111TH CONGRESS
2D SESSION

S. 3068

To reauthorize the National Aeronautics and Space Administration Human Space Flight Activities, and for other purposes.

IN THE SENATE OF THE UNITED STATES

MARCH 3, 2010

Mr. KYL (for Mrs. HUTCHISON) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

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A BILL

To reauthorize the National Aeronautics and Space Administration Human Space Flight Activities, and for other purposes.

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

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the ''Human Space Flight Capability Assurance and Enhancement Act of 2010''.

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

SEC. 2. FINDINGS.

The Congress finds the following:

(1) The United States Human Space Flight program has, since the first Mercury flight on May 5, 1961, has been a source of pride and inspiration for the Nation.

(2) The extraordinary challenges of achieving access to space both motivated and accelerated the development of technologies and industrial capabilities that have had widespread applications which have contributed to the technological excellence of the United States.

(3) It is essential to the economic well-being of the Nation that the aerospace industrial capacity, highly skilled workforce, and embedded expertise remain engaged in demanding, challenging, and exciting efforts that ensure United States leadership in space exploration and related activities.

(4) The completion of the International Space Station, the ability to sustain a crew of at least 6 members, and the ability to conduct unique micro-

gravity research that can only be accomplished in the space environment, provides an opportunity for scientific and technological advancement that must be immediately and fully exploited.

(5) The designation of the U.S. Segment of the International Space Station as a National Laboratory, as provided in section 507 of the National Aeronautics and Space Administration Authorization Act of 2005 (42 U.S.C. 16767) and as further provided in subtitle A of title VI of the National Aeronautics and Space Administration Authorization Act of 2008 (42 U.S.C. 17751 through 17753), provides an opportunity for multiple United States government agencies, University-based researchers, commercial research organizations, and others to utilize the unique environment of microgravity for fundamental scientific research and potential commercial developments.

(6) In order to assure the full and complete utilization of the International Space Station, including the ability to sustain the systems and physical infrastructure of the vehicle, effective and timely transportation systems are required, which must be able to deliver the full range of logistics, support, and

maintenance items which may be necessary through the year 2020.

(7) For some potential replacement elements necessary for Space Station sustainability, the Space Shuttle represents the only vehicle, existing or planned, capable of carrying those elements to the International Space Station in the near term.

(8) In order to ensure effective utilization of Space Station research facilities, the capability for returning processed experiment samples and research-related equipment to Earth is essential.

(9) The maintenance of human exploration goals, such as a return to the Moon, a voyage to Mars, or other celestial bodies or locations is essential for providing the necessary long-term focus and programmatic robustness of the United States civilian space program.

(10) The United States must develop, as rapidly as possible, replacement vehicles capable of providing both human and cargo launch capability to low-Earth orbit and, by expansion or modification of core design features, capable of delivering large payloads into low-earth orbit or to destinations beyond low-Earth orbit.

(11) While commercial transportation systems may contribute valuable services, it is in the United States national interest to maintain a government-operated space transportation system for crew and cargo delivery to low-Earth orbit and beyond.

SEC. 3. STATEMENT OF HUMAN SPACE FLIGHT POLICY.

(a) USE OF NON-U.S. HUMAN SPACE FLIGHT TRANSPORTATION CAPACITY.—It is the policy of the United States that reliance upon and use of non-United States human space flight capability shall only be undertaken as a temporary contingency in circumstances where no United States-owned and operated human space flight capability is available, operational, and certified for flight by appropriate Federal agencies.

(b) U.S. HUMAN SPACE FLIGHT CAPACITY.—The Congress reaffirms the policy stated in section 501(a) of the National Aeronautics and Space Administration Authorization Act of 2005 (42 U.S.C. 16761(a)), that the United States shall maintain an uninterrupted capability for human space flight and operations in low-earth orbit, and beyond, as an essential instrument of national security and the ability to ensure continued United States participation and leadership in the exploration and utilization of space.

SEC. 4. SPACE SHUTTLE OPERATIONS.

(a) RETENTION OF SPACE SHUTTLE OPERATIONS CAPABILITY.—

(1) IN GENERAL.—The Administrator shall take all necessary steps to ensure that all Space Shuttle Program activities and operations are able to continue, or to be resumed, including flight operations and support, pending the completion of the reviews, requirements, and reports of this section.

(2) CURRENT SHUTLE MANIFEST FLIGHT ASSURANCE.—The Administrator shall take all steps necessary to ensure shuttle launch capability through fiscal year 2011 to enable launch, at a minimum, of all payloads manifested as of February 28, 2010. In fulfillment of this requirement, the Administrator is prohibited from terminating any contractor support which will endanger or inhibit the launching of shuttle payloads manifested as of February 28, 2010, should launches be required after the first quarter of fiscal year 2011.

(b) CERTIFICATION OF SPACE SHUTTLE SYSTEMS; VALIDATION OF FLIGHT READINESS DETERMINATION PROCEDURES.—No later than 30 days after the date of enactment of this Act the Administrator shall ask the National Academies of Science to appoint a Flight Certification Review Committee, consisting of 5 individuals with

appropriate engineering expertise and experience in certification of space flight vehicle hardware, systems, and equipment testing and validation procedures, to review space shuttle certification activities undertaken or initiated after February 2003. The Committee shall provide an assessment regarding the adequacy of those validation procedures in assuring vehicle durability, flight-worthiness, and sustainability for continued operations through a period of up to 5 years beyond the space shuttle flight manifest planned as of February 2010. The Committee shall take into account current and historical trends in anomaly detection and resolution within major components of the space shuttle systems.

(c) COMPLETION OF CERTIFICATION REVIEW AND REPORTING REQUIREMENT.—The Committee appointed under subsection (b) shall complete its task within 90 days of its appointment and shall provide its findings and determinations concurrently to the Administrator and to the committees of jurisdiction no later than 120 days after the date of enactment of this Act.

(d) SPACE SHUTTLE CAPABILITY RETENTION.—Notwithstanding any other provision of law, to the extent practicable NASA shall operate the Space Shuttle program at a flight rate of no more than 2 missions in any consecutive 12-month period beginning during the fiscal

years for which appropriations are authorized under section 9 of this Act.

(e) EXISTING HARDWARE COMPONENTS.—The Administrator shall ensure that hardware components in existence as of March, 2010, remain available for use in connection with any additional flights required under subsection (g)(2) beyond those on the current flight manifest schedule.

(f) PROHIBITION OF SCHEDULED TERMINATION.—The Administrator may not terminate the Space Shuttle Program as of a scheduled date certain.

(g) TERMINATION CONDITIONS.—Termination of space shuttle missions operations shall be contingent upon—

(1) completion of the space shuttle flights planned as of February 28, 2010;

(2) delivery of remaining manufactured orbital replacement units, research instrumentation, and other maintenance materials and equipment originally scheduled for delivery to the International Space Station in the flight manifest schedule prepared no later than November, 2005, and which are identified in the review required by section 5(b)(2) and deemed essential for maintenance and support of the International Space Station through the end

of fiscal year 2020, and which require the payload capability of the space shuttle Orbiter for delivery to the International Space Station; and

(3) a determination by the President that termination of space shuttle missions in support of International Space Station operations—

(A) is consistent with paragraph (2) of this subsection, and any other provision of this Act regarding the provision of human space flight capabilities; and

(B) will not cause a degradation of the equipment, logistics, cargo up-mass and down-mass delivery capability necessary to provide full utilization of international space station science and research capabilities for both United States National Laboratory and International Partner scientific research and experimentation which the United States is obligated by international agreement to provide.

(h) ADDITIONAL DETERMINATION REQUIREMENTS.—The President shall include in such a determination a detailed description of alternate means for the provision of necessary support for the conduct of full utilization of the International Space Station for research and development in science, engineering, and technological de-

velopment, the scheduled availability of such alternative means of support, and such materials as may be necessary to justify the determination.

(i) NOTICE TO CONGRESS.—The President shall provide any determination under this section to the committees of jurisdiction, which shall review such determination and consider whether to recommend legislative action to establish further conditions for termination of space shuttle operations.

(j) TERMINATION.—The Administrator may not take steps to terminate the Space Shuttle Program before the later of—

(1) the date that is 60 legislative days after receipt of the determination by the Congress; or

(2) the date on which the Congress has taken final action with respect to any bill reported by a committee of jurisdiction pursuant to subsection (i).

(k) DECOMMISSIONING OF ORBITER VEHICLES.—

(1) IN GENERAL.—Upon the termination of the Space Shuttle program as provided in this section, the Administrator shall assume responsibility for decommissioning the remaining orbiter vehicles according to established safety and historic preservation procedures prior to their designation as surplus government property. The remaining orbiter vehicles

shall be made available and located for display and maintenance by a competitive procedure established pursuant to the disposition plan developed under section 613(a) of the National Aeronautics and Space Administration Authorization Act of 2008 (42 U.S.C. 17761(a)), with priority consideration given to eligible applicants meeting all conditions of that plan which would provide for the location, display, and maintenance of one orbiter at or near the Johnson Space Center, in Houston, Texas, and one orbiter at or near the Kennedy Space Center near Titusville, Florida.

(2) DISPLAY AND MAINTENANCE.—The orbiter vehicles made available under paragraph (1) shall be displayed and maintained through agreements and procedures established pursuant to section 613(a) of the National Aeronautics and Space Administration Authorization Act of 2008 (42 U.S.C. 17761(a)). NASA shall be responsible for the costs of safely decommissioning, transporting, and re-assembling the orbiter vehicle for display.

(3) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to NASA such sums as may be necessary to carry out this subsection.

(l) PRESERVATION OF VEHICLE AND SYSTEMS DESIGN AND ENGINEERING DATA.—The Administrator shall immediately take all necessary steps to ensure the collection and preservation of space shuttle structures, systems, and infrastructure design, manufacturing, testing, and maintenance data for historical archival purposes and for possible use as technical resource material and programmatic lessons learned and technical interchange applicability for future space vehicle design and operations.

SEC. 5. INTERNATIONAL SPACE STATION OPERATIONS.

(a) POLICY STATEMENT.—It shall be the policy of the United States, in consultation with its International Partners in the International Space Station program, to support full and complete utilization of the Space Station through at least the year 2020.

(b) MAINTENANCE OF U.S. SEGMENT.—

(1) IN GENERAL.—The Administrator shall take all steps necessary to ensure the safe and effective operations, maintenance, and maximum utilization of the United States Segment of the International Space Station through fiscal year 2020.

(2) VEHICLE AND COMPONENT REVIEW.—In carrying out paragraph (1), the Administrator shall, immediately upon enactment of this Act, conduct an in-depth assessment of all essential modules, oper-

ational systems and components, structural elements, and permanent scientific equipment on board or planned for delivery and installation aboard the International Space Station, including both United States and international partner elements, to determine anticipated spare or replacement requirements to ensure complete, effective, and safe function and full scientific utilization of the ISS. The Administrator shall enable the Comptroller General to monitor and, as appropriate, participate in the review required by this paragraph in such a way as to enable the Comptroller General to provide an independent assessment of the review to the committees of jurisdiction.

(3) REPORTING REQUIREMENTS.—No later than 90 days after the date of enactment of this Act the Administrator shall provide the completed assessment to the committees of jurisdiction. The results of the required assessment shall include, at minimum, the following:

(A) The identification of spare or replacement elements and parts currently produced, in inventory, or on order, and the state of readiness and schedule for delivery to the ISS, including the planned transportation means for

such delivery. Each element identified shall include a description of its location, function, criticality for system integrity, and specifications regarding size, weight, and necessary configuration for launch and delivery.

(B) The identification of anticipated requirements for spare or replacement elements not currently in inventory or on order, a description of their location, function, criticality for system integrity, the anticipated cost and schedule for design, procurement, manufacture and delivery, and specifications regarding size, weight, and necessary configuration for launch and delivery, including available launch vehicles capable of transportation of such items to the International Space Station.

(c) RESEARCH FACILITIES AND CAPABILITIES.—Utilization of research facilities and capabilities aboard the International Space Station other than exploration-related research and technology development activities, and associated ground support and logistics, shall be planned, managed, and supported by the organizations described in section 6.

SEC. 6. INTERNATIONAL SPACE STATION MANAGEMENT AND UTILIZATION.

(a) ESTABLISHMENT OF OFFICE OF RESPONSIBILITY FOR UNITED STATES SPACE STATION NATIONAL LABORATORY.—The Administrator shall establish responsibility for the International Space Station United States National Laboratory within the Space Operations Mission Directorate, ISS Program Office at NASA Headquarters, or any successor entity within NASA. The head of the Office shall be an official, designated by the Administrator, who shall serve as a Deputy Associate Administrator for International Space Station, or at an equivalent rank, and to whom responsibility shall be delegated for, at a minimum, the conduct of ISS operations, maintenance and utilization by both NASA and non-NASA organizations. The Officer shall serve as the formal liaison to the organization specified in subsection (b).

(b) ESTABLISHMENT OF NATIONAL LABORATORY MANAGEMENT ENTITY.—The Administrator shall execute an agreement with a cooperative organization described in section 501(c)(3) of the Internal Revenue Code of 1986 that is exempt from taxation under section 501(a) of such Code to manage the activities of the ISS United States National Laboratory. The organization shall be designed specifically for the unique purpose of developing and implementing research and development projects utilizing the

International Space Station U.S. Segment, and to be engaged exclusively in this enterprise without other organizational objectives or responsibilities on behalf of the organization or any parent entity. The head of the office established by subsection (a) is responsible for liaison and management of the agreement. The Administrator shall delegate, at a minimum, the following responsibilities to the organization, which shall carry out its responsibilities in cooperation and consultation with the head of the office established by subsection (a):

(1) Planning and coordinating the ISS National Laboratory research activities.

(2) Development and implementation of guidelines, selection criteria, and flight support requirements for non-NASA scientific utilization of International Space Station research capabilities and facilities available in United States-owned modules or in partner-owned facilities allocated to United States utilization by international agreement.

(3) Interaction with and support of the International Space Station National Laboratory Advisory Committee, established under section 602 of the National Aeronautics and Space Administration Authorization Act of 2008 (42 U.S.C. 17752), and the review and implementation of recommendations pro-

vided by that Committee under the terms of the enabling legislation and subsequent organizational documents, negotiation, approval, and implementation of memoranda of understanding, Space Act agreements, or other authorized cooperative mechanisms, with non-NASA United States government entities, academic institutions or consortia, and commercial entities, leading to utilization of the United States International Space Station National Laboratory facilities.

(4) Coordination of transportation requirements in support of the United States International Space Station National Laboratory facilities, including provisions for delivery of instrumentation, logistics support, and related experiment materials, and provisions for return to Earth of collected samples, materials, and scientific instruments in need of replacement or upgrade.

(5) Cooperation with NASA, other Federal Agencies, States, or commercial entities in ensuring the enhancement and sustained operations of non-exploration-related space-station research payload ground support facilities, including the Space Life Sciences Laboratory, Space Station Processing Facility and Payload Operations Control Center and

any other ground facilities critical to the utilization of the International Space Station.

(6) Development and implementation of scientific outreach and education activities designed to ensure effective utilization of International Space Station research capabilities, through such instruments as memoranda of understanding, Space Act agreements executed by NASA, or other cooperative agreements, and through the conduct of scientific assemblies, conferences, etc., for presentation of research findings, methods and mechanisms for dissemination of non-restricted research findings, and development of educational programs, course supplements, interaction with educational programs at all grade levels, including student-focused research opportunities for conduct of research in the United States International Space Station National Laboratory managed facilities.

(c) RESEARCH FACILITIES ALLOCATION AND INTEGRATION OF RESEARCH PAYLOADS.—

(1) ALLOCATION OF ISS RESEARCH FACILITIES.—Beginning as soon as practicable after the date of enactment of this Act, United States International Space Station National Laboratory managed experiments shall be guaranteed access to, and

utilization of, 50 percent of the United States research facilities allocation and requisite crew time through fiscal year 2014. Beginning with fiscal year 2015, the percentage allocation shall increase by an additional 10 percent per year through fiscal year 2020.

(2) ADDITIONAL RESEARCH CAPABILITY.—If the head of the ISS Program Office determines that there are NASA research plans that would require research capability beyond the percentage allocation under paragraph (1), those research plans shall be prepared in the form of requested research opportunities submitted to the established process for consideration of proposed research within the allocations and capabilities of the International Space Station National Laboratory, as provided in paragraph (1). These research proposals may include the establishment of partnerships with non-NASA institutions eligible to propose research to be conducted within National Laboratory allocated research facilities. Until fiscal year 2020, the head of the Office may grant exceptions to this requirement if the proposed experiment is deemed essential for purposes of preparing for exploration beyond low Earth Orbit, as determined by joint agreement between the organiza-

tion described in subsection (a) and the head of the office established under subsection (b).

(3) RESEARCH PRIORITIES AND ENHANCED FACILITIES.—The organization described in subsection (b) and the head of the office established under subsection (a) shall take into account recommendations of the National Academies of Science Decadal Survey on Life and Microgravity Sciences in establishing research priorities and in developing proposed enhancements of research facilities and opportunities.

(4) RESEARCH PAYLOAD RESPONSIBILITY.—NASA shall retain its roles and responsibilities in providing research payload transportation integration and operations processes essential to ensure safe and effective flight readiness and vehicle integration of research facilities and activities approved and prioritized by the organization described in subsection (b) and the head of the office established under subsection (a).

SEC. 7. TRANSPORTATION SYSTEMS DEVELOPMENT.

(a) IN GENERAL.—The Administrator shall take steps to ensure that the development of space transportation vehicles, systems, and infrastructure shall occur in such a way as to ensure the availability of complementary

and, where necessary, redundant transportation systems capable of delivering crew and cargo to low-Earth orbit, in particular to the International Space Station, and to destinations beyond low-Earth orbit. Systems developed and operated by the United States Government shall be the primary means for delivering crew and cargo to destinations in low-Earth orbit until such time as commercial entities demonstrate, through a successful flight regime, as determined by established milestones within current Space Act Agreements, that they have the capability to deliver cargo to destinations in low-Earth orbit, including the International Space Station. Systems developed and operated by the United States government shall be the primary means for delivering crew and cargo to destinations beyond low earth orbit. Commercially developed launch systems, such as those being developed under NASA's Commercial Orbital Transportation System, for which the United States government will serve primarily as a customer, shall be the primary means for delivering cargo to the International Space Stations once they have successfully demonstrated that capability, as required by this subsection.

(b) NATIONAL SPACE TRANSPORTATION SYSTEM.—The Administrator is directed to develop a plan, no later than 90 days after the date of enactment of this Act, for

the establishment of a National Space Transportation System. The National Space Transportation System shall include—

(1) an architecture of government developed and operated space transportation systems, including one or more launch vehicles and associated crew and cargo carriers;

(2) a streamlined approach to development and acquisition of such systems funded and overseen by the United States Government, including possible adoption or modification of effective acquisition practices utilized by the Department of Defense, where appropriate, to more effectively meet civil space transportation requirements;

(3) an operational concept that utilizes existing government and industry personnel and infrastructure in an efficient and cost effective manner;

(4) continuation or modification of ongoing programs, associated contracts, and testing and evaluation plans initiated under the Constellation Program, including the Orion Crew Exploration Vehicle and the Ares-1 Crew Launch Vehicle, to the extent that such elements are determined to be cost effective and operationally effective;

(5) a plan for incrementally upgrading initially developed and deployed systems so that such systems can be made operational with existing technology at the earliest possible opportunity and then upgraded over time to fulfill more demanding missions and incorporate new technology as it becomes available; and

(6) a United States Government managed approach for overseeing and ensuring crew safety, including oversight of human ratings requirements established under subsection (f)(1)(C) of this section.

(c) TECHNOLOGY DEVELOPMENT TO SUPPORT NATIONAL SPACE TRANSPORTATION SYSTEMS EVOLUTION.—The Administrator shall develop and keep up to date a technology development plan to support the evolving requirements of the National Space Transportation System, both for low-Earth orbit requirements and for missions beyond low-Earth orbit. Technology funding provided pursuant to this subsection shall be determined based on the specific mission benefits and the performance requirements needed to achieve clearly identified mission objectives, such as planning to reach destinations beyond low-Earth orbit. There are authorized to be appropriated to the Administrator such amounts for technology funding for propulsion elements as may be necessary to advance

the state of the art in propulsion elements as a priority over developments of current state of the art in propulsion systems.

(d) HEAVY-LIFT VEHICLE DEVELOPMENT.—

(1) REVIEW.—As part of the National Space Transportation system required in subsection (b) of this section, the Administrator is directed to conduct a review of alternative heavy lift launch vehicle configurations that may be developed by the United States government to transport crew and cargo to low-Earth orbit and beyond.

(2) CONTENT.—The review shall—

(A) include shuttle-derived vehicles which use existing United States propulsion systems, including liquid fuel engines, external tank, and solid rocket motor technology and related ground-based manufacturing capability, launch and operations infrastructure, and workforce expertise;

(B) take into consideration technologies developed under the Constellation Program, including those developed for the Ares I system;

(C) include consideration of the degree to which alternative vehicles may be developed in an evolutionary fashion with the objective of

supporting initial crew and cargo transportation to the International Space Station by the end of 2013 and missions beyond low-Earth orbit by the end of 2018; and

(D) include comparative development and projected operational costs.

(e) NATIONAL SPACE TRANSPORTATION SYSTEM AUTHORITY TO PROCEED.—The Administrator is directed to select a heavy lift launch vehicle and accompanying crew vehicle design concept and to initiate detailed design activities no later than 6 months after the date of enactment of this Act. If ongoing program development elements and activities from the Constellation Program are to be included in such a National Space Transportation System, the Administrator shall take appropriate steps to extend or modify existing contracts to facilitate this objective.

(f) COMMERCIALLY DEVELOPED SPACE TRANSPORTATION VEHICLES.—

(1) LAUNCH AND DELIVERY SYSTEMS.—The Congress restates its commitment, expressed in the National Aeronautics and Space Administration Acts of 2005 and 2008, to the development of commercially developed launch and delivery systems to the International Space Station for crew and cargo mis-

sions, known as the Commercial Orbital Transportation System.

(2) PRELIMINARY REQUIREMENTS FOR COMMERCIAL CREW CAPABILITY DEVELOPMENT.—Before undertaking any development activity in support of commercially developed crew transportation systems, the Administrator shall ensure that, at a minimum, the following steps are completed:

(A) HUMAN RATING REQUIREMENTS.—Not later than 60 days after the date of enactment of this Act, the Administrator shall develop and make publicly available detailed human ratings requirements to guide the design of commercially developed crew transportation capabilities. The requirements shall be at least equivalent to proven requirements in use as of the date of enactment of this Act.

(B) COMMERCIAL MARKET ASSESSMENT.—The Administrator shall initiate, using an appropriate and qualified independent entity, an assessment of the potential non-government market for commercially developed crew and cargo space transportation systems and capabilities. The assessment shall—

(i) include activities associated with potential private sector utilization of International Space Station research and technology development capabilities and other potential activities in low-Earth orbit; and

(ii) be completed and provided to the committees of jurisdiction no later than 120 days after the date of enactment of this Act.

(C) PROCUREMENT SYSTEM REVIEW.—The Administrator shall review established government procurement and acquisition practices and processes, including Space Act Agreement authorities, to determine the most cost-effective means of procuring commercial crew capabilities and related services which will ensure appropriate accountability, transparency, and maximum efficiency in the procurement of such services. The review shall include a description of proposed measures to address risk management processes and the means of indemnification for third party commercial entities, and processes for quality control, safety oversight, and application of Federal oversight processes within the jurisdiction of other Federal agen-

cies. A description of the proposed procurement process and justification for its selection shall be included in any proposed initiation of procurement activity for commercially developed crew transportation services and shall be subject to review by the committees of jurisdiction before the initiation of any competitive process to procure such services. In support of the committee review, the Comptroller General shall undertake an assessment of the review required by this subparagraph and provide a report to the committees of jurisdiction within 90 days after the date on which the Administrator provides the description and justification to the committees of jurisdiction.

(D) USE OF GOVERNMENT-SUPPLIED CAPABILITIES AND INFRASTRUCTURE.—In evaluating any proposed development activity for commercially developed crew or cargo launch capabilities, the Administrator shall identify the anticipated contribution of government personnel, expertise, technologies, and infrastructure to be utilized in support of design, development, or operations of such capabilities. The Administrator shall include details and associ-

ated costs of such support as part of any proposed development initiative for the procurement of commercially developed crew or cargo capabilities or services.

(E) ESTABLISHMENT OF FLIGHT DEMONSTRATION AND READINESS REQUIREMENTS.—The Administrator shall establish appropriate milestones and minimum performance accomplishments which must be completed before any authority is granted to proceed to procurement of commercially developed crew transportation systems or capabilities.

(3) SENSE OF THE CONGRESS.—It is the sense of the Congress that the development of commercial capabilities for the use of space may be of value in maximizing the utility and productivity of the International Space Station by providing a commercial means of enabling crew transfer and crew rescue services for the International Space Station. The Congress further believes that once such commercial services have demonstrated the capability to meet established ascent, entry, and International Space Station proximity operations safety requirements the United States should make use of domestic commercially provided crew transfer and crew rescue serv-

ices to the maximum extent practicable. The Congress further believes that the National Aeronautics and Space Administration should expedite, where possible, the use of domestic commercially provided International Space Station cargo missions, and that upon the certification by appropriate Federal agencies of operational flight readiness for the provision of commercial crew transportation capabilities, the Administrator should limit, to the maximum extent practicable, the use of a United States government crew transportation vehicle to missions carrying crew beyond low Earth orbit.

(4) LIMITATION ON OBLIGATION OR EXPENDITURE OF FUNDS.—No funds authorized to be appropriated by this Act may be obligated or expended for the purpose of procuring a commercially developed crew transportation vehicle prior to completion of the requirements of paragraph (2) of this subsection.

(g) CARGO RETURN CAPABILITY.—The Administrator is directed to conduct a study of alternative means for development of the capability for a soft-landing return for return research samples or other derivative materials, and small to mid-sized (up to 1,000 kilograms) equipment for return and analysis, or refurbishment and redelivery to the ISS. If the Administrator decides that an inde-

pendent study is appropriate, the results of the study shall be transmitted to the committees of jurisdiction no later than 120 days after the date of enactment of this Act.

(h) REPORT TO COMMITTEES OF JURISDICTION.—The Administrator shall submit a report to the committees of jurisdiction on plans for implementing the requirements of this section no later than 90 days after the date of enactment of this act.

SEC. 8. DEFINITIONS.

In this Act:

(1) ADMINISTRATOR.—The term ''Administrator'' means the Administrator of NASA.

(2) COMMERCIAL ENTITY.—The term ''commercial entity'' means a for-profit entity operating in such a way that—

(A) private capital is at risk in the provision of a product, activity, or service;

(B) there are existing or potential non-governmental customers for the product, activity, or service conducted or provided by the entity;

(C) the commercial market ultimately determines the viability of such product, activity, or service; and

(D) primary responsibility and management initiative for the entity resides with the private sector.

(3) COMMITTEES OF JURISDICTION.—The term ''committees of jurisdiction'' means—

(A) the Committee on Commerce, Science, and Transportation of the Senate; and

(B) the Committee on Science and Technology of the House of Representatives.

(4) DOWN-MASS.—The term ''down-mass'' means physical elements, such as equipment removed for repair, replacement or analysis, experiment products, samples and devices, tools, personal crew items, manufactured goods, or other non-disposable items, including historically significant materials or items, whether the property of the United States or an international partner, or a non-government or commercial entity.

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

(6) ISS NATIONAL LABORATORY.—The term ''ISS National Laboratory'' means the International Space Station United States National Laboratory Enterprise.

(7) LEGISLATIVE DAY.—The term ''legislative day'' means any calendar day on which the Senate and the House of Representatives are in session.

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

(9) SPACE ACT.—The term ''Space Act'' means the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451 et seq.).

(10) UNITED STATES SEGMENT OF THE INTERNATIONAL SPACE STATION.—The term ''United States Segment of the International Space Station'' includes all structural elements, supporting equipment, external attachment locations, pressurized modules, and associated contents, purchased or manufactured by or for the United States, and partner-supplied facilities allocated for utilization as determined through bilateral and multilateral agreements.

(11) UP-MASS.—The term ''up-mass'' means physical elements, such as equipment, spare parts, replacement parts, experimental facilities, and associated materials, and various supplies necessary for the operation and maintenance of the space station vehicle, modules, hardware, and crew support.

SEC. 9. AUTHORIZATION OF APPROPRIATIONS.

(a) FY 2010.—There are authorized to be appropriated to the National Aeronautics and Space Administration for fiscal year 2010:

(1) Space Science Mission Directorate, $4,493,300,000.

(2) Exploration Systems Mission Directorate, $3,779,800,000.

(3) Space Operations Mission Directorate, $6,180,600,000.

(4) Aeronautics and Space Research and Technology Mission Directorate, $682,200,000.

(5) Education Programs, $183,800,000.

(6) Cross-Agency Support, $2,919,900,000.

(7) Construction and Environmental Compliance and Restoration, $448,300,000.

(8) Office of Inspector General, $35,000,000.

(b) FY 2011.—There are authorized to be appropriated to the National Aeronautics and Space Administration for fiscal year fiscal year 2011:

(1) Space Science Mission Directorate, $5,005,600,000.

(2) Exploration Systems Mission Directorate, $4.263,400,000.

(3) Space Operations Mission Directorate, $4,887,800,000.

(4) Aeronautics and Space Research and Technology Mission Directorate, $1,151,800,000.

(5) Education Programs, $145,800,000.

(6) Cross-Agency Support, $3,111,400,000.

(7) Construction and Environmental Compliance and Restoration, $397,300,000.

(8) Office of Inspector General, $36,000,000.

(c) FY 2012.—There are authorized to be appropriated to the National Aeronautics and Space Administration for fiscal year 2012:

(1) Space Science Mission Directorate, $5,248,600,000.

(2) Exploration Systems Mission Directorate, $4,577,400,000.

(3) Space Operations Mission Directorate, $4,290,200,000.

(4) Aeronautics and Space Research and Technology Mission Directorate, $1,596,900,000.

(5) Education Programs, $145,800,000.

(6) Cross-Agency Support, $3,189,600,000.

(7) Construction and Environmental Compliance and Restoration, $363,800,000.

(8) Office of Inspector General, $36,000,000.

(d) SPACE SHUTTLE SUSTAINING OPERATIONS.—For purposes of implementing section 4, there are author-

ized to be appropriated an additional $200,000,000 for Space Shuttle operations in fiscal year 2010, $1,200,000,000 for Space Shuttle Operations in fiscal year 2011, and $2,000,000,000 for Space Shuttle Operations in fiscal year 2012.

(e) ISS OPERATIONS.—For purposes of implementing section 5, there are authorized to be appropriated an additional $36,000,000 for fiscal year 2010 for procurement of necessary spares, replacement units, and associated transportation costs of elements necessary to ensure viable sustained vehicle maintenance and operations, $100,000,000 for fiscal year 2011, and $100,000,000 for fiscal year 2012.

(f) ISS UTILIZATION.—For purposes of implementing section 6, there are authorized to be appropriated an additional $20,000,000 in fiscal year 2010, $15,000,000 for fiscal year 2011, and $15,000,000 for fiscal year 2012.

(g) NO FISCAL YEAR LIMITATION ON FUNDING.—All funds appropriated pursuant to this section shall remain available until expended.

(h) TRANSFER OF FUNDS.—The Administrator may transfer funds among any of the accounts identified in this section if, not less than 30 days before the date of any such transfer, the Administrator provides a detailed expla-

nation of the needs for the transfer, the amount proposed to be transferred, and an analysis of the impact on activities from which funding is proposed to be transferred, to the committees of jurisdiction of the House of Representatives and the Senate. No such transfer shall occur until the Administrator has received an affirmative response indicating agreement to the proposed transfer from the chairs of the committees of jurisdiction.

SEC. 10. APPLICATION WITH OTHER LAWS.

The proviso under the heading ''EXPLORATION'', under the heading ''SCIENCE'' in the matter dealing with the National Aeronautics and Space Administration in the Science Appropriations Act, 2010 (title II of division B of the Consolidated Appropriations Act, 2010; Public Law 111–117) shall not apply to any activity authorized under this Act.

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