

Calendar No. 174

109TH CONGRESS }
1st Session }

SENATE

{ REPORT
109-108

NATIONAL AERONAUTICS AND SPACE AD-
MINISTRATION AUTHORIZATION ACT OF
2005

R E P O R T

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND
TRANSPORTATION

ON

S. 1281



JULY 26, 2005.—Ordered to be printed

U.S. GOVERNMENT PRINTING OFFICE

39—010

WASHINGTON : 2004

SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED NINTH CONGRESS

FIRST SESSION

TED STEVENS, Alaska, *Chairman*

DANIEL K. INOUE, Hawaii, *Co-Chairman*

JOHN McCAIN, Arizona	JOHN D. ROCKEFELLER IV, West Virginia
CONRAD BURNS, Montana	JOHN F. KERRY, Massachusetts
TRENT LOTT, Mississippi	BYRON L. DORGAN, North Dakota
KAY BAILEY HUTCHISON, Texas	BARBARA BOXER, California
OLYMPIA J. SNOWE, Maine	BILL NELSON, Florida
GORDON H. SMITH, Oregon	MARIA CANTWELL, Washington
JOHN ENSIGN, Nevada	FRANK LAUTENBERG, New Jersey
GEORGE ALLEN, Virginia	E. BENJAMIN NELSON, Nebraska
JOHN E. SUNUNU, New Hampshire	MARK PRYOR, Arkansas
JIM DEMINT, South Carolina	
DAVID VITTER, Louisiana	

LISA SUTHERLAND, *Staff Director*

CHRISTINE DRAGER KURTH, *Deputy Staff Director*

DAVID RUSSELL, *Chief Counsel*

MARGARET CUMMISKY, *Democratic Staff Director and Chief Counsel*

SAMUEL WHITEHORN, *Democratic Deputy Staff Director and General Counsel*

Calendar No. 174

109TH CONGRESS }
1st Session }

SENATE

{ REPORT
{ 109-108

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT OF 2005

JULY 26, 2005.—Ordered to be printed

Mr. STEVENS, from the Committee on Commerce, Science, and
Transportation, submitted the following

REPORT

[To accompany S. 1281]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 1281) 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, having considered the same, reports favorably thereon with an amendment (in the nature of a substitute) and recommends that the bill (as amended) do pass.

PURPOSE OF THE BILL

The purpose of the bill is to authorize programs of the National Aeronautics and Space Administration (NASA) for fiscal year (FY) 2006 through FY 2010. The bill would provide a legislative and policy framework for national space exploration leadership in a manner that maintains important national investments and research capabilities and supports vital national interests in security, economic growth, commercial development, scientific excellence, and international cooperation.

BACKGROUND AND NEEDS

Throughout its history, NASA has provided U.S. leadership in science and engineering by undertaking missions which challenged the Nation's brightest minds and stimulated the highest degree of precision and technical excellence in the commercial and industrial sectors. In the recent past, these missions included robotic eyes and

ears that reach deep into the past of the Universe to rovers that roam planetary surfaces. These accomplishments include significant and scientifically valuable short-term, crewed missions to low-Earth orbit and the beginning of assembly and operations of the largest cooperative peacetime scientific endeavor ever undertaken, the International Space Station. NASA has also broken ground in research and applications relating to aeronautics, communications, transportation, Earth science, and basic research across a wide range of scientific and technical disciplines.

In the reassessment of the Nation's civil space programs following the loss of the space shuttle Columbia and her crew, it became clear that NASA not only needed important internal changes to enhance safety and program management, but a renewed sense of direction and purpose. On January 14, 2004, President George W. Bush articulated a series of long-term goals for NASA in the form of a new "Vision for Space Exploration." That Vision directed NASA to complete the International Space Station (ISS) in a manner which fulfills U.S. commitments to its international partners in that program, develop a replacement human-rated spaceflight vehicle to enable the retirement of the space shuttle orbiters, and to begin plans and technology development for crewed missions to the Moon and, eventually, to Mars.

The bill, S. 1281, would provide the authority and policy guidance that would enable NASA to carry out the goals of the Vision for Space Exploration in a manner that maximizes the use of the Nation's previous investments in civil space programs and the resulting wealth of expertise and proven technologies. From this foundation, the bill would authorize and enable the advancement of new technological development in the pursuit of the Nation's civil space policy and ensure that international and commercial collaboration is actively pursued in both developing and providing capabilities and services to support that policy. The bill would also ensure that an appropriate balance is maintained among NASA's important missions of exploration, space operations, aeronautics research, and science.

The Committee believes that a stable and gradually increasing funding profile for NASA and its programs is important in assuring the effective implementation of civil space policy. Therefore, the bill would authorize the appropriation of funds for NASA over a five-year period, coupled with the review of annual budget submissions to ensure consistency with the provisions of the bill.

SUMMARY OF PROVISIONS

S.1281 would direct NASA to implement a balanced and broad science program that extends human knowledge and understanding of the Earth, Sun, solar system, and the universe and biennially review and report to the Congress regarding its efforts to maintain a broad and balanced array of scientific activities.

The bill would direct NASA to plan a shuttle servicing mission to the Hubble Space Telescope after the successful completion of the first two shuttle missions following the Return to Flight, in order to maintain the Hubble's unique scientific value. With respect to Earth science research and applications, the bill would direct NASA to develop a comprehensive plan for ensuring the vitality of Earth observing systems, including the identification of new

approaches to providing systems and data analysis and enhancing collaboration among data users and providers.

U.S. preeminence and leadership in exploration and discovery beyond low-Earth orbit contributes to the Nation's security interests and is a stimulus to enhanced science and engineering education. S. 1281 would establish a permanent human presence on the Moon as a goal of the United States. It would identify the accomplishment of that goal as an important precursor to the eventual human exploration of Mars. To further the Moon-Mars objective, the bill would authorize and encourage international collaboration, as appropriate, and would provide a number of requirements to be incorporated into the development and implementation of plans to accomplish this mission. Among those requirements are the development of exploration technologies to support both human and robotic operations, the consideration of innovative governmental and commercial partnerships, the development of in-situ lunar resource utilization technologies, and the use of ground-based technology development and demonstrations in environments and under conditions analogous to lunar and Martian surface environments, to the extent practicable.

The Committee recognizes the imperative for a safe, affordable, and near-seamless transition from current space shuttle operations to new and diversified national transportation capabilities that can meet the requirements of supporting ISS operations, undertake renewed lunar exploration, and pursue the eventual exploration of Mars. The bill would express the intent of the Congress that there be no gap in the Nation's ability to transport humans into space and would provide authority for the development of new crew and cargo vehicles which build upon existing activities, capabilities, and assets of the shuttle program. It would also encourage and incorporate commercially-developed capabilities in establishing the next generation of space transportation systems.

NASA has begun assembly of the ISS. The Agency should complete that assembly in a manner that preserves the U.S. commitments to its international partners and enables the realization of the scientific and research potential of the ISS. In order to pursue the goal of exploring the Moon and eventually Mars, NASA should focus its research activities aboard the space station on those disciplines which most directly support long-term human exploration beyond low-Earth orbit. To ensure that the significant investment in space station development to date is preserved, NASA should use the space station's capabilities to support its exploration requirements without diminishing the broader range of scientific opportunities represented by a completed ISS. To accomplish this objective, the bill would designate the U.S. portion of the ISS as a National Laboratory facility. Pursuant to that designation, the bill would provide a process by which the scope and operations of that facility, along with ground-based supporting institutions, would be defined and structured. That process would include the identification of opportunities for increased non-NASA governmental, as well as commercial, participation in ISS research, scientific operations, and support. To ensure against the loss of important scientific expertise and capabilities intended for eventual application aboard the ISS, the bill would authorize additional funding to sustain those capabilities through the completion of ISS assembly. This will

also enable consideration of those capabilities in the process of identifying the eventual composition of space station-based research operations, as would be required by the bill.

The development of commercial, non-government space exploration capabilities holds the potential to enhance the full range of the Nation's space exploration and utilization activities. To encourage opportunities for commercial participation in exploration activities, the bill would direct NASA to develop a comprehensive plan defining those opportunities and the means by which they can be made available. In addition, the bill would authorize the use of competitive prize awards modeled, in part, on the Ansari X-Prize. The prize program would be administered to complement NASA's missions and goals. Up to \$100 million in prizes could be awarded in any fiscal year.

Aeronautics and aviation research needs a clear national policy for guiding the conduct and evolution of those capabilities. The bill would direct the development, through the Office of Science and Technology Policy, of a national aerospace policy that would define the United States' goals for aeronautics and aviation research and provide guidance for necessary investments in infrastructure and programs. The policy should establish a long-term business and management approach for upgrades to our Nation's air traffic management system and aeronautics capabilities.

The bill would require a number of administrative improvements that will further enable NASA to implement the goals and policies provided in the bill and perform its management functions. These improvements include an extension of NASA's authority to enter into indemnification and cross-waiver agreements with private sector parties willing to participate in high-risk space and aeronautics research and development efforts, clarification and simplification of law enforcement jurisdiction at NASA Centers, protection of astronauts' privacy in case of fatal accidents, stimulation of private sector participation in space research by authorizing NASA to provide, in advance, access to intellectual property developed in a cooperative agreement in exchange for commercial investment, a recognition of modern-day electronic commerce by authorizing a pilot test of expedited electronic business practices, and removal of several outdated reporting requirements.

LEGISLATIVE HISTORY

S. 1281 was introduced on June 21, 2005, by Senator Hutchison and is co-sponsored by Senators Nelson of Florida, Stevens, and Inouye. S. 1281 was referred to the Committee on Commerce, Science, and Transportation on June 21, 2005. The Committee's Science and Space Subcommittee held two hearings: a hearing on international space station research benefits, on Wednesday, April 20, 2005; and a hearing entitled "Human Space Flight: The Space Shuttle And Beyond," on Wednesday, May 18, 2005. Witnesses for both hearings included NASA officials, industry representatives, and professionals with relevant expertise.

On June 23, 2005, the Committee met in open Executive Session and, by a voice vote, ordered S. 1281 reported with an amendment proposed by Senator Stevens. The Stevens manager's amendment incorporated a number of suggestions raised by members of the Committee, as follows: (1) improving several provisions relating to

aeronautics by Senator Allen; (2) encouraging amateur astronomers by Senator Allen; (3) establishing a lifetime healthcare program for astronauts by Senator Nelson of Nebraska; (4) emphasizing ongoing science programs by Senator Sununu; (5) encouraging private sector participation in space programs, including the ISS, by Senator Ensign; (6) increasing the authorization for NASA's centennial challenge prize program by Senator Ensign; (7) requiring a GAO study on the exploration program by Senator Ensign; (8) encouraging NASA to use distance learning in rural areas by Senator Smith; (9) changing a report deadline by Senator Vitter; (10) including Hispanic-serving institutions, tribal colleges and universities, Alaska Native-serving institutions, and Native Hawaiian serving institutions in a program for small and disadvantaged businesses by Senators Stevens and Burns; (11) requiring NASA to share data with the Federal Aviation Administration and the Five Star Medallion Program by Senator Stevens; (12) authorizing research at the Poker Flat Rocket Range and the Kodiak Launch Complex by Senator Stevens; (13) requiring NASA to employ technologies to reduce orbital debris by Senator Nelson of Florida; (14) requiring NASA to continue investments in Space Grant, the experimental program to stimulate competitive research, and NASA explorer schools; and (15) making technical and clarifying changes. The Committee did not adopt an amendment by Senator Allen regarding aeronautics funding and an amendment by Senator Sununu regarding funding for the Earth-Sun system and the universe themes.

ESTIMATED COSTS

In compliance with subsection (a)(3) of paragraph 11 of rule XXVI of the Standing Rules of the Senate, the Committee states that, in its opinion, it is necessary to dispense with the requirements of paragraphs (1) and (2) of that subsection in order to expedite the business of the Senate.

REGULATORY IMPACT STATEMENT

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evaluation of the regulatory impact of the legislation, as reported:

NUMBER OF PERSONS COVERED

S. 1281, as reported, would authorize appropriations for NASA for FY 2006 through FY 2010. NASA conducts a number of scientific research and development activities concerning aeronautics, Earth science, space science, and space exploration and operations. The Committee believes the bill will not subject any individuals or businesses affected by the bill to any additional regulation.

ECONOMIC IMPACT

This legislation would not have an adverse impact on the Nation. The legislation would authorize sufficient levels to sustain ongoing and new awards, cooperative agreements, and contracts related to NASA's missions. A number of sections of the bill will enhance economic and educational outreach, licensing and applications, technology transfer, and commercial innovation and partnership opportunities.

PRIVACY

This legislation would not have a negative impact on personal privacy of individuals.

PAPERWORK

This legislation would not increase the paperwork requirement for private individuals or businesses. There are reports required of NASA. These reports are focused around specific critical areas of interest to the Committee and Nation, including commercialization plans, exploration architecture and cost study, transition plan for space shuttle and space transportation systems, and an ISS strategy and plan.

SECTION-BY-SECTION ANALYSIS

Section 1. Short title; table of contents.

Section 1 would entitle the Act as the "National Aeronautics and Space Administration Authorization Act of 2005."

Section 2. Findings.

Section 2 would identify key findings of the Congress concerning the history, the future, and the value of NASA programs and identify priorities for the future direction of the Nation's civil space activities. The findings reflect NASA's new direction, based on the Nation's exploration vision, while including important, on-going science and aeronautics programs.

Section 3. Definitions.

Section 3 would define key terms used in this Act.

TITLE I—AUTHORIZATION OF APPROPRIATIONS

SUBTITLE A—AUTHORIZATIONS

Sections 101 through 102. FYs 2006 through 2007.

These sections would authorize appropriations for FYs 2006 and 2007 as follows:

FIGURE 1—AUTHORIZATION LEVELS

(IN \$ MILLIONS)

Category	FY 2006	FY 2007
Science, Aeronautics, and Exploration	9,661.0	10,549.8
Exploration Capabilities	6,863.0	6,469.6
Inspector General	32.4	33.5
Total	16,556.3	17,052.9

In general, the Committee supports the President's budget request for NASA for fiscal year 2006. As noted previously, however, the Committee is concerned with the refocusing of ISS-based scientific research and the elimination or proposed reductions in funding levels of significant research initiatives in the FY 2005 Operating Plan and the proposed FY 2006 budget. Much of this research remains crucial to maintaining the ISS as the premier microgravity research facility it was intended to be. The Committee therefore has authorized an additional \$100 million in fiscal year 2006 for ISS science research as a means of preserving research capabilities that might otherwise be lost.

Sections 103 through 105. FYs 2008 through 2010.

These sections would authorize total appropriations for FYs 2008 through 2010 at a level that grows 3 percent each year from a baseline of the President's FY 2006 budget request, as adjusted in section 101 with the addition of \$100,000,000 for space station-related research.

NASA faces severe resource challenges in meeting its goals and missions. These challenges have been made more difficult by NASA's need to absorb within its annual budgets for the past two years the costs incurred as a result of the Columbia accident, both in preparing the space shuttle system for a return to flight and in maintaining essential operations and capacities during the intervening period. The Committee has, therefore, sought to provide flexibility for the NASA Administrator to apply resources as needed, while providing guidance in certain areas of specific interest and concern to the Committee. The Committee intends to review NASA's annual budget submissions in light of the policy direction contained in S. 1281 and propose additional changes in the law as appropriate. That review will also take into account the results of the reports and policy development in the area of aeronautics research and the projected balance of efforts among the major science disciplines, as provided in the bill.

International partnerships, commercial opportunities, and administrative and facilities management improvements, as provided for in the bill, can help enable NASA to maximize the use of its available resources.

Section 106. Evaluation criteria for budget request.

Section 106 would state the sense of the Congress that each budget request for NASA following enactment of the bill be reviewed against the provisions of the bill to ensure compliance with its provisions and to identify necessary subsequent amendments to the underlying legislation including authorized levels.

SUBTITLE B—GENERAL PROVISIONS

Section 131. Implementation of a science program that extends human knowledge and understanding of the Earth, sun, solar system, and the universe.

Section 131 requires NASA to complete a science plan and execute a balanced science program, including aeronautics and space and Earth science. This section also includes language that would require the Administrator to make a determination and develop a

schedule regarding the undertaking of a shuttle mission to service a unique national asset, the Hubble Space Telescope, after completion of the first two “return-to-flight” shuttle missions, unless such a mission would compromise astronaut safety or the integrity of NASA’s other missions. This section also would ensure that a significant portion of the amount expended for aeronautics is directed to the Vehicle Systems Program.

While the portion of NASA’s budget dedicated to science is projected to grow, the Universe and Sun-Earth system areas of the Space Science budget are facing potential decreases. Section 131 of the bill includes language that would require a determination regarding the potential acceleration of several of these missions to meet their original schedule.

Section 132. Biennial reports to Congress on science programs.

Section 132 would require submission of the science plan every two years. This report on science balance should address concerns about the Universe and Sun-Earth Systems programs, as well as plans for science activities on lunar precursor missions and on the lunar surface, and partnership opportunities identified from greater inter-agency, commercial and technology collaborations. Future reports will be used to help determine the adequacy of NASA’s efforts in these areas and whether further legislative direction is required.

Section 133. Status report on Hubble Space Telescope servicing mission.

Section 133 would require the submission within 60 days after the landing of the second space shuttle mission after enactment of a one-time status report on a Hubble Space Telescope servicing mission.

Section 134. Develop expanded permanent human presence beyond low-Earth orbit.

Section 134 would authorize the pursuit of the core program outlined in the “Vision for Space Exploration” articulated by President George W. Bush on January 14, 2004. That program envisions a permanent base on the Moon to be utilized for commercial, scientific and other purposes, and to serve as a precursor for exploration of other bodies such as Mars. This section would authorize NASA to seek appropriate international cooperation and participation in the accomplishment of these objectives, to develop the technologies to utilize lunar-based resources and materials to sustain lunar surface operations, and to support further exploration beyond low-Earth orbit. This section also would require a plan to be submitted with the annual budget requests for the Agency which would include a defined mission architecture, an outline of planned precursor mission activity, technology, and transportation requirements, commercial opportunities, and a cost assessment to support both low-Earth orbit operations and lunar exploration objectives.

The bill would endorse the expansion of human presence beyond low-Earth orbit, beginning with a focus on the exploration of the Moon and the establishment of a permanently inhabited base on the lunar surface to support a range of national, commercial, and scientific purposes. Maintaining a leadership role in exploration

and utilization of space beyond low-Earth orbit is consistent with the character and heritage of the nation and lunar exploration is increasingly relevant to the nation's economic and national security interests. As greater interest is expressed within a growing community of space faring nations in lunar exploration, these considerations underscore the importance of seeking international cooperation and collaboration in the development and implementation of lunar exploration activities. The successful pursuit and accomplishment of the objectives identified in this section will ensure U.S. leadership in space exploration and development as other nations, commercial interests, and individuals continue to develop the means to move beyond Earth's bounds.

In-situ resource utilization could play a critical role in enabling human exploration and eventual settlement beyond Earth. The use of space-based resources could reduce dependency on launch and space transportation systems and ensure greater operational independence for distant operations, whether temporary or permanent. The development of technologies to locate, process, and utilize in-situ resources also offers significant potential for both Earth-based commercial development in activities such as materials processing and energy and food production. In addition, the ability to develop, test and operate in-situ resource capabilities in the lunar environment is essential to enable future human exploration beyond the Moon. NASA should develop these capabilities, as well as any appropriate policy and legal framework to enable their use.

Section 135. Ground based analog capabilities.

Section 135 would require NASA to evaluate and test the systems and operating principles necessary for utilizing the natural resources known to exist on the lunar surface. These capabilities would be tested in remote U.S. locations offering similar, or analogous, environments to those in which they would be expected to operate. This section would also require the maximum level of participation by local populations and the use of cooperative educational and industrial partnerships in the identification, establishment and operation of the analog sites and related facilities.

Such testing and verification are essential in the development of capabilities crucial to lunar exploration and the establishment of a sustained lunar presence. These technologies offer significant potential for broad commercial participation in both the development of in-situ processing capabilities and in applying the proven technologies to a variety of commercial and other activities on Earth.

Section 136. Space launch and transportation transition, capabilities, and development.

Section 136 would require the development, within 120 days of the enactment of the bill, of a plan to transition to the next generation of capabilities for launching crew and cargo into space. This section would require that the plan should incorporate the use of existing assets of the space shuttle program to the maximum possible extent. This section would direct the development of autonomous rendezvous and docking capabilities to enable crew and cargo vehicles to dock with the International Space Station.

While the Committee has immediate concerns about the continued capability to support operations and research activity aboard

the International Space Station, it is expected the plan required by this section must include consideration of the full range of required space transportation capabilities, including those needed for human exploration, development, and permanent settlement of the Moon.

Section 137. National policy for aeronautics research and development.

Section 137 would call for the President, acting through the Director of the Office of Science and Technology Policy, to develop a national aeronautics research and development policy to guide the full range of government-supported aeronautics research. The section would require that the policy be developed in consultation with NASA and other relevant Federal agencies. It also would make use of external or non-government studies which have suggested policies and actions to support the nation's ability to successfully participate in the global aerospace industry and market, such as the National Institute of Aeronautics study titled "Responding to the Call: Aviation Plan for American Leadership." This policy would be submitted to Congress within one year.

It is essential to ensure the nation's ability to remain competitive in the global aerospace marketplace. Despite challenges from abroad, the United States lacks a clear aeronautics policy that defines the roles, goals and objectives of government in research, development, technical advancement, and enhancement of the nation's aerospace industry. The policy would be formulated at the Presidential level, through the Director of the Office of Science and Technology Policy and include consultation not only with NASA but with other relevant Federal agencies, including the Departments of Transportation, Defense, and Commerce.

The policy would recognize current efforts within NASA to address aeronautical research and development requirements on a cooperative and multi-agency basis, such as those undertaken by the Joint Planning Development Office (JPDO) for aeronautics and cooperative research and those within the Vehicle Systems Program.

Meeting the growing demand for air travel while simultaneously improving aviation safety and security requires a complete transformation of air traffic management by the Federal Aviation Administration (FAA). Over the next 20 years, air traffic demand in the United States will more than double. For this growth to be safely, securely, and efficiently accommodated, transformation to an operational environment with responsibilities appropriately distributed between air and ground, supported by a network centric system architecture is necessary. The JPDO is tasked to create and implement a national approach for a Next Generation Air Transportation System (NGATS) and ensure that this transformation occurs in a timely fashion. The commitment of funding and the active leadership by senior officials at NASA and the Departments of Defense, Transportation, Homeland Security, and Commerce, are critical to the success of the JPDO initiative and must be made a high priority by all the departments and agencies. The Committee believes that a higher level of focus and integration of NASA's research plan with the JPDO initiative is needed and full industry participation is essential. Moreover, the Committee wants to accelerate the transition to NGATS.

Once established, the aeronautics policy should guide aerospace research and development priorities and enable the Administration and the Congress to make informed judgments about the resource requirements for aerospace research and development. The Committee is aware of concerns that current funding and programmatic decisions within NASA affecting aerospace research and development activities and programs may adversely affect the nation's competitive posture in this important sector of trade and economic development. It is the Committee's view that such concerns can only be fairly assessed and addressed in the context of a comprehensive policy such as that required by the provisions of the bill. The policy should examine mechanisms that could create innovative management and funding strategies.

The Committee directs NASA to (1) engage industry to collaborate with the JPDO in identifying and integrating existing and emerging capabilities into the design and development of the NGATS operational concept and supporting architecture; (2) partner with industry in pilot projects to mitigate the financial and operational risk associated with system transformation; and (3) deliver a report to the Committee on the status of these activities and how the aeronautics and relevant atmospheric science and space technology research budgets align with the JPDO and the NGATS vision.

Section 138. Identification of unique NASA core aeronautics research.

Section 138 would require the NASA Administrator to provide an assessment of NASA's aeronautics capabilities in support of new aeronautic and space vehicles and the unique capabilities that must be retained to further space exploration and support U.S. economic competitiveness.

Section 138 would require the development of an assessment of those current and potential capabilities within 180 days of the enactment of the bill. Such an assessment would make an important contribution to the development of the policy that would be required in section 137, as well as provide essential information to evaluate the Agency's aeronautical research requirements.

The expansion of private sector commercial interest and activity in both atmospheric and sub-orbital flight provides the potential for mutually beneficial relationships in pursuit of aeronautical research and development between the public and private sector. The assessment that would be required by section 138 should include a thorough review of the role that NASA's Aeronautics Research program, personnel, and capabilities could play in accelerating and broadening the emergence of the U.S. suborbital reusable launch vehicle industry to serve scientific, economic, and national security interests. The Administrator shall, as appropriate, consult with other Federal agencies which may have a regulatory, promotional, research and development, or utilization stake in the future of this industry, in conducting this assessment.

Section 139. Lessons learned and best practices.

Section 139 would require the Administrator to provide a plan, within 180 days after enactment of the bill, describing the means by which NASA will obtain, implement, and share lessons learned

and best practices within its major programs and projects. The section includes specifications for the implementation plan and provides for the definition of incentives to encourage the use of lessons learned and program penalties for the failure to do so. This section provides a legislative basis for ensuring that the burgeoning culture of learning and safety emerging at NASA as a result of the Columbia accident is retained and continues to be ingrained into the management structure of the Agency.

Section 140. Safety management.

Section 140 would amend the Aerospace Safety Advisory Panel charter to direct the Panel to evaluate NASA's compliance with ongoing return-to-flight and continue-to-fly recommendations from the Columbia Accident Investigation Board. The Panel was legislatively established in the wake of the Apollo One fire to be an independent safety watchdog. This section affirms the Panel's important and ongoing role in assuring the highest level of safety in NASA's operations.

Section 141. Creation of a budget structure that aids effective oversight and management.

Section 141 would ensure that NASA identifies major program areas within its annual budget submissions beginning with FY 2007 and that it consistently maintains that budget structure in future years to facilitate congressional oversight and budget management. The Committee has been frustrated by continually changing budget structures that have hampered the comparison of programs from year to year.

Section 142. Earth observing system.

Section 142 would ensure the long-term vitality of the Earth Observing System by requiring the Administrator, in consultation with the National Oceanic and Atmospheric Administration and the United States Geological Survey, to submit a plan within 6 months after enactment of the bill that addresses budget projections, technical requirements, delayed or canceled NASA missions, plans for any transfers of requirements to National Polar-orbiting Environmental Satellite System (NPOESS), and the technical basis for exploratory Earth observation systems, including new satellite architectures and instruments.

Section 142 reflects the Committee's concerns about the potential impact of evolving funding priorities on specific science data collection activities. The section would address specific concerns with the Earth Observing System, one of NASA's most successful Earth science programs. Such a plan is essential to inform future decisions regarding resource allocations within this important research and data collection activity.

Section 143. NASA healthcare program.

Section 143 would direct the Administrator to take the necessary steps to establish a lifetime healthcare program for NASA astronauts and their families that enables the collection and study of healthcare data to further understanding of the long-term health effects of space flight on humans.

Section 144. Assessment of extension of data collection from Ulysses and Voyager spacecraft.

Section 144 would direct the Administrator to assess the costs and benefits of extending the termination of data collection from the Ulysses and Voyager spacecrafts and submit a report to Congress.

Section 145. Program to expand distance learning in rural underserved areas.

Section 145 would expand distance learning in rural, underserved areas by directing the Administrator to develop or expand programs to extend science and space educational outreach to rural communities and schools through “distance learning”—video conferencing, exhibits, teacher education, classroom presentations, and field trips—giving priority to existing programs such as the Challenger Learning Centers. One excellent model for community involvement in science education is the “Women in Technology” program on the Island of Maui, Hawaii, and the Committee would hope that NASA considers such programs as it moves forward in distance learning programs.

Section 146. Institutions in NASA’s minority institutions program.

Section 146 would add Hispanic-serving institutions, Tribal Colleges or Universities, Alaska Native-serving institutions, and Native Hawaiian-serving institutions to the list of institutions, including historically Black colleges and universities, for consideration in NASA’s small and disadvantaged business prime and subcontract award goals.

Section 147. Aviation safety program.

Section 147 would improve aviation safety by requiring the Administrator to make satellite imagery of remote terrain available to the FAA and the Five Star Medallion Program for their programs to assist and train pilots in navigating challenging terrains.

Section 148. Atmospheric, geophysical, and rocket research authorization.

Section 148 would authorize the appropriation of \$1,000,000 in each of FYs 2006 through 2010 for the Poker Flat Rocket Range and the Kodiak Launch Facility.

Section 149. Orbital debris.

Section 149 would direct the Administrator, in conjunction with heads of other agencies, to develop or acquire technologies to reduce the risks of orbital debris.

Section 150. Continuation of certain educational programs.

Section 150 would direct the Administrator to ensure the continuation of the Space Grant College Program, the Experimental Program to Stimulate Competitive Research (EPSCoR), and NASA Explorer Schools. These programs help bring NASA research to States and communities that do not have a NASA center and are vital to educating and inspiring the next generation of U.S. scientists and engineers.

Section 151. Establishment of the Charles “Pete” Conrad Astronomy Awards Program.

Section 151 would authorize the establishment of an award program, named in honor of former astronaut Pete Conrad, recognizing amateur astronomers involved in the search for near-Earth objects. The annual awards would be in the amount of \$3000 and would be limited to U.S. citizens or permanent residents.

Governmental efforts to identify and catalogue near-Earth objects are addressed elsewhere in this bill. However, many amateur astronomers identify and track near-Earth objects. This program offers an opportunity to recognize them and provide an incentive for their continued efforts, which augment the Government’s program.

Section 152. GAO assessment of feasibility of Moon and Mars exploration missions.

Section 152 would require the Comptroller General, within nine months of enactment of the bill, to submit an assessment of the long-term cost implications of NASA’s Moon and Mars exploration programs, including architecture and schedule.

The Committee recognizes the difficulty of developing a single, firm cost estimate of programs that are designed to evolve over time as new technologies come on line. These additional capabilities, coupled with commercial and international participation, will require NASA to adjust its funding and planning for a program of exploration expected to continue into the future. The assessment that would be required by section 152 should be focused on an evaluation of the methodology utilized by NASA in developing the funding projections that accompany program definitions as a component of annual budget submissions. This assessment should address the methods by which NASA’s program progress evaluations can be utilized to minimize the danger of making long-term funding commitments to high-risk program development activities, including options for conducting such assessments over the life of Moon and Mars Exploration programs.

SUBTITLE C—LIMITATIONS AND SPECIAL AUTHORITY

Section 161. Official representational fund.

Section 161 would authorize the use of up to \$70,000 for official reception and representation expenses.

Section 162. Facilities management.

Section 162 would allow NASA to retain the proceeds from the sale of real and personal property and expand NASA’s ability to implement enhanced use lease authority beyond the current two center pilot projects. Section 162 also would require NASA to provide authorizing committees with the same reprogramming notifications that it provides to the Committees on Appropriations.

Currently, real property declared as “excess” can only be divested through public sale. The proceeds of any such sale are sent to General Receipts, U.S. Treasury. Section 162 would provide that the proceeds remain with NASA and be available to be reinvested in NASA. This would facilitate several objectives: (1) provide incentive to the NASA Centers to declare real property as excess and proceed

with disposal; (2) encourage the Centers to consolidate functions and offices therefore freeing land and buildings for excessing; (3) enable such consolidations by using sale proceeds to relocate facilities and personnel; and (4) improve the condition of NASA physical plants by allowing sale proceeds to augment available maintenance and repair funding. NASA would be directed to develop a facilities investment plan that would guide the use of this authority, consistent with the Agency's mission.

TITLE II—INTERNATIONAL SPACE STATION

Section 201. International Space Station certification.

Section 201 would require that the ISS be completed, fulfilling international partner agreements and providing for research in diverse disciplines. It would ensure that there be a contingency plan to address Station servicing needs during any potential hiatus in U.S. capability to transport humans and cargo into space, and would require that the Administrator report such plan to the Congress within 60 days of enactment of the bill and before making any change in the ISS assembly sequence that is in effect on the date of enactment. Section 201 also would direct the Administrator to provide Congress with an assessment of the impacts of the Columbia accident and full cost accounting on the development cost of the ISS, and any needed changes to the ISS cost limitations contained in the NASA Authorization Act of 2000.

The Committee views the fulfillment of U.S. commitments to and agreements with its partners in the International Space Station program as essential to the long-term interests of the United States. Failure to fulfill these commitments could undermine future efforts to secure international cooperation in exploration activities. These commitments involve more than completion of space station assembly, but also utilization, operational support, and resupply. The Committee is well aware of the nation's extensive investment in space station development and the many challenges and debates regarding the space station. The ISS has been supported by the Congress in large part due to its promise and potential as a unique international laboratory facility capable of hosting a wide range of scientific research that can only be undertaken in a microgravity environment. As the ISS approaches the completion of its assembly, that research potential must be preserved. Title II of this bill is intended to meet that objective. The Committee understands that sufficient crew time is required to monitor and conduct research activities. As a result, the Committee believes that at least 6 crew members are required to enable the most effective utilization of the planned ISS laboratory facilities. Section 201 would require that the final ISS configuration include the capability to support at least that number of crew. The Committee does not intend to establish the minimum level of crew that must be aboard ISS at any given time. Rather, it intends that the ISS must have the life-support, accommodations, logistics, and other critical capabilities to support a 6-person crew.

In addition to sufficient crew time, the effective utilization of the ISS requires the availability of supplies, equipment, replacement parts, and other necessary items and materials. Section 201 would ensure such availability by directing that the ISS be capable of

docking with a wide range of crew transport and cargo handling vehicles. Further, this section would require the development of contingency options to ensure that ISS crew and operations can be adequately sustained during any hiatus between the availability of the space shuttle and the follow-on or replacement vehicles capable of transporting crew and cargo to and from the Station. This provision would also apply to any interruption in launch system availability that would affect ISS operations.

The Committee is aware that discussions among the ISS international partners may result in proposed modifications to the ISS assembly sequence. Section 201 would require that NASA notify the Congress, within sixty days of the enactment of the bill, and prior to making any change in the current assembly sequence, of the plans to comply with the requirements that would be imposed by this section.

The Committee is aware that the accumulated cost associated with ISS development is approaching the cost limitation imposed by the Congress in section 202 of the NASA Authorization Act of 2000 (Public Law 106-381) and that the Administration has requested relief from the provisions of that limitation. The Committee continues to support the need to monitor and limit total ISS development cost. However, the Committee understands that the existing statutory requirement could not have taken into account the unexpected additional expenditures in areas covered by the cost limitation caused by the Columbia accident and the resulting suspension of ISS assembly activity. In addition, the current cost limitation was developed before NASA's implementation of full cost-accounting. It is now difficult to define ISS development costs in the manner envisioned by the cost limitation. The Committee believes the calculations of total ISS development costs should take these circumstances into account in assessing compliance with the statutory requirement. Section 201 would direct NASA to prepare and submit to the Congress, within 6 months of enactment of the bill, materials that describe the cost impact of these circumstances, and to recommend any statutory changes needed in the underlying Act to address those impacts. It is the Committee's intent that no sanction be imposed under the terms of the cost limitation until this assessment is complete.

Section 202. Research on the International Space Station.

Section 202 would describe the variety of scientific research to be conducted on ISS and the ground-based research needed to ensure that Station research is of the highest quality. It would require that the Administrator evaluate other scientific uses for ISS, including use as a test bed and that, subsequent to the completion of ISS assembly, steps be taken toward the transition of ISS research management to a public-private partnership as described in section 203. This section would require the submission of a comprehensive ISS research plan within one year of the date of enactment of the bill.

A primary justification for the nation's investment in ISS is the scientific and research potential it represents. Section 202 would reaffirm that view and provide guidance regarding the scope of the research activity to be conducted aboard the space station, including consideration of ground-based supporting and precursor re-

search and the essential technical and scientific expertise associated with the planned research. Section 202 would specify examples of the research disciplines that should be considered in developing long-range research plans for ISS. While those examples are not intended to represent a required array of science disciplines, the Committee expects that they be carefully reviewed for their potential contributions to a broad range of ISS science capabilities that is planned on the basis of scientific value and potential rather than fall victim to an arbitrary budget-driven exercise. The eventual availability of supporting resources for science disciplines not directly associated with supporting the requirements of the Vision for Exploration cannot yet be determined, but important research capabilities should not be precluded from eventual application aboard the ISS as a result of near-term decisions based on cost or budget considerations. In order to address this concern, section 101(2) of the bill would authorize and require that \$100,000,000 be made available in FY 2006 to provide continuing interim ground-based support for ISS research capabilities identified by NASA as not essential for exploration requirements.

The Committee recognizes that potential constraints on the ability to return research-related payloads to Earth for analysis on a timely basis represents a potential for degradation of ISS research capacity. Section 202 of the bill would address this concern by directing the establishment and maintenance of on-orbit analytical capabilities aboard the ISS.

Section 203. National laboratory status for the International Space Station.

Section 203 would designate the U.S. segment of the ISS as a national laboratory facility and would require the Administrator to outline the operations and functions of the space station national laboratory activities in a report to be provided within one year of the date of enactment of the bill.

The new direction embodied in the Vision for Exploration, in which NASA must focus its planning and program development beyond low-Earth orbit, places significant pressure on the completion of space station assembly and its outfitting for operations and research. While limited resources and new mission requirements place constraints on the research capabilities that NASA can support aboard the ISS, it is the Committee's view that the means must be found to preserve the broadest possible research potential for the ISS. Section 203 of the bill would provide such a means by designating the U.S. segment of the ISS as a National Laboratory facility. Such designation underscores the significance and importance placed on the scientific and research potential of the ISS.

The section would further require that the NASA Administrator develop a plan, to be submitted within one year of the date of enactment of the bill, that would specify the content and operations of the ISS National Laboratory facility and the structure, management, and operations of a ground-based National Laboratory. This lab would operate within the NASA structure as a cooperative undertaking, with government and non-government participants, and would assume responsibility for management and operations of the research aboard the facility. The implementation plan should include an assessment of the potential application of institutional ar-

rangements used by other major governmental research and development facilities and complex, technology-dependent public infrastructure systems, including transportation authorities.

Following the submission of the required report, NASA may require specific enabling legislation authorizing the establishment of the ISS National Laboratory and authorizing it to receive and utilize funding and other support from non-NASA governmental entities and from appropriate non-governmental sources.

Successful implementation of the requirements of this section could provide the means of ensuring the broadest possible use of the ISS for scientific research, while enabling NASA to focus its ISS-supported research on meeting the requirements of the Vision for Exploration.

Section 204. Commercial support of International Space Station operations and utilization.

Section 204 would encourage the Administrator to utilize commercial providers, where possible, in supplying and enhancing the capabilities of the Station.

Regular and reliable access to the ISS is essential to establishing the ISS's viability as a National Laboratory. Possible cargo resupply capabilities for the ISS are emerging and NASA is encouraged to competitively purchase services on a fixed-price, commercial-terms basis, from providers as soon as possible. The Administrator's stated preference for open architectures can allow for new commercial entrants to be rewarded by successful development of new space transportation capabilities, including crew as well as cargo systems.

NASA is encouraged to continue its use of innovative contracting and partnership approaches for supporting development of alternative Earth to Orbit crew transfer capabilities, which may provide additional reliability for maintenance of support for the ISS and, potentially, future human exploration operations between low-Earth orbit and the Moon.

Section 205. Use of the International Space Station and annual report.

Section 205 would establish a policy of broad utilization of the International Space Station and would require an annual report detailing its uses.

TITLE III—NATIONAL SPACE TRANSPORTATION POLICY

Section 301. United States human-rated launch capacity assessment.

Section 301 would require the Administrator to provide an analysis of and transition plans for NASA's space transportation requirements, including the manner in which the plans meet the requirements under section 136 of the bill, any impacts to the industrial base, the plan's contribution to a national mixed-use fleet, plans for transition, support for the space station, development risks, costs, and schedule.

Section 302. Space shuttle transition.

Section 302 would prohibit the NASA Administrator from retiring the space shuttle orbiter until a replacement human-rated spacecraft system has demonstrated it can take humans into Earth orbit and return them safely. The Administrator would be prohibited from terminating any contracts or replacing any vendors until delivery of the transition plan required by this section.

The Committee views with great concern the possibility that the arbitrary retirement of the space shuttle orbiter on a date certain, without proven alternative crew and cargo launch capabilities in operation, would place the United States at a serious disadvantage in maintaining its leadership in human space exploration and would have a potentially negative impact on national security. Section 302 would resolve this concern by requiring that such systems be in place before the orbiter fleet is fully retired. The section does not require any number of flights by the orbiter. Rather, it requires that the orbiter be capable of flight.

The Committee notes with approval the efforts being undertaken by NASA to close or narrow this potential gap in U.S. launch capability, and awaits the results of the Exploration Systems Architecture Study.

The Committee further acknowledges the challenges inherent in accelerating development of replacement capabilities, especially in the context of limited resources. The Committee will review the final definition of efforts to address the potential gap in U.S. crew and cargo launch capability, and is prepared to consider modifications of this section of the bill either by amendment during further consideration of the bill by the Congress or by subsequent legislative enactment.

Section 303. Commercial launch vehicles.

Section 303 would express the sense of the Congress that NASA should employ commercial launch vehicles where appropriate.

Section 304. Secondary payload capacity.

Section 304 would require that NASA develop a secondary capacity for carrying payloads such as small scientific satellites and free flyers. This section does not refer to the development of new launch vehicles. Rather, it seeks to address the diversity of opportunities and the wait time for new instruments and experiments that could be shortened through the use of innovative secondary payload capacity.

TITLE IV—ENABLING COMMERCIAL ACTIVITY

Section 401. Commercialization plan.

Section 401 would require the Administrator, in consultation with the Associate Administrator for Commercial Space Transportation of the Federal Aviation Administration and the Director of the Office of Space Commercialization of the Department of Commerce, to submit to Congress a commercialization plan that identifies opportunities for the private sector to participate in the human missions to low-Earth orbit, Moon and Mars, and Earth science missions and applications. The plan would be required to be sub-

mitted to the Senate Committee on Commerce, Science, and Transportation and the House Committee on Science.

Section 402. Authority for competitive prize program to encourage development of advanced space and aeronautical technologies.

Section 402 would amend the Space Act to authorize NASA to carry out a program to award prizes to stimulate innovation in basic, advanced, and applied research; technology development; and prototype demonstrations that have the potential to improve the performance of the aeronautical and space activities of NASA. The total amount of cash prizes awarded in a fiscal year may not exceed \$100,000,000. No prize competition may result in the award of more than \$1,000,000 in cash prizes without the approval of the Administrator or his designee.

Awarding prizes up to \$100 million in any fiscal year is intended to help the Agency meet technology challenges, particularly in exploration. By specifying only the goal but not the exact procedure, the Committee expects these prizes to attract a broad spectrum of ideas and participants, including non-traditional sources of innovation that contribute to greater diversity in engineering approaches. NASA would be able to leverage the technical resources of all the participants, with each participating team bringing new and different technical resources and knowledge to apply to the problem. Such innovation may result in novel or low-cost solutions to NASA's engineering problems.

Competitive prizes have been used successfully in the past to support the development of advanced technologies and have been endorsed by the National Academy of Engineering. Most historical examples show that the total money spent in pursuit of a prize far exceeds the value of the prize. After 1900, and during the interwar years, prizes catalyzed development of new aircraft technologies and demonstration of new aircraft capabilities (including Charles Lindbergh's transatlantic flight). Newspapers, the U.S. Postal Service, the Department of Defense, and major airlines have sponsored these prizes. Recent prize programs include the Ansari X-Prize, a privately funded launch vehicle competition that attracted 25 competing teams that made investments totaling several times the \$10 million value of the prize. Prize programs demonstrate how a NASA program could multiply a return on its investment. The above examples also demonstrate how prizes can draw substantial media attention and public interest to the technical field, competitors, and the prize sponsors. At NASA, a prize program could encourage unexplored technology pathways to meet mission objectives and requirements, promote science and technology education and increase public interest in NASA's programs. Nonetheless, NASA's use of this authority should be guided by its space architecture and mission needs.

Section 403. Commercial goods and services.

Section 403 would express the Sense of the Congress that NASA should purchase commercially available space goods and services to the fullest extent feasible in support of its activities, encourage commercial use and development of space, and utilize space goods and services that are under development by the private sector.

TITLE V—MISCELLANEOUS ADMINISTRATIVE IMPROVEMENTS

Section 501. Extension of indemnification authority.

This provision would amend section 309 of the Space Act to extend its authority by two years. Section 309 authorizes NASA to enter into agreements to indemnify developers and operators of experimental space vehicles for liability for damages to third parties in excess of required insurance and to pursue cooperative agreements containing cross-waivers of liability with cooperating parties. This authority, modeled on the Commercial Space Launch Act, currently expires on September 30, 2005.

Section 502. Intellectual property provisions.

Section 502 would amend the Space Act by adding a new subsection (g) to section 305, which would provide NASA with the authority to license or assign title to inventions made by a NASA employee to organizations that are participants in agreements entered into pursuant to section 203(c)(5) and (c)(6) of the Space Act (including what are known as Space Act Agreements). This authority will conform NASA's authority under the Space Act with authority already provided to other agencies under the Stevenson-Wydler Technology Innovation Act of 1980, as amended by the Federal Technology Transfer Act of 1986, for the use of Cooperative Research and Development Agreements (CRADAs).

Section 503. Retrocession of jurisdiction.

Section 503 would provide the Administrator authority to relinquish the legislative jurisdiction of the United States over lands or interests under the Administrator's control to the State within which the lands or interests are located. This authority is similar to that held by other executive branch agencies, and would in no way prejudice NASA ownership of the property.

Section 504. Recovery and disposition authority.

Section 504 would protect the privacy of astronauts and their families and enhance NASA's ability to conduct thorough investigations of accidents involving NASA human space flight vehicles by authorizing the Administrator to take control over the remains of any crew members and order autopsies and other scientific or medical tests when there is an accident or mishap resulting in the death of a crew member of a NASA human space flight vehicle.

Section 505. Requirement for independent cost analysis.

This section would: (1) amend section 301 of the NASA Authorization Act of 2000, Public Law No. 106-391, to replace the term "Phase B of a project" with "implementation of a project" and to include a definition of implementation in order to make the statutory language consistent with terminology currently used by NASA in describing the various stages of program or project development; (2) reside the responsibility for this activity with the Administrator, rather than the Chief Financial Officer; (3) require that the Administrator also consider the analysis before obligating funds for project implementation; and (4) include a definition of independent life cycle cost analysis in order to avoid confusion regarding who may conduct the analysis in satisfaction of the statute.

Section 506. Electronic access to business opportunities.

This section would enable NASA to test how best to utilize the economies available through the use of electronic commerce. Specifically, it would allow NASA to conduct a pilot program under which it would reduce the amount of time currently required between the publication of notice of a contract action and the release of the solicitation.

Section 507. Reports elimination.

Section 507 would repeal several reporting requirements that have been rendered superfluous or unnecessary by events or completion of the underlying objective.

ROLLCALL VOTES IN COMMITTEE

In accordance with paragraph 7(c) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following description of the record votes during its consideration of S. 1281:

Senator Allen offered an amendment to direct a minimum level of funding of \$919 million into aeronautical research and development. By roll call vote of 9 yeas and 13 nays as follows, the amendment was defeated:

YEAS—9	NAYS—13
Mr. Ensign ¹	Mr. Stevens
Mr. Allen	Mr. McCain ¹
Ms. Sununu	Mr. Burns ¹
Mr. DeMint	Mr. Lott
Mr. Rockefeller	Mrs. Hutchison
Mr. Kerry	Ms. Snowe
Mrs. Boxer	Mr. Smith
Mr. Lautenberg	Mr. Vitter
Mr. Pryor	Mr. Inouye
	Mr. Dorgan
	Mr. Nelson of Florida
	Ms. Cantwell
	Mr. Nelson of Nebraska

¹By proxy

Senator Sununu offered an amendment to authorize \$2.2 billion for solar terrestrial probes and \$1.5 billion for planetary exploration. By roll call vote of 9 yeas and 13 nays as follows, the amendment was defeated:

YEAS—9	NAYS—13
Mr. Ensign ¹	Mr. Stevens
Mr. Allen	Mr. McCain ¹
Ms. Sununu	Mr. Burns ¹
Mr. DeMint ¹	Mr. Lott ¹
Mr. Rockefeller ¹	Mrs. Hutchison
Mr. Kerry ¹	Ms. Snowe
Mr. Dorgan ¹	Mr. Smith
Mrs. Boxer ¹	Mr. Vitter ¹
Mr. Lautenberg	Mr. Inouye
	Mr. Nelson of Florida

Ms. Cantwell
Mr. Nelson of Nebraska¹
Mr. Pryor

¹By proxy

By a roll call vote of 22 yeas and 0 nays as follows, the bill was ordered reported:

YEAS—22

NAYS—0

Mr. Stevens
Mr. McCain¹
Mr. Burns
Mr. Lott
Mrs. Hutchison
Ms. Snowe
Mr. Smith
Mr. Ensign¹
Mr. Allen
Mr. Sununu
Mr. DeMint¹
Mr. Vitter¹
Mr. Inouye
Mr. Rockefeller¹
Mr. Kerry¹
Mr. Dorgan¹
Mrs. Boxer¹
Mr. Nelson of Florida
Ms. Cantwell
Mr. Lautenberg
Mr. Nelson of Nebraska
Mr. Pryor

¹By proxy

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new material is printed in italic, existing law in which no change is proposed is shown in roman):

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
ACT OF 1958

TITLE III—NATIONAL SPACE PROGRAM

SEC. 301. INDEPENDENT LIFE-CYCLE COST ANALYSIS.

[42 U.S.C. 2459g]

(a) REQUIREMENT.—Before any funds may be obligated for **【Phase B】** *implementation* of a project that is projected to cost more than \$150,000,000 in total project costs, the **【Chief Financial Officer】** *Administrator* for the National Aeronautics and Space Administration shall conduct *and consider* an independent life-cycle cost analysis of such project and shall report the results to Congress. In developing cost accounting and reporting standards for carrying out this section, the **【Chief Financial Officer】** *Administrator* shall, to the extent practicable and consistent with other laws, solicit the advice of expertise outside of the National Aeronautics and Space Administration.

【(b) DEFINITION.—For purposes of this section, the term “Phase B” means the latter stages of project formulation, during which the final definition of a project is carried out and before project implementation (which includes the Design, Development, and Operations Phases) begins.**】**

(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. 305. PROPERTY RIGHTS IN INVENTIONS.

[42 U.S.C. 2457]

(a) EXCLUSIVE PROPERTY OF UNITED STATES; ISSUANCE OF PATENT.—Whenever any invention is made in the performance of any work under any contract of the Administration, and the Administrator determines that—

(1) the person who made the invention was employed or assigned to perform research, development, or exploration work

and the invention is related to the work he was employed or assigned to perform, or that it was within the scope of his employment duties, whether or not it was made during working hours, or with a contribution by the Government of the use of Government facilities, equipment, materials, allocated funds, information proprietary to the Government, or services of Government employees during working hours; or

(2) the person who made the invention was not employed or assigned to perform research, development, or exploration work, but the invention is nevertheless related to the contract, or to the work or duties he was employed or assigned to perform, and was made during working hours, or with a contribution from the Government of the sort referred to in clause (1), such invention shall be the exclusive property of the United States, and if such invention is patentable a patent therefor shall be issued to the United States upon application made by the Administrator, unless the Administrator waives all or any part of the rights of the United States to such invention in conformity with the provisions of subsection (f) of this section.

(b) CONTRACT PROVISIONS FOR FURNISHING REPORTS OF INVENTIONS, DISCOVERIES, IMPROVEMENTS, OR INNOVATIONS.—Each contract entered into by the Administrator with any party for the performance of any work shall contain effective provisions under which such party shall furnish promptly to the Administrator a written report containing full and complete technical information concerning any invention, discovery, improvement, or innovation which may be made in the performance of any such work.

(c) PATENT APPLICATION.—No patent may be issued to any applicant other than the Administrator for any invention which appears to the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office (hereafter in this section referred to as the “Director”) to have significant utility in the conduct of aeronautical and space activities unless the applicant files with the Director, with the application or within thirty days after request therefor by the Director, a written statement executed under oath setting forth the full facts concerning the circumstances under which such invention was made and stating the relationship (if any) of such invention to the performance of any work under any contract of the Administration. Copies of each such statement and the application to which it relates shall be transmitted forthwith by the Director to the Administrator.

(d) ISSUANCE OF PATENT TO APPLICANT; REQUEST BY ADMINISTRATOR; NOTICE; HEARING; DETERMINATION; REVIEW.—Upon any application as to which any such statement has been transmitted to the Administrator, the Director may, if the invention is patentable, issue a patent to the applicant unless the Administrator, within ninety days after receipt of such application and statement, requests that such patent be issued to him on behalf of the United States. If, within such time, the Administrator files such a request with the Director, the Director shall transmit notice thereof to the applicant, and shall issue such patent to the Administrator unless the applicant within thirty days after receipt of such notice requests a hearing before the Board of Patent Appeals and Inter-

ferences on the question whether the Administrator is entitled under this section to receive such patent. The Board may hear and determine, in accordance with rules and procedures established for interference cases, the question so presented, and its determination shall be subject to appeal by the applicant or by the Administrator to the United States Court of Appeals for the Federal Circuit in accordance with procedures governing appeals from decisions of the Board of Patent Appeals and Interferences in other proceedings.

(e) FALSE REPRESENTATIONS; REQUEST FOR TRANSFER OF TITLE TO PATENT; NOTICE; HEARING; DETERMINATION; REVIEW.—Whenever any patent has been issued to any applicant in conformity with subsection (d), and the Administrator thereafter has reason to believe that the statement filed by the applicant in connection therewith contained any false representation of any material fact, the Administrator within five years after the date of issuance of such patent may file with the Director a request for the transfer to the Administrator of title to such patent on the records of the Director. Notice of any such request shall be transmitted by the Director to the owner of record of such patent, and title to such patent shall be so transferred to the Administrator unless within thirty days after receipt of such notice such owner of record requests a hearing before the Board of Patent Appeals and Interferences on the question whether any such false representation was contained in such statement. Such question shall be heard and determined, and determination thereof shall be subject to review, in the manner prescribed by subsection (d) for questions arising thereunder. No request made by the Administrator under this subsection for the transfer of title to any patent, and no prosecution for the violation of any criminal statute, shall be barred by any failure of the Administrator to make a request under subsection (d) for the issuance of such patent to him, or by any notice previously given by the Administrator stating that he had no objection to the issuance of such patent to the applicant therefor.

(f) WAIVER OF RIGHTS TO INVENTIONS; INVENTIONS AND CONTRIBUTIONS BOARD.—Under such regulations in conformity with this subsection as the Administrator shall prescribe, he may waive all or any part of the rights of the United States under this section with respect to any invention or class of inventions made or which may be made by any person or class of persons in the performance of any work required by any contract of the Administration if the Administrator determines that the interests of the United States will be served thereby. Any such waiver may be made upon such terms and under such conditions as the Administrator shall determine to be required for the protection of the interests of the United States. Each such waiver made with respect to any invention shall be subject to the reservation by the Administrator of an irrevocable, nonexclusive, nontransferable, royalty-free license for the practice of such invention throughout the world by or on behalf of the United States or any foreign government pursuant to any treaty or agreement with the United States. Each proposal for any waiver under this subsection shall be referred to an Inventions and Contributions Board which shall be established by the Administrator within the Administration. Such Board shall accord to each interested party an opportunity for hearing, and shall transmit to

the Administrator its findings of fact with respect to such proposal and its recommendations for action to be taken with respect thereto.

(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.

(g) [Repealed]

(h) PROTECTION OF TITLE.—The Administrator is authorized to take all suitable and necessary steps to protect any invention or discovery to which he has title, and to require that contractors or persons who retain title to inventions or discoveries under this section protect the inventions or discoveries to which the Administration has or may acquire a license of use.

(i) ADMINISTRATION AS DEFENSE AGENCY.—The Administration shall be considered a defense agency of the United States for the purpose of chapter 17 of title 35 of the United States Code (35 U.S.C.S 181 et seq.).

(j) DEFINITIONS.—As used in this section—

(1) the term “person” means any individual, partnership, corporation, association, institution, or other entity;

(2) the term “contract” means any actual or proposed contract, agreement, understanding, or other arrangement, and includes any assignment, substitution of parties, or subcontract executed or entered into thereunder; and

(3) the term “made”, when used in relation to any invention, means the conception or first actual reduction to practice of such invention.

(k) OBJECTS INTENDED FOR LAUNCH, LAUNCHED, OR ASSEMBLED IN OUTER SPACE.—Any object intended for launch, launched, or assembled in outer space shall be considered a vehicle for the purpose of section 272 of title 35, United States Code.

(l) USE OR MANUFACTURE OF PATENTED INVENTIONS INCORPORATED IN SPACE VEHICLES LAUNCHED FOR PERSONS OTHER THAN UNITED STATES.—The use or manufacture of any patented invention incorporated in a space vehicle launched by the United States Government for a person other than the United States shall not be considered to be a use or manufacture by or for the United States within the meaning of section 1498(a) of title 28, United States Code, unless the Administration gives an express authorization or consent for such use or manufacture.

* * * * *

SEC. 309. EXPERIMENTAL AEROSPACE VEHICLE.

[42 U.S.C. 2458c]

(a) IN GENERAL.—The Administrator may provide liability insurance for, or indemnification to, the developer of an experimental aerospace vehicle developed or used in execution of an agreement between the Administration and the developer.

(b) TERMS AND CONDITIONS.—

(1) IN GENERAL.—Except as otherwise provided in this section, the insurance and indemnification provided by the Administration under subsection (a) to a developer shall be provided on the same terms and conditions as insurance and indemnification is provided by the Administration under section 308 of this Act (42 U.S.C. 2458b) to the user of a space vehicle.

(2) INSURANCE.—

(A) IN GENERAL.—A developer shall obtain liability insurance or demonstrate financial responsibility in amounts to compensate for the maximum probable loss from claims by—

(i) a third party for death, bodily injury, or property damage, or loss resulting from an activity carried out in connection with the development or use of an experimental aerospace vehicle; and

(ii) the United States Government for damage or loss to Government property resulting from such an activity.

(B) MAXIMUM REQUIRED.—The Administrator shall determine the amount of insurance required, but, except as provided in subparagraph (C), that amount shall not be greater than the amount required under section 70112(a)(3) of title 49, United States Code, for a launch. The Administrator shall publish notice of the Administrator's determination and the applicable amount or amounts in the Federal Register within 10 days after making the determination.

(C) INCREASE IN DOLLAR AMOUNTS.—The Administrator may increase the dollar amounts set forth in section 70112(a)(3)(A) of title 49, United States Code, for the purpose of applying that section under this section to a developer after consultation with the Comptroller General and such experts and consultants as may be appropriate, and after publishing notice of the increase in the Federal Register not less than 180 days before the increase goes into effect. The Administrator shall make available for public inspection, not later than the date of publication of such notice, a complete record of any correspondence received by the Administration, and a transcript of any meetings in which the Administration participated, regarding the proposed increase.

(D) SAFETY REVIEW REQUIRED BEFORE ADMINISTRATOR PROVIDES INSURANCE.—The Administrator may not provide liability insurance or indemnification under subsection (a) unless the developer establishes to the satisfaction of the Administrator that appropriate safety procedures and practices are being followed in the development of the experimental aerospace vehicle.

(3) NO INDEMNIFICATION WITHOUT CROSS-WAIVER.—Notwithstanding subsection (a), the Administrator may not indemnify a developer of an experimental aerospace vehicle under this section unless there is an agreement between the Administration and the developer described in subsection (c).

(4) APPLICATION OF CERTAIN PROCEDURES.—If the Administrator requests additional appropriations to make payments under this section, like the payments that may be made under section 308(b) of this Act (42 U.S.C. 2458b(b)), then the request for those appropriations shall be made in accordance with the procedures established by subsections (d) and (e) of section 70113 of title 49, United States Code.

(c) CROSS-WAIVERS.—

(1) ADMINISTRATOR AUTHORIZED TO WAIVE.—The Administrator, on behalf of the United States, and its departments, agencies, and instrumentalities, may reciprocally waive claims with a developer or cooperating party and with the related entities of that developer or cooperating party under which each party to the waiver agrees to be responsible, and agrees to ensure that its own related entities are responsible, for damage or loss to its property for which it is responsible, or for losses resulting from any injury or death sustained by its own employees or agents, as a result of activities connected to the agreement or use of the experimental aerospace vehicle.

(2) LIMITATIONS.—

(A) CLAIMS.—A reciprocal waiver under paragraph (1) may not preclude a claim by any natural person (including, but not limited to, a natural person who is an employee of the United States, the developer, the cooperating party, or their respective subcontractors) or that natural person's estate, survivors, or subrogees for injury or death, except with respect to a subrogee that is a party to the waiver or has otherwise agreed to be bound by the terms of the waiver.

(B) LIABILITY FOR NEGLIGENCE.—A reciprocal waiver under paragraph (1) may not absolve any party of liability to any natural person (including, but not limited to, a natural person who is an employee of the United States, the developer, the cooperating party, or their respective subcontractors) or such a natural person's estate, survivors, or subrogees for negligence, except with respect to a subrogee that is a party to the waiver or has otherwise agreed to be bound by the terms of the waiver.

(C) INDEMNIFICATION FOR DAMAGES.—A reciprocal waiver under paragraph (1) may not be used as the basis of a claim by the Administration, or the developer or cooperating party, for indemnification against the other for damages paid to a natural person, or that natural person's estate, survivors, or subrogees, for injury or death sustained by that natural person as a result of activities connected to the agreement or use of the experimental aerospace vehicle.

(D) WILLFUL MISCONDUCT.—A reciprocal waiver under paragraph (1) may not relieve the United States, the developer, the cooperating party, or the related entities of the developer or cooperating party, of liability for damage or loss resulting from willful misconduct.

(3) EFFECT ON PREVIOUS WAIVERS.—Subsection (c) applies to any waiver of claims entered into by the Administration with-

out regard to whether it was entered into before, on, or after the date of the enactment of this Act.

(d) DEFINITIONS.—In this section:

(1) COOPERATING PARTY.—The term “cooperating party” means any person who enters into an agreement with the Administration for the performance of cooperative scientific, aeronautical, or space activities to carry out the purposes of this Act.

(2) DEVELOPER.—The term “developer” means a United States person (other than a natural person) who—

(A) is a party to an agreement with the Administration for the purpose of developing new technology for an experimental aerospace vehicle;

(B) owns or provides property to be flown or situated on that vehicle; or

(C) employs a natural person to be flown on that vehicle.

(3) EXPERIMENTAL AEROSPACE VEHICLE.—The term “experimental aerospace vehicle” means an object intended to be flown in, or launched into, orbital or suborbital flight for the purpose of demonstrating technologies necessary for a reusable launch vehicle, developed under an agreement between the Administration and a developer.

(4) RELATED ENTITY.—The term “related entity” includes a contractor or subcontractor at any tier, a supplier, a grantee, and an investigator or detailee.

(e) RELATIONSHIP TO OTHER LAWS.—

(1) SECTION 308.—This section does not apply to any object, transaction, or operation to which section 308 of this Act (42 U.S.C. 2458b) applies.

(2) CHAPTER 701 OF TITLE 49, UNITED STATES CODE.—The Administrator may not provide indemnification to a developer under this section for launches subject to license under section 70117(g)(1) of title 49, United States Code.

(f) TERMINATION.—

(1) IN GENERAL.—The provisions of this section shall terminate on [December 31, 2002,] *December 31, 2007*, except that the Administrator may extend the termination date to a date not later than [September 30, 2005,] *December 31, 2009*, if the Administrator determines that such extension is in the interests of the United States.

(2) EFFECT OF TERMINATION ON AGREEMENT.—The termination of this section shall not terminate or otherwise affect any cross-waiver agreement, insurance agreement, indemnification agreement, or other agreement entered into under this section, except as may be provided in that agreement.”

* * * * *

SEC. 315. ENHANCED-USE LEASE OF REAL PROPERTY DEMONSTRATION.

[42 U.S.C. 2459j]

[(a) IN GENERAL.—Notwithstanding any other provision of law, the Administrator may enter into a lease under this section with any person or entity (including another department or agency of the Federal Government or an entity of a State or local govern-

ment) with regard to any real property under the jurisdiction of the Administrator at no more than two (2) National Aeronautics and Space Administration (NASA) centers.】

【(b)】 *(a)* CONSIDERATION.—

(1) A person or entity entering into a lease under this section shall provide consideration for the lease at fair market value as determined by the Administrator, except that in the case of a lease to another department or agency of the Federal Government, that department or agency shall provide consideration for the lease equal to the full costs to NASA in connection with the lease.

(2) Consideration under this subsection may take one or a combination of the following forms—

(A) the payment of cash;

(B) the maintenance, construction, modification or improvement of facilities on real property under the jurisdiction of the Administrator;

(C) the provision of services to NASA, including launch services and payload processing services; or

(D) use by NASA of facilities on the property.

(3) (A) The Administrator may utilize amounts of cash consideration received under this subsection for a lease entered into under this section to cover the full costs to NASA in connection with the lease. These funds shall remain available until expended.

(B) Any amounts of cash consideration received under this subsection that are not utilized in accordance with subparagraph (A) shall be deposited in a capital asset account to be established by the Administrator, shall be available for maintenance, capital revitalization, and improvements of the real property assets of the centers selected for this demonstration program, and shall remain available until expended.

【(c)】 *(b)* ADDITIONAL TERMS AND CONDITIONS.—The Administrator may require such terms and conditions in connection with a lease under this section as the Administrator considers appropriate to protect the interests of the United States.

【(d)】 *(c)* RELATIONSHIP TO OTHER LEASE AUTHORITY.—The authority under this section to lease property of NASA is in addition to any other authority to lease property of NASA under law.

【(e)】 *(d)* LEASE RESTRICTIONS.—NASA is not authorized to lease back property under this section during the term of the out-lease or enter into other contracts with the lessee respecting the property.

【(f)】 *(e)* PLAN AND REPORTING REQUIREMENTS.—At least 15 days prior to the Administrator entering into the first lease under this section, the Administrator shall submit a plan to the Congress on NASA's proposed implementation of this demonstration. The Administrator shall submit an annual report by January 31st of each year regarding the status of the demonstration.

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 Adminis-

trator 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. 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. 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. 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).

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ACT OF 1968

SEC. 6. AEROSPACE SAFETY ADVISORY PANEL; MEMBERSHIP; APPOINTMENT; TERM; POWERS AND DUTIES OF PANEL; CHAIRMAN; COMPENSATION, TRAVEL AND OTHER NECESSARY EXPENSES; NASA MEMBERSHIP RESTRICTION

[42 U.S.C. 2477]

(a) *IN GENERAL.*—There is hereby established an Aerospace Safety Advisory Panel consisting of a maximum of nine members who shall be appointed by the Administrator for terms of six years each. The Panel shall review safety studies and operations plans referred [to it] to it, including evaluating NASA's compliance with the return-to-flight and continue-to-fly recommendations of the Columbia Accident Investigation Board, and shall make reports thereon, shall advise the Administrator and the Congress with respect to the hazards of proposed or existing facilities and proposed operations [and with respect to the adequacy of proposed or existing safety standards and shall] with respect to the adequacy of proposed or existing safety standards, and with respect to management and culture. The Panel shall also perform such other duties as the Administrator may request. One member shall be designated by the Panel as its Chairman. Members of the Panel who are officers or employees of

the Federal Government shall receive no compensation for their services as such, but shall be allowed necessary travel expenses (or in the alternative, mileage for use of privately owned vehicles and a per diem in lieu of subsistence not to exceed the rates and amounts prescribed in 5 U.S.C. 5702, 5704, and other necessary expenses incurred by them in the performance of duties vested in the Panel, without regard to the provisions of subchapter I, chapter 57 of title 5 of the United States Code, the Standardized Government Travel Regulations, or 5 U.S.C. 5731. Members of the Panel appointed from outside the Federal Government shall each receive compensation at a rate not to exceed the per diem rate equivalent to the rate for GS-18 for each day such member is engaged in the actual performance of duties vested in the Panel in addition to reimbursement for travel, subsistence, and other necessary expenses in accordance with the provisions of the foregoing sentence. Not more than four such members shall be chosen from among the officers and employees of the National Aeronautics and Space Administration.

(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.*

DEPARTMENTS OF VETERANS AFFAIRS AND HOUSE AND
URBAN DEVELOPMENT, AND INDEPENDENT AGENCIES
APPROPRIATIONS ACT, 1990

TITLE III

INDEPENDENT AGENCIES

SMALL AND DISADVANTAGED BUSINESSES

[42 U.S.C. 2473b]

The NASA Administrator shall annually establish a goal of at least 8 per centum of the total value of prime and subcontracts awarded in support of authorized programs, including the space station by the time operational status is obtained, which funds will be made available to small business concerns or other organizations owned or controlled by socially and economically disadvantaged individuals (within the meaning of section 8(a)(5) and (6) of the Small Business Act (15 U.S.C. 637(a)(5)(6)), including **Historically Black Colleges and Universities and** *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 minority educational institutions (as defined by the Secretary of Education pursuant to the General Education Provisions Act (20 U.S.C. 1221 et seq.)). To facilitate progress in reaching this goal, the NASA Administrator shall submit within one year from enactment of this Act (enacted Nov. 9, 1989) a plan describing the process to be followed to achieve the prescribed level of participation in the shortest practicable time.*

FEDERAL AVIATION ADMINISTRATION RESEARCH, ENGINEERING, AND DEVELOPMENT AUTHORIZATION ACT OF 1992

[49 U.S.C. 47508 note]

[SEC. 304. AIRCRAFT NOISE RESEARCH PROGRAM.

[(a) ESTABLISHMENT.—The Administrator of the Federal Aviation Administration and the Administrator of the National Aeronautics and Space Administration shall jointly conduct a research program to develop new technologies for quieter subsonic jet aircraft engines and airframes.

[(b) GOAL.—The goal of the research program established by subsection (a) is to develop by the year 2000 technologies for subsonic jet aircraft engines and airframes which would permit a subsonic jet aircraft to operate at reduced noise levels.

[(c) PARTICIPATION.—In carrying out the program established by subsection (a), the Administrator of the Federal Aviation Administration and the Administrator of the National Aeronautics and Space Administration shall encourage the participation of representatives of the aviation industry and academia.

[(d) REPORT TO CONGRESS.—The Administrator of the Federal Aviation Administration and the Administrator of the National Aeronautics and Space Administration shall jointly submit to Congress, on an annual basis during the term of the program established by subsection (a), a report on the progress being made under the program toward meeting the goal described in subsection (b).]

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AUTHORIZATION ACT, FISCAL YEAR 1993

SEC. 315. BIOMEDICAL RESEARCH JOINT WORKING GROUP.

[42 U.S.C. 2487a]

(a) ESTABLISHMENT.—The Administrator (of the National Aeronautics and Space Administration) and the Director of the National Institutes of Health shall jointly establish a working group to coordinate biomedical research activities in areas where a microgravity environment may contribute to significant progress in the understanding and treatment of diseases and other medical conditions. The joint working group shall formulate joint and complementary programs in such areas of research.

(b) MEMBERSHIP.—The joint working group shall include equal representation from the National Aeronautics and Space Administration and the National Institutes of Health, and shall include representation from National Institutes of Health councils, as selected by the Director of the National Institutes of Health, and from the National Aeronautics and Space Administration Advisory Council.

[(c) ANNUAL REPORTING REQUIREMENT.—The joint working group shall report annually to Congress on its progress in carrying out this section. (d) Annual biomedical research symposia. The working group shall organize annual symposia on biomedical research described in subsection (a) under the joint sponsorship of the National Aeronautics and Space Administration and the National Institutes of Health.]

[(d)] (c) ANNUAL BIOMEDICAL RESEARCH SYMPOSIA.—The working group shall organize annual symposia on biomedical research described in subsection (a) under the joint sponsorship of the National Aeronautics and Space Administration and the National Institutes of Health.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT OF 2000

[42 U.S.C. 2451 note]

[SEC. 201. INTERNATIONAL SPACE STATION CONTINGENCY PLAN.

[(It is the purpose of this title to establish a National Commission on Space that will assist the United States—

[(1) to define the long-range needs of the Nation that may be fulfilled through the peaceful uses of outer space;

[(2) to maintain the Nation's preeminence in space science, technology, and applications;

[(3) to promote the peaceful exploration and utilization of the space environment; and

[(4) to articulate goals and develop options for the future direction of the Nation's civilian space program.]

* * * * *

[SEC. 323. AERONAUTICAL RESEARCH.

[(a) FLIGHT RESEARCH STUDY.—

[(1) IN GENERAL.—Within 6 months after the date of the enactment of this Act, the Administrator shall provide to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science of the House of Representatives the results of an engineering study of the modifications necessary for the more effective use of the WB-57 flight research plan.

[(2) CONTENTS OF STUDY.—The engineering study provided by the Administrator under paragraph (1) shall address at least the following issues:

[(A) Replacement of autopilot.

[(B) Replacement of landing gear or improved brake system.

[(C) Upgrade of avionics.

[(D) Upgrade of engines for higher flight regimes.

[(E) Installation of winglets on aircraft wings.

[(F) Research benefits to be derived from modifications of plane.

[(G) Associated costs of each of the modifications.

[(b) AIRCRAFT ICING RESEARCH PLAN.—

[(1) IN GENERAL—Within 90 days after the date of the enactment of this Act, the Administrator shall submit a plan to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science of the House of Representatives for aircraft icing research to be conducted over the 5-year period commencing on October 1, 2000.

[(2) CONTENTS OF THE PLAN.—The aircraft icing research plan submitted by the Administrator under paragraph (1) shall include at least the following items:

[(A) Research goals and objectives.

[(B) Funding levels for each of the 5 fiscal years.

[(C) Anticipated extent and nature of involvement in the research program by agencies, organizations, and companies, both domestic and foreign, other than the National Aeronautics and Space Administration.

[(D) Anticipated resource requirements and locations of aircraft icing tunnel research and flight research for each of the 5 fiscal years.]