THE INTERNATIONAL SPACE STATION AND ANNUAL REPORT.

(a) POLICY.—It is the policy of the United States—

(1) to ensure diverse and growing utilization of benefits from the ISS; and

(2) to increase commercial operations in low-Earth orbit and beyond that are supported by national and commercial space transportation capabilities.

(b) USE OF INTERNATIONAL SPACE STATION.—The Administrator shall conduct broadly focused scientific and exploration research and development activities using the ISS in a manner consistent with the provisions of this title, and advance the Nation's exploration of the Moon and beyond, using the ISS as a test-bed and outpost for operations, engineering, and scientific research.

(c) REPORTS.—No later than March 31 of each year the Administrator shall submit a report to the Senate

Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science on the use of the ISS for these purposes, with implementation milestones and associated results.

TITLE III—NATIONAL SPACE TRANSPORTATION POLICY

SEC. 301. UNITED STATES HUMAN-RATED LAUNCH CAPACITY ASSESSMENT.

Notwithstanding any other provision of law, the Administrator shall, within 60 days after the date of enactment of this Act, provide to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science, a full description of the transportation requirements needed to support the space launch and transportation transition implementation plan required by section 136 of this Act, as well as for the ISS, including—

(1) the manner in which the capabilities of any proposed human-rated crew and launch vehicles meet the requirements of the implementation plan under section 136 of this Act;

(2) a retention plan of skilled personnel from the legacy Shuttle program which will sustain the level of safety for that program through the final flight and transition plan that will ensure that any

NASA programs can utilize the human capital resources of the Shuttle program, to the maximum extent practicable;

(3) the implications for and impact on the Nation's aerospace industrial base;

(4) the manner in which the proposed vehicles contribute to a national mixed fleet launch and flight capacity;

(5) the nature and timing of the transition from the Space Shuttle to the workforce, the proposed vehicles, and any related infrastructure;

(6) support for ISS crew transportation, ISS utilization, and lunar exploration architecture;

(7) for any human rated vehicle, a crew escape system, as well as substantial protection against orbital debris strikes that offers a high level of safety;

(8) development risk areas;

(9) the schedule and cost;

(10) the relationship between crew and cargo capabilities; and

(11) the ability to reduce risk through the use of currently qualified hardware.

SEC. 302. SPACE SHUTTLE TRANSITION.

(a) POLICY STATEMENT.—It is the policy of the United States to possess the capability for assured human

access to space. The Administrator shall act to ensure that the United States retains that capacity on a continuous basis. The Administrator shall conduct the transition from the Space Shuttle orbiter to a replacement capacity in a manner that efficiently uses the personnel, capabilities, and infrastructure that are currently available to the extent feasible.

(b) PROGRESS REPORT.—Within 180 days after the date of enactment of this Act and annually thereafter, the Administrator shall report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science on the progress and the estimated amount of time before the next generation human-rated NASA spacecraft will demonstrate crewed, orbital spaceflight.

(c) POLICY COMPLIANCE REPORT.—If, 1 year before the final flight of the Space Shuttle orbiter, the United States has not demonstrated a replacement human space flight system, the Administrator shall certify that the United States cannot uphold the policy outlined in subsection (a) and shall provide a report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science describing—

(1) United States strategic risks associated with the hiatus or gap;

(2) the estimated length of time during which the United States will not have independent human access to space;

(3) what steps will be taken to shorten that length of time; and

(4) what other means will be used to allow human access to space during that time.

(d) TRANSITION PLAN REPORT.—After providing the information required by section 301 to the Committees, the Administrator shall transmit a report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science containing a detailed and comprehensive Space Shuttle transition plan that includes any necessary recertification, including requirements, assumptions, and milestones, in order to utilize the Space Shuttle orbiter beyond calendar year 2010.

(e) CONTRACT TERMINATIONS; VENDOR REPLACEMENTS.—The Administrator may not terminate any contracts nor replace any vendors associated with the Space Shuttle until the Administrator transmits the report required by subsection (b) to the Committees.

SEC. 303. COMMERCIAL LAUNCH VEHICLES.

It is the sense of Congress that the Administrator should use current and emerging commercial launch vehicles to fulfill appropriate mission needs, including the support of low-Earth orbit and lunar exploration operations.

SEC. 304. SECONDARY PAYLOAD CAPABILITY.

(a) IN GENERAL.—In order to help develop a cadre of experienced engineers and to provide more routine and affordable access to space, the Administrator shall provide the capabilities to support secondary payloads on United States launch vehicles, including free flyers, for satellites or scientific payloads weighing less than 500 kilograms.

(b) FEASIBILITY STUDY.—The Administrator shall initiate a feasibility study for establishing a National Free Flyer Launch Center as a means of consolidating and integrating secondary launch capabilities, launch opportunities, and payloads.

(c) ASSESSMENT.—The feasibility study required in this section shall include an assessment of the potential utilization of existing launch and launch support facilities and capabilities in the states of Montana and New Mexico and their respective contiguous states, and the state of Alaska, and shall include an assessment of the feasibility of integrating the potential National Free Flyer Launch Center within the operations and facilities of an existing

non-profit organization such as the Inland Northwest Space Alliance in Missoula, Montana, or similar entity.

SEC. 305. POWER AND PROPULSION REPORTING.

The Administrator shall, within 180 days after the date of enactment of this Act, provide to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science, a full description of plans to develop and utilize nuclear power and nuclear propulsion capabilities to achieve agency goals and any requirements in this Act, and address how those plans meet the intent of the Vision for Space Exploration and the President's Space Transportation Policy Directive.

SEC. 306. UTILIZATION OF NASA FIELD CENTERS AND WORKFORCE.

(a) IN GENERAL.—In budgeting for and carrying out elements of this title, the Administrator shall make the most effective use of existing research, development, testing, and space exploration expertise and facilities resident within NASA field centers.

(b) RESPONSIBILITIES OF FIELD CENTERS.—The Administrator shall take appropriate action to balance responsibilities between the field centers for leading the development of systems relevant to the Vision for Space Exploration, including systems identified in this title or any architecture studies performed by NASA.

TITLE IV—ENABLING COMMERCIAL ACTIVITY

SEC. 401. COMMERCIALIZATION PLAN.

(a) IN GENERAL.—The Administrator, in consultation with the Associate Administrator for Space Transportation of the Federal Aviation Administration, the Director of the Office of Space Commercialization of the Department of Commerce, and any other relevant agencies, shall develop a commercialization plan to support the human missions to the Moon and Mars, to support Low-Earth Orbit activities and Earth science mission and applications, and to transfer science research and technology to society. The plan shall identify opportunities for the private sector to participate in the future missions and activities, including opportunities for partnership between NASA and the private sector in the development of technologies and services, shall emphasize the utilization by NASA of advancements made by the private sector in space launch and orbital hardware, and shall include opportunities for innovative collaborations between NASA and the private sector under existing authorities of NASA for reimbursable and non-reimbursable agreements under the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451 et seq.).

(b) REPORT.—Within 180 days after the date of enactment of this Act, the Administrator shall submit a copy of the plan to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science.

SEC. 402. COMMERCIAL TECHNOLOGY TRANSFER PROGRAM.

(a) IN GENERAL.—The Administrator shall execute a commercial technology transfer program with the goal of facilitating the exchange services, products, and intellectual property between NASA and the private sector. This program shall be maintained in a manner that provides measurable benefits for the agency, the domestic economy, and research communities.

(b) PROGRAM STRUCTURE.—In carrying out the program described in paragraph (a), the Administrator shall maintain the funding and program structure of NASA's existing technology transfer and commercialization organizations through the end of fiscal year 2006.

SEC. 403. AUTHORITY FOR COMPETITIVE PRIZE PROGRAM TO ENCOURAGE DEVELOPMENT OF ADVANCED SPACE AND AERONAUTICAL TECHNOLOGIES.

Title III of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451 et seq.) is amended by adding at the end the following:

"SEC. 316. PROGRAM ON COMPETITIVE AWARD OF PRIZES TO ENCOURAGE DEVELOPMENT OF ADVANCED SPACE AND AERONAUTICAL TECHNOLOGIES.

''(a) PROGRAM AUTHORIZED.—

''(1) IN GENERAL.—The Administrator may carry out a program to award prizes to stimulate innovation in basic and applied research, technology development, and prototype demonstration that have the potential for application to the performance of the space and aeronautical activities of the Administration.

''(2) USE OF PRIZE AUTHORITY.—In carrying out the program, the Administrator shall seek to develop and support technologies and areas identified in section 134 of this Act or other areas that the Administrator determines to be providing impetus to NASA's overall exploration and science architecture and plans, such as private efforts to detect near

Earth objects and, where practicable, utilize the prize winner's technologies in fulfilling NASA's missions. The Administrator shall widely advertise any competitions conducted under the program and must include advertising to research universities.

''(3) COORDINATION.—The program shall be implemented in compliance with section 138 of the National Aeronautics and Space Administration Authorization Act of 2005.

''(b) PROGRAM REQUIREMENTS.—

''(1) COMPETITIVE PROCESS.—Recipients of prizes under the program under this section shall be selected through one or more competitions conducted by the Administrator.

''(2) ADVERTISING.—The Administrator shall widely advertise any competitions conducted under the program.

''(c) REGISTRATION; ASSUMPTION OF RISK.—

''(1) REGISTRATION.—Each potential recipient of a prize in a competition under the program under this section shall register for the competition.

''(2) ASSUMPTION OF RISK.—In registering for a competition under paragraph (1), a potential recipient of a prize shall assume any and all risks, and waive claims against the United States Government

and its related entities, for any injury, death, damage, or loss of property, revenue, or profits, whether direct, indirect, or consequential, arising from participation in the competition, whether such injury, death, damage, or loss arises through negligence or otherwise, except in the case of willful misconduct.

''(3) RELATED ENTITY DEFINED.—In this subsection, the term 'related entity' includes a contractor or subcontractor at any tier, a supplier, user, customer, cooperating party, grantee, investigator, or detailee.

''(d) LIMITATIONS.—

''(1) TOTAL AMOUNT.—The total amount of cash prizes available for award in competitions under the program under this section in any fiscal year may not exceed $50,000,000.

''(2) APPROVAL REQUIRED FOR LARGE PRIZES.—No competition under the program may result in the award of more than $1,000,000 in cash prizes without the approval of the Administrator or a designee of the Administrator.

''(e) RELATIONSHIP TO OTHER AUTHORITY.—The Administrator may utilize the authority in this section in conjunction with or in addition to the utilization of any other authority of the Administrator to acquire, support,

or stimulate basic and applied research, technology development, or prototype demonstration projects.

''(f) AVAILABILITY OF FUNDS.—Funds appropriated for the program authorized by this section shall remain available until expended.''.

SEC. 404. COMMERCIAL GOODS AND SERVICES.

It is the sense of the Congress that NASA should purchase commercially available space goods and services to the fullest extent feasible in support of the human missions beyond Earth and should encourage commercial use and development of space to the greatest extent practicable.

TITLE V—AERONAUTICS RESEARCH AND DEVELOPMENT

SEC. 501. GOVERNMENTAL INTEREST IN AERONAUTICS.

Congress reaffirms the national commitment to aeronautics research made in the National Aeronautics and Space Act of 1958. Aeronautical research and development remains a core mission of NASA. NASA is the lead agency for civil aeronautics research. NASA shall conduct a robust program of aeronautics research that includes fundamental basic research as well as research in the fields of vehicle systems and of safety and security.

SEC. 502. NATIONAL POLICY FOR AERONAUTICS RESEARCH AND DEVELOPMENT.

(a) IN GENERAL.—The President shall develop through NASA and other relevant entities, a national aeronautics policy to guide the aeronautics programs of the United States through the year 2020. The development of this policy shall utilize external studies that have been conducted on the state of United States aeronautics and aviation research and have suggested policies to ensure continued competitiveness.

(b) CONTENT.—At a minimum the national aeronautics policy shall describe—

(1) national goals for aeronautics research;

(2) the priority areas of research for aeronautics through fiscal year 2011;

(3) the basis of which and the process by which priorities for ensuing fiscal years will be selected; and

(4) respective roles and responsibilities of various Federal agencies in aeronautics research.

(c) NASA INPUT.—In providing input to and executing the National Aeronautics Policy, the Administrator, shall consider the following issues:

(1) The established governmental interest in conducting research and development programs for improvement of the usefulness, performance, speed,

safety, and efficiency of aeronautical and vehicles, as described in section 102(c)(2) of the National Aeronautics and Space Act of 1958 and reaffirmed in section 501.

(2) The established governmental interest in conducting research and development programs that contribute to preservation of the role of the United States as a global leader in aeronautical technologies and in the application thereof in section 102(c)(5) of the National Aeronautics and Space Act of 1958 and reaffirmed in section 501.

(3) The appropriate balance between long-term, high risk research and shorter, more incremental research, and the expected impact on the United States economy and public good.

(4) The appropriate balance between in-house research and procurement with industry and academia.

(5) The extent to which NASA should address military and commercial aviation needs.

(6) How NASA will coordinate its aeronautics program with other Federal agencies.

(7) Opportunities for partnerships with the private sector.

(d) SCHEDULE.—

(1) No later than 1 year after the date of enactment of this Act, the President shall submit the national aeronautics policy to the Appropriations Committees of the House of Representatives and the Senate, the House Committee on Science, and the Senate Committee on Commerce, Science, and Transportation.

(2) No later than 60 days after the transmittal of the policy, the Administrator shall submit NASA's response to the policy, to the Appropriations Committees of the House of Representatives and the Senate, the House Committee on Science, and the Senate Committee on Commerce, Science and Transportation.

SEC. 503. HIGH PRIORITY AERONAUTICS RESEARCH AND DEVELOPMENT PROGRAMS.

(a) IN GENERAL.—In its role as lead agency for civil aeronautics research and development, NASA shall develop programs and projects in accordance with the National Aeronautics Policy described in section 502, as well program areas listed in subsection (b). These programs must be driven by scientific merit.

(b) RESEARCH AND DEVELOPMENT.—In executing an aeronautics research and development program, the Administrator shall, at a minimum, within the budgetary

and programmatic resources provided, conduct programs in the following areas:

(1) FUNDAMENTAL RESEARCH.—The Administrator shall establish a program of long-term fundamental research in aeronautical sciences and technologies that is not tied to specific development projects. The Administrator shall set aside no less than 5 percent of the aeronautics budget for this program. As part of this program, the Administrator is encouraged to make merit-reviewed grants to institutions of higher learning, including such institutions located in states that participate in the Experimental Program to Stimulate Competitive Research.

(2) VEHICLE SYSTEMS RESEARCH AND TECHNOLOGY.—In order to maintain United States economic competitiveness and protect the environment, the Administrator shall establish programs in each of the following technology areas:

(A) ENVIRONMENTAL AIRCRAFT RESEARCH AND DEVELOPMENT.—The Administrator shall establish an initiative with the objective of developing and demonstrating in a relevant environment, technologies to enable the following commercial aircraft performance characteristics:

(i) NOISE.—Noise levels on takeoff and on airport approach and landing that do not exceed ambient noise levels in the absence of flight operations in the vicinity of airports from which such commercial aircraft would normally operate;

(ii) ENERGY CONSUMPTION.—Twenty-five percent reduction in the energy required for medium to long range flights, compared to aircraft in commercial service as of the date of enactment of this Act; and

(iii) EMISSIONS.—Nitrogen oxides on take-off and landing that are significantly reduced, without adversely affecting hydrocarbons and smoke, relative to aircraft in commercial service as of the date of enactment of this Act.

(B) SUPERSONIC TRANSPORT RESEARCH AND DEVELOPMENT.—The Administrator shall establish an initiative with the objective of developing and demonstrating in a relevant environment within airframe and propulsion technologies to enable efficient, economical overland

flight of supersonic civil transport aircraft with no significant impact on the environment.

(C) ROTORCRAFT AND OTHER RUNWAY-INDEPENDENT AIR VEHICLES.—The Administrator shall establish a rotorcraft and other runway-independent air vehicles initiative with the objective of developing and demonstrating improved safety, noise, and environmental impact in a relevant environment.

(D) HYPERSONICS RESEARCH.—The Administrator shall establish a hypersonics research program whose objective shall be to explore the science and technology of hypersonic flight using air-breathing propulsion concepts, through a mix of theoretical work, basic and applied research, and development of flight research demonstration vehicles. Emphasis in the program shall be given to advancing and demonstrating turbine engine technology in the transition to hypersonic range Mach 3 to Mach 5.

(E) REVOLUTIONARY AERONAUTICAL CONCEPTS.—The Administrator shall establish a research program which covers a unique range of subsonic, fixed wing vehicles and propulsion

concepts. This research is intended to push technology barriers beyond current subsonic technology. Propulsion concepts include advanced materials, morphing engines, hybrid engines, and fuel cells.

(F) MORE ELECTRIC AIRCRAFT INITIATIVE.—The Administrator shall establish a program for innovative and focused research and development such as fuel cell technologies.

(3) AIRSPACE SYSTEMS RESEARCH.—The Airspace Systems Research program shall pursue research and development to enable revolutionary improvements to and modernization of the National Airspace system, as well as to enable the introduction of new systems for vehicles that can take advantage of an improved, modern air transportation system. In pursuing research and development in this area, the Administrator shall align the projects of the Airspace Systems Research program so that they directly support the objectives of the Joint Planning and Development Office's Next Generation air Transportation System Integrated Plan.

(4) AVIATION SAFETY AND SECURITY RESEARCH.—The Aviation Safety and Security Research program shall pursue research and develop-

ment activities that directly address the safety and security needs of the National Airspace System and the aircraft that fly in it.

SEC. 504. TEST FACILITIES.

(a) Prior to completion of the National Aeronautics Policy described in section 502 and transmittal of such policy pursuant to subsection (d) of that section, the Administrator may not close, suspend, or terminate contracts for the operation of major aeronautical test facilities, including wind tunnels, unless the Administrator—

(1) certifies in writing that such closure will not have an adverse impact on NASA's ability to execute the National Policy and achieve the goals described in that Policy; and

(2) provides notification to and receives concurrence from the Appropriations Committees of the House of Representatives and the Senate, the House Committee on Science, and the Senate Committee on Commerce, Science and Transportation 60 days in advance of such action.

SEC. 505. MISCELLANEOUS PROVISIONS.

(a) WORKFORCE DEVELOPMENT.—The Administrator shall encourage the development of a skilled and diverse aeronautics research workforce using appropriate

available tools such as grants, scholarships for service, and fellowships.

(b) ALIGNMENT OF PROGRAMS.—Notwithstanding any other provision of this title, the Administrator shall align NASA's aeronautics program with priorities established by the Joint Planning and Development Office and by the National Aeronautics Policy described in section 502 of this Act.

TITLE VI—MISCELLANEOUS ADMINISTRATIVE IMPROVEMENTS

SEC. 601. EXTENSION OF INDEMNIFICATION AUTHORITY.

Section 309 of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2458c) is amended by striking ''December 31, 2002'' and inserting ''December 31, 2007'', and by striking ''September 30, 2005'' and inserting ''December 31, 2009''.

SEC. 602. INTELLECTUAL PROPERTY PROVISIONS.

Section 305 of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2457) is amended by inserting after subsection (f) the following:

''(g) ASSIGNMENT OF PATENT RIGHTS, ETC.—

''(1) IN GENERAL.—Under agreements entered into pursuant to paragraph (5) or (6) of section

203(c) of this Act (42 U.S.C. 2473(c)(5) or (6)), the Administrator may—

''(A) grant or agree to grant in advance to a participating party, patent licenses or assignments, or options thereto, in any invention made in whole or in part by an Administration employee under the agreement; or

''(B) subject to section 209 of title 35, grant a license to an invention which is Federally owned, for which a patent application was filed before the signing of the agreement, and directly within the scope of the work under the agreement, for reasonable compensation when appropriate.

''(2) EXCLUSIVITY.—The Administrator shall ensure, through such agreement, that the participating party has the option to choose an exclusive license for a pre-negotiated field of use for any such invention under the agreement or, if there is more than 1 participating party, that the participating parties are offered the option to hold licensing rights that collectively encompass the rights that would be held under such an exclusive license by one party.

''(3) CONDITIONS.—In consideration for the Government's contribution under the agreement,

grants under this subsection shall be subject to the following explicit conditions:

''(A) A nonexclusive, nontransferable, irrevocable, paid-up license from the participating party to the Administration to practice the invention or have the invention practiced throughout the world by or on behalf of the Government. In the exercise of such license, the Government shall not publicly disclose trade secrets or commercial or financial information that is privileged or confidential within the meaning of section 552 (b)(4) of title 5, United States Code, or which would be considered as such if it had been obtained from a non-Federal party.

''(B) If the Administration assigns title or grants an exclusive license to such an invention, the Government shall retain the right—

''(i) to require the participating party to grant to a responsible applicant a nonexclusive, partially exclusive, or exclusive license to use the invention in the applicant's licensed field of use, on terms that are reasonable under the circumstances; or

"(ii) if the participating party fails to grant such a license, to grant the license itself.

"(C) The Government may exercise its right retained under subparagraph (B) only in exceptional circumstances and only if the Government determines that—

"(i) the action is necessary to meet health or safety needs that are not reasonably satisfied by the participating party;

"(ii) the action is necessary to meet requirements for public use specified by Federal regulations, and such requirements are not reasonably satisfied by the participating party; or

"(iii) the action is necessary to comply with an agreement containing provisions described in section 12(c)(4)(B) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3710a(c)(4)(B)).

"(4) APPEAL AND REVIEW OF DETERMINATION.—A determination under paragraph (3)(C) is subject to administrative appeal and judicial review under section 203(b) of title 35, United States Code.".

SEC. 603. RETROCESSION OF JURISDICTION.

Title III of the National Aeronautics and Space Act of 1958, as amended by section 602 of this Act, is further amended by adding at the end the following:

''SEC. 317. RETROCESSION OF JURISDICTION.

''Notwithstanding any other provision of law, the Administrator may, whenever the Administrator considers it desirable, relinquish to a State all or part of the legislative jurisdiction of the United States over lands or interests under the Administrator's control in that State. Relinquishment of legislative jurisdiction under this section may be accomplished (1) by filing with the Governor of the State concerned a notice of relinquishment to take effect upon acceptance thereof, or (2) as the laws of the State may otherwise provide.''.

SEC. 604. RECOVERY AND DISPOSITION AUTHORITY.

Title III of the National Aeronautics and Space Act of 1958, as amended by section 603 of this Act, is further amended by adding at the end the following:

''SEC. 318. RECOVERY AND DISPOSITION AUTHORITY.

''(a) IN GENERAL.—

''(1) CONTROL OF REMAINS.—Subject to paragraph (2), when there is an accident or mishap resulting in the death of a crewmember of a NASA human space flight vehicle, the Administrator may take control over the remains of the crewmember

and order autopsies and other scientific or medical tests.

''(2) TREATMENT.—Each crewmember shall provide the Administrator with his or her preferences regarding the treatment accorded to his or her remains and the Administrator shall, to the extent possible, respect those stated preferences.

''(b) DEFINITIONS.—In this section:

''(1) CREWMEMBER.—The term 'crewmember' means an astronaut or other person assigned to a NASA human space flight vehicle.

''(2) NASA HUMAN SPACE FLIGHT VEHICLE.—The term 'NASA human space flight vehicle' means a space vehicle, as defined in section 308(f)(1), that—

''(A) is intended to transport 1 or more persons;

''(B) designed to operate in outer space; and

''(C) is either owned by NASA, or owned by a NASA contractor or cooperating party and operated as part of a NASA mission or a joint mission with NASA.''.

SEC. 605. REQUIREMENT FOR INDEPENDENT COST ANALYSIS.

Section 301 of the National Aeronautics and Space Administration Authorization Act of 2000 (42 U.S.C. 2459g) amended—

(1) by striking ''Phase B'' in subsection (a) and inserting ''implementation'';

(2) by striking ''Chief Financial Officer'' each place it appears in subsection (a) and inserting ''Administrator'';

(3) by inserting ''and consider'' in subsection (a) after ''shall conduct''; and

(4) by striking subsection (b) and inserting the following:

''(b) IMPLEMENTATION DEFINED.—In this section, the term 'implementation' means all activity in the life cycle of a program or project after preliminary design, independent assessment of the preliminary design, and approval to proceed into implementation, including critical design, development, certification, launch, operations, disposal of assets, and, for technology programs, development, testing, analysis and communication of the results to the customers.''.

SEC. 606. ELECTRONIC ACCESS TO BUSINESS OPPORTUNITIES.

Title III of the National Aeronautics and Space Act of 1958, as amended by section 604 of this Act, is further amended by adding at the end the following:

"SEC. 319. ELECTRONIC ACCESS TO BUSINESS OPPORTUNITIES.

''(a) IN GENERAL.—The Administrator may implement a pilot program providing for reduction in the waiting period between publication of notice of a proposed contract action and release of the solicitation for procurements conducted by the National Aeronautics and Space Administration.

''(b) APPLICABILITY.—The program implemented under subsection (a) shall apply to non-commercial acquisitions—

''(1) with a total value in excess of $100,000 but not more than $5,000,000, including options;

''(2) that do not involve bundling of contract requirements as defined in section 3(o) of the Small Business Act (15 U.S.C. 632(o)); and

''(3) for which a notice is required by section 8(e) of the Small Business Act (15 U.S.C. 637(e)) and section 18(a) of the Office of Federal Procurement Policy Act (41 U.S.C. 416(a)).

''(c) NOTICE.—

''(1) Notice of acquisitions subject to the program authorized by this section shall be made accessible through the single Government-wide point of entry designated in the Federal Acquisition Regulation, consistent with section 30(c)(4) of the Office of Federal Procurement Policy Act (41 U.S.C. 426(c)(4)).

''(2) Providing access to notice in accordance with paragraph (1) satisfies the publication requirements of section 8(e) of the Small Business Act (15 U.S.C. 637(e)) and section 18(a) of the Office of Federal Procurement Policy Act (41 U.S.C. 416(a)).

''(d) SOLICITATION.—Solicitations subject to the program authorized by this section shall be made accessible through the Government-wide point of entry, consistent with requirements set forth in the Federal Acquisition Regulation, except for adjustments to the wait periods as provided in subsection (e).

''(e) WAIT PERIOD.—

''(1) Whenever a notice required by section 8(e)(1)(A) of the Small Business Act (15 U.S.C. 637(e)(1)(A)) and section 18(a) of the Office of Federal Procurement Policy Act (41 U.S.C. 416(a)) is made accessible in accordance with subsection (c) of this section, the wait period set forth in section

8(e)(3)(A) of the Small Business Act (15 U.S.C. 637(e)(3)(A)) and section 18(a)(3)(A) of the Office of Federal Procurement Policy Act (41 U.S.C. 416(a)(3)(A)), shall be reduced by 5 days. If the solicitation applying to that notice is accessible electronically in accordance with subsection (d) simultaneously with issuance of the notice, the wait period set forth in section 8(e)(3)(A) of the Small Business Act (15 U.S.C. 637(e)(3)(A)) and section 18(a)(3)(A) of the Office of Federal Procurement Policy Act (41 U.S.C. 416(a)(3)(A)) shall not apply and the period specified in section 8(e)(3)(B) of the Small Business Act and section 18(a)(3)(B) of the Office of Federal Procurement Policy Act for submission of bids or proposals shall begin to run from the date the solicitation is electronically accessible.

''(2) When a notice and solicitation are made accessible simultaneously and the wait period is waived pursuant to paragraph (1), the deadline for the submission of bids or proposals shall be not less than 5 days greater than the minimum deadline set forth in section 8(e)(3)(B) of the Small Business Act (15 U.S.C. 637(e)(3)(B)) and section 18(a)(3)(B) of the Office of Federal Procurement Policy Act (41 U.S.C. 416(a)(3)(B)).

''(f) IMPLEMENTATION.—

''(1) Nothing in this section shall be construed as modifying regulatory requirements set forth in the Federal Acquisition Regulation, except with respect to—

''(A) the applicable wait period between publication of notice of a proposed contract action and release of the solicitation; and

''(B) the deadline for submission of bids or proposals for procurements conducted in accordance with the terms of this pilot program.

''(2) This section shall not apply to the extent the President determines it is inconsistent with any international agreement to which the United States is a party.

''(g) STUDY.—Within 18 months after the effective date of the program, NASA, in coordination with the Small Business Administration, the General Services Administration, and the Office of Management and Budget, shall evaluate the impact of the pilot program and submit to Congress a report that—

''(1) sets forth in detail the results of the test, including the impact on competition and small business participation; and

''(2) addresses whether the pilot program should be made permanent, continued as a test program, or allowed to expire.

''(h) REGULATIONS.—The Administrator shall publish proposed revisions to the NASA Federal Acquisition Regulation Supplement necessary to implement this section in the Federal Register not later than 120 days after the date of enactment of the National Aeronautics and Space Administration Authorization Act of 2005. The Administrator shall—

''(1) make the proposed regulations available for public comment for a period of not less than 60 days; and

''(2) publish final regulations in the Federal Register not later than 240 days after the date of enactment of that Act.

''(i) EFFECTIVE DATE.—

''(1) IN GENERAL.—The pilot program authorized by this section shall take effect on the date specified in the final regulations promulgated pursuant to subsection (h)(2).

''(2) LIMITATION.—The date so specified shall be no less than 30 days after the date on which the final regulation is published.

''(j) EXPIRATION OF AUTHORITY.—The authority to conduct the pilot program under subsection (a) and to award contracts under such program shall expire 2 years after the effective date established in the final regulations published in the Federal Register under subsection (h)(2).''.

SEC. 607. REPORTS ELIMINATION.

(a) REPEALS.—The following provisions of law are repealed:

(1) Section 201 of the National Aeronautics and Space Administration Authorization Act of 2000 (42 U.S.C. 2451 note).

(2) Section 304(d) of the Federal Aviation Administration Research, Engineering, and Development Authorization Act of 1992 (49 U.S.C. 47508 note).

(b) AMENDMENTS.—

(1) Section 315 of the National Aeronautics and Space Administration Act of 1958 (42 U.S.C. 2459j) is amended by striking subsection (a) and redesignating subsections (b) through (f) as subsections (a) through (e).

(2) Section 315(a) of the National Aeronautics and Space Administration Authorization Act, Fiscal Year 1993 (42 U.S.C. 2487a(c)) is amended by

striking subsection (c) and redesignating subsection (d) as subsection (c).

(3) Section 323 of the National Aeronautics and Space Administration Authorization Act of 2000 is amended by striking subsection (a).

SEC. 608. SMALL BUSINESS CONTRACTING.

(a) PLAN.—In consultation with the Small Business Administration, the Administrator shall develop a plan to maximize the number and amount of contracts awarded to small business concerns (within the meaning given that term in section 3 of the Small Business Act (15 U.S.C. 632) and to meet established contracting goals for such concerns.

(b) PRIORITY.—The Administrator shall establish, as a priority, meeting the contracting goals developed in conjunction with the Small Business Administration to maximize the amount of prime contracts, as measured in dollars, awarded in each fiscal year by NASA to small business concerns (within the meaning given that term in section 3 of the Small Business Act (15 U.S.C. 632)).

SEC. 609. GOVERNMENT ACCOUNTABILITY OFFICE REVIEW AND REPORT.

(a) REVIEW.—The Comptroller General of the United States shall conduct a review of NASA's policies, processes, and procedures in the planning and management

of applications research and development implemented in calendar years 2001 to 2005 within the Applied Sciences Directorate and former Earth Science Applications Program. A formal and transparent peer review process that instills public and stakeholder confidence in NASA's sponsored applications research and development programs is important and the process by which this program defines requirements, scopes programs, selects peer reviewers, manages the research competition, and selects proposals is of concern. The review shall include—

(1) the program planning and analysis process used to formulate applied science research and development requirements, priorities, and solicitation schedules, including changes to the process within the period under review, and the effects of such planning on the quality and clarity of applied sciences research announcements;

(2) the peer review process including—

(A) membership selection, determination of qualifications and use of NASA and non-NASA reviewers;

(B) management of conflicts of interest, including reviewers funded by the program with a significant consulting or contractual relationship with NASA, and individuals who both re-

view proposals and participate in the submission of proposals under the same solicitation announcement;

(C) compensation of non-NASA proposal reviewers;

(3) the process for assigning or allocating applied research to NASA researchers and to non-NASA researchers; and

(4) alternative models for NASA planning and management of applied science and applications research, including an evaluation of—

(A) the National Institutes of Health's intramural and extramural research program structure, peer review process, management of conflicts of interests, compensation of reviewers, and the effects of compensation on reviewer efficiency and quality;

(B) the Department of Agriculture's research programs and structure, peer review process, management of conflicts of interest, compensation of reviewers, and the effects of compensation on reviewer efficiency and quality; and

(C) the ''best practices'' of both in the planning, selection, and management of applied sciences research and development.

(b) REPORT.—Not later than 1 year after the date of the enactment of this Act, the Comptroller General shall submit a report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science describing the results of the review conducted under subsection (a), including recommendations for NASA best practices.

(c) IMPLEMENTATION.—Not later than 90 days after receipt of the report, NASA shall provide the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science a plan describing the implementation of those recommendations.

Passed the Senate September 28, 2005.

Attest:

Secretary.

109TH CONGRESS
1ST SESSION

S. 1281

AN ACT

To authorize appropriations for the National Aeronautics and Space Administration for science, aeronautics, exploration, exploration capabilities, and the Inspector General, and for other purposes, for fiscal years 2006, 2007, 2008, 2009, and 2010.