AMENDMENT IN THE NATURE OF A SUBSTITUTE TO H.R. 4412 OFFERED BY MR. PALAZZO OF MISSISSIPPI AND MS. EDWARDS OF MARYLAND

Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the ''National Aeronautics and Space Administration Authorization Act of 2014''.

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

SEC. 2. DEFINITIONS.

In this Act:

(1) ADMINISTRATION.—The term ''Administration'' means the National Aeronautics and Space Administration.

(2) ADMINISTRATOR.—The term ''Administrator'' means the Administrator of the Administration.

(3) ORION CREW CAPSULE.—The term ''Orion crew capsule'' refers to the multipurpose crew vehicle described in section 303 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18323).

(4) SPACE ACT AGREEMENT.—The term ''Space Act Agreement'' means an agreement created under the authority to enter into ''other transactions'' under section 20113(e) of title 51, United States Code.

(5) SPACE LAUNCH SYSTEM.—The term ''Space Launch System'' refers to the follow-on Government owned civil launch system developed, managed, and operated by the Administration to serve as a key

component to expand human presence beyond low-Earth orbit, as described in section 302 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18322).

TITLE I—AUTHORIZATION OF APPROPRIATIONS

SEC. 101. FISCAL YEAR 2014.

There are authorized to be appropriated to the Administration for fiscal year 2014 $17,646,500,000 as follows:

(1) For Space Exploration, $4,113,200,000, of which—

(A) $1,918,200,000 shall be for the Space Launch System, of which $318,200,000 shall be for Exploration Ground Systems;

(B) $1,197,000,000 shall be for the Orion crew capsule;

(C) $302,000,000 shall be for Exploration Research and Development; and

(D) $696,000,000 shall be for Commercial Crew Development activities.

(2) For Space Operations, $3,778,000,000, of which $2,984,100,000 shall be for the International Space Station Program.

(3) For Science, $5,151,200,000, of which—

(A) $1,826,000,000 shall be for Earth Science;

(B) $1,345,000,000 shall be for Planetary Science, of which $30,000,000 shall be for the Astrobiology Institute;

(C) $668,000,000 shall be for Astrophysics;

(D) $658,200,000 shall be for the James Webb Space Telescope; and

(E) $654,000,000 shall be for Heliophysics.

(4) For Aeronautics, $566,000,000.

(5) For Space Technology, $576,000,000.

(6) For Education, $116,600,000.

(7) For Cross-Agency Support, $2,793,000,000.

(8) For Construction and Environmental Compliance and Restoration, $515,000,000.

(9) For Inspector General, $37,500,000.

TITLE II—HUMAN SPACE FLIGHT

Subtitle A—Exploration

SEC. 201. SPACE EXPLORATION POLICY.

(a) POLICY.—Human exploration deeper into the solar system shall be a core mission of the Administration. It is the policy of the United States that the goal of NASA's exploration program shall be to successfully con-

duct a crewed mission to the surface of Mars to begin human exploration of that planet. The use of the surface of the Moon, cis-lunar space, near-Earth asteroids, Lagrangian points, and Martian moons may be pursued provided they are properly incorporated into the Roadmap described in section 202 of this Act.

(b) VISION FOR SPACE EXPLORATION.—Section 20302 of title 51, United States Code, is amended—

(1) by adding at the end the following:

''(c) DEFINITIONS.—In this section:

''(1) ORION CREW CAPSULE.—The term 'Orion crew capsule' refers to the multipurpose crew vehicle described in section 303 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18323).

''(2) SPACE LAUNCH SYSTEM.—The term 'Space Launch System' refers to the follow-on Government-owned civil launch system developed, managed, and operated by the Administration to serve as a key component to expand human presence beyond low-Earth orbit, as described in section 302 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18322).''.

(c) KEY OBJECTIVES.—Section 202(b) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18312(b)) is amended—

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

(2) in paragraph (4), by striking the period at the end and inserting ''; and''; and

(3) by adding at the end the following:

''(5) to accelerate the development of capabilities to enable a human exploration mission to the surface of Mars and beyond through the prioritization of those technologies and capabilities best suited for such a mission in accordance with the Exploration Roadmap under section 70504 of title 51, United States Code.''.

(d) USE OF NON-UNITED STATES HUMAN SPACE FLIGHT TRANSPORTATION CAPABILITIES.—Section 201(a) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18311(a)) is amended to read as follows:

''(a) USE OF NON-UNITED STATES HUMAN SPACE FLIGHT TRANSPORTATION CAPABILITIES.—

''(1) IN GENERAL.—NASA may not obtain non-United States human space flight capabilities unless no domestic commercial or public-private partnership

provider that the Administrator has determined to meet safety and affordability requirements established by NASA for the transport of its astronauts is available to provide such capabilities.

''(2) DEFINITION.—For purposes of this subsection, the term 'domestic commercial provider' means a person providing space transportation services or other space-related activities, the majority control of which is held by persons other than a Federal, State, local, or foreign government, foreign company, or foreign national.''.

(e) REPEAL OF SPACE SHUTTLE CAPABILITY ASSURANCE.—Section 203 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18313) is amended—

(1) by striking subsection (b);

(2) in subsection (d), by striking ''subsection (c)'' and inserting ''subsection (b)''; and

(3) by redesignating subsections (c) and (d) as subsections (b) and (c), respectively.

SEC. 202. STEPPING STONE APPROACH TO EXPLORATION.

(a) IN GENERAL.—Section 70504 of title 51, United States Code, is amended to read as follows:

"§ 70504. Stepping stone approach to exploration

''(a) IN GENERAL.—In order to maximize the cost effectiveness of the long-term space exploration and utilization activities of the United States, the Administrator shall direct the Human Exploration and Operations Mission Directorate, or successor division, to develop a Exploration Roadmap to define the specific capabilities and technologies necessary to extend human presence to the surface of Mars and the sets and sequences of missions required to demonstrate such capabilities and technologies.

''(b) INTERNATIONAL PARTICIPATION.—The President should invite the United States partners in the International Space Station program and other nations, as appropriate, to participate in an international initiative under the leadership of the United States to achieve the goal of successfully conducting a crewed mission to the surface of Mars.

''(c) ROADMAP REQUIREMENTS.—In developing the Mars Human Exploration Roadmap, the Administrator shall—

''(1) include the specific set of capabilities and technologies that contribute to extending human presence to the surface of Mars and the sets and sequences of missions necessary to demonstrate the proficiency of these capabilities and technologies

with an emphasis on using or not using the International Space Station, lunar landings, cislunar space, trans-lunar space, Lagrangian points, and the natural satellites of Mars, Phobos and Deimos, as testbeds, as necessary, and shall include the most appropriate process for developing such capabilities and technologies;

''(2) include information on the phasing of planned intermediate destinations, Mars mission risk areas and potential risk mitigation approaches, technology requirements and phasing of required technology development activities, the management strategy to be followed, related ISS activities, and planned international collaborative activities, potential commercial contributions, and other activities relevant to the achievement of the goal established in section 201 of the National Aeronautics and Space Administration Authorization Act of 2014;

''(3) describe those technologies already under development across the Federal Government or by nongovernment entities which meet or exceed the needs described in paragraph (1);

''(4) provide a specific process for the evolution of the capabilities of the fully integrated Orion crew capsule with the Space Launch System and how

these systems demonstrate the capabilities and technologies described in paragraph (1);

''(5) provide a description of the capabilities and technologies that need to be demonstrated or research data that could be gained through the utilization of the International Space Station and the status of the development of such capabilities and technologies;

''(6) describe a framework for international cooperation in the development of all technologies and capabilities required in this section, as well as an assessment of the risks posed by relying on international partners for capabilities and technologies on the critical path of development;

''(7) describe a process for utilizing nongovernmental entities for future human exploration beyond trans-lunar space and specify what, if any, synergy could be gained from—

''(A) partnerships using Space Act Agreements (as defined in section 2 of the National Aeronautics and Space Administration Authorization Act of 2014); or

''(B) other acquisition instruments;

''(8) include in the Exploration Roadmap an addendum from the NASA Advisory Council, and an

addendum from the Aerospace Safety Advisory Panel, each with a statement of review of the Roadmap that shall include—

''(A) subjects of agreement;

''(B) areas of concern; and

''(C) recommendations; and

''(9) include in the Roadmap an examination of the benefits of utilizing current Administration launch facilities for trans-lunar missions.

''(d) UPDATES.—The Administrator shall update such Roadmap as needed but no more than every 2 years and include it in the budget for that fiscal year transmitted to Congress under section 1105(a) of title 31, and describe—

''(1) the achievements and goals reached in the process of developing such capabilities and technologies during the 2-year period prior to the submission of the Roadmap to Congress; and

''(2) the expected goals and achievements in the following 2-year period.

''(e) DEFINITIONS.—In this section, the terms 'Orion crew capsule' and 'Space Launch System' have the meanings given such terms in section 20302.''.

(b) REPORT.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Administrator shall transmit a copy of the Human Exploration Roadmap developed under section 70504 of title 51, United States Code, to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

(2) UPDATES.—The Administrator shall transmit a copy of each updated Human Exploration Roadmap to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 7 days after such Roadmap is updated.

SEC. 203. SPACE LAUNCH SYSTEM.

(a) FINDINGS.—Congress finds that—

(1) the Space Launch System is the most practical approach to reaching the Moon, Mars, and beyond, and Congress reaffirms the policy and minimum capability requirements for the Space Launch System contained in section 302 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18322);

(2) the primary goal for the design of the fully integrated Space Launch System is to enable human space exploration of the Moon, Mars, and beyond over the course of the next century as required in section 302(c) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18322(c)); and

(3) In order to promote safety and reduce programmatic risk, the Administrator shall budget for and undertake a robust ground test and uncrewed and crewed flight test and demonstration program for the Space Launch System and the Orion multipurpose crew vehicle and shall budget for an operational flight rate sufficient to maintain safety and operational readiness.

(b) SENSE OF CONGRESS.—It is the sense of Congress that the President's annual budget requests for the Space Launch System and Orion multipurpose crew vehicle development, test, and operational phases should strive to accurately reflect the resource requirements of each of those phases, consistent with the policy established in section 201 of this Act.

(c) IN GENERAL.—Given the critical importance of a heavy-lift launch vehicle and crewed spacecraft to enable the achievement of the goal established in section 201 of

this Act, as well as to the accomplishment of intermediate exploration milestones and the provision of a backup capability to transfer crew and cargo to the ISS, the Administrator shall make the expeditious development, test, and achievement of operational readiness of the Space Launch System and the Orion crew capsule the highest priority of the exploration program.

(d) GOVERNMENT ACCOUNTABILITY OFFICE REVIEW.—Not later than 270 days after the date of enactment of this Act, the Comptroller General shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on NASA's acquisition of ground systems in support of the Space Launch System. The report shall assess the extent to which NASA's exploration systems development of ground systems is focused on the direct support of the Space Launch System and shall identify any ground support projects or activities that NASA is undertaking that do not solely or primarily support the Space Launch System.

(e) UTILIZATION REPORT.—The Administrator, in consultation with the Secretary of Defense and the Director of National Intelligence, shall prepare a report that addresses the effort and budget required to enable and

utilize a cargo variant of the 130-ton Space Launch System configuration described in section 302(c) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18322(c)). This report shall also include consideration of the technical requirements of the scientific and national security communities related to such Space Launch System and shall directly assess the utility and estimated cost savings obtained by using such Space Launch System for national security and space science missions. The Administrator shall transmit such report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 180 days after the date of enactment of this Act.

(f) NAMING COMPETITION.—Beginning not later than 180 days after the date of enactment of this Act and concluding not later than 1 year after such date of enactment, the Administrator shall conduct a well-publicized competition among students in elementary and secondary schools to name the elements of the Administration's exploration program, including—

(1) a name for the deep space human exploration program as a whole, which includes the Space

Launch System, the Orion crew capsule, and future missions; and

(2) a name for the Space Launch System.

(g) ADVANCED BOOSTER COMPETITION.—

(1) REPORT.—Not later than 90 days after the date of enactment of this Act, the Associate Administrator of the National Aeronautics and Space Administration shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report that—

(A) describes the estimated total development cost of an advanced booster for the Space Launch System;

(B) details any reductions or increases to the development cost of the Space Launch System which may result from conducting a competition for an advanced booster; and

(C) outlines any potential schedule delay to the Space Launch System 2017 EM–1 launch as a result of increased costs associated with conducting a competition for an advanced booster.

(2) COMPETITION.—If the Associate Administrator reports reductions pursuant to paragraph (1)(B), and no adverse schedule impact pursuant to paragraph (1)(C), then the Administration shall conduct a full and open competition for an advanced booster for the Space Launch System to meet the requirements described in section 302(c) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18322(c)), to begin not later than 1 year after the Associate Administrator transmits the report required under paragraph (1).

SEC. 204. ORION CREW CAPSULE.

(a) IN GENERAL.—The Orion crew capsule shall meet the practical needs and the minimum capability requirements described in section 303 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18323).

(b) REPORT.—Not later than 60 days after the date of enactment of this Act, the Administrator shall transmit a report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate—

(1) detailing those components and systems of the Orion crew capsule that ensure it is in compliance with section 303(b) of such Act (42 U.S.C. 18323(b));

(2) detailing the expected date that the Orion crew capsule will be available to transport crew and cargo to the International Space Station; and

(3) certifying that the requirements of section 303(b)(3) of such Act (42 U.S.C. 18323(b)(3)) will be met by the Administration.

SEC. 205. SPACE RADIATION.

(a) STRATEGY AND PLAN.—

(1) IN GENERAL.—The Administrator shall develop a space radiation mitigation and management strategy and implementation plan to enable the achievement of the goal established in section 201 that includes key research and monitoring requirements, milestones, a timetable, and an estimate of facility and budgetary requirements.

(2) COORDINATION.—The strategy shall include a mechanism for coordinating NASA research, technology, facilities, engineering, operations, and other functions required to support the strategy and plan.

(3) TRANSMITTAL.—Not later than 1 year after the date of enactment of this Act, the Administrator

shall transmit the strategy and plan to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

(b) SPACE RADIATION RESEARCH FACILITIES.—The Administrator, in consultation with the heads of other appropriate Federal agencies, shall assess the national capabilities for carrying out critical ground-based research on space radiation biology and shall identify any issues that could affect the ability to carry out that research.

SEC. 206. PLANETARY PROTECTION FOR HUMAN EXPLORATION MISSIONS.

(a) STUDY.—The Administrator shall enter into an arrangement with the National Academies for a study to explore the planetary protection ramifications of potential future missions by astronauts such as to the lunar polar regions, near-Earth asteroids, the moons of Mars, and the surface of Mars.

(b) SCOPE.—The study shall—

(1) collate and summarize what has been done to date with respect to planetary protection measures to be applied to potential human missions such as to the lunar polar regions, near-Earth asteroids, the moons of Mars, and the surface of Mars;

(2) identify and document planetary protection concerns associated with potential human missions such as to the lunar polar regions, near-Earth asteroids, the moons of Mars, and the surface of Mars;

(3) develop a methodology, if possible, for defining and classifying the degree of concern associated with each likely destination;

(4) assess likely methodologies for addressing planetary protection concerns; and

(5) identify areas for future research to reduce current uncertainties.

(c) COMPLETION DATE.—Not later than 2 years after the date of enactment of this Act, the Administrator shall provide the results of the study to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

Subtitle B—Space Operations

SEC. 211. INTERNATIONAL SPACE STATION.

(a) IN GENERAL.—The following is the policy of the United States:

(1) The United States ISS program shall have two primary objectives: Supporting Achievement of the goal established in section 201 of this Act and pursuing a research program that advances knowl-

edge and provides benefits to the Nation. It shall continue to be the policy of the United States to, in consultation with its international partners in the ISS program, support full and complete utilization of the ISS.

(2) The International Space Station shall be utilized to the maximum extent practicable for the development of capabilities and technologies needed for the future of human exploration beyond low-Earth orbit and shall be considered in the development of the Exploration Roadmap specified in section 202 of this Act.

(3) The Administrator shall, in consultation with the International Space Station partners—

(A) take all necessary measures to support the operation and full utilization of the International Space Station; and

(B) seek to minimize, to the extent practicable, the operating costs of the International Space Station.

(4) Reliance on foreign carriers for crew transfer is unacceptable, and the Nation's human space flight program must acquire the capability to launch United States astronauts on United States rockets from United States soil as soon as is safe and prac-

tically possible, whether on Government-owned and operated space transportation systems or privately owned systems that have been certified for flight by the appropriate Federal agencies.

(b) REAFFIRMATION OF POLICY.—Congress reaffirms—

(1) its commitment to the development of a commercially developed launch and delivery system to the International Space Station for crew missions as expressed in the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109–155), the National Aeronautics and Space Administration Authorization Act of 2008 (Public Law 110–422), and the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267);

(2) that the Administration shall make use of United States commercially provided International Space Station crew transfer and crew rescue services to the maximum extent practicable;

(3) that the Orion crew capsule shall provide an alternative means of deliver of crew and cargo to the International Space Station, in the event other vehicles, whether commercial vehicles or partner-supplied vehicles, are unable to perform that function; and

(3) the policy stated in section 501(b) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18351(b)) that the Administration shall pursue international, commercial, and intragovernmental means to maximize International Space Station logistics supply, maintenance, and operational capabilities, reduce risks to International Space Station systems sustainability, and offset and minimize United States operations costs relating to the International Space Station.

(c) ASSURED ACCESS TO LOW-EARTH ORBIT.—Section 70501(a) of title 51, United States Code, is amended to read as follows:

''(a) POLICY STATEMENT.—It is the policy of the United States to 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 capability to ensure continued United States participation and leadership in the exploration and utilization of space.''.

(d) REPEALS.—

(1) USE OF SPACE SHUTTLE OR ALTERNATIVES.—Chapter 701 of title 51, United States Code, and the item relating to such chapter in the table of chapters for such title, are repealed.

(2) SHUTTLE PRICING POLICY FOR COMMERCIAL AND FOREIGN USERS.—Chapter 703 of title 51, United States Code, and the item relating to such chapter in the table of chapters for such title, are repealed.

(3) SHUTTLE PRIVATIZATION.—Section 50133 of title 51, United States Code, and the item relating to such section in the table of sections for chapter 501 of such title, are repealed.

(e) EXTENSION CRITERIA REPORT.—Not later than 1 year after the date of enactment of this Act, the Administrator shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the feasibility of extending the operation of the International Space Station that includes—

(1) criteria for defining the International Space Station as a research success;

(2) any necessary contributions to enabling execution of the Exploration Roadmap specified in section 202 of this Act;

(3) cost estimates for operating the International Space Station to achieve the criteria required under paragraph (1);

(4) cost estimates for extending operations to 2024 and 2030;

(5) an assessment of how the defined criteria under paragraph (1) respond to the National Academies Decadal Survey on Biological and Physical Sciences in Space; and

(6) an identification of the actions and cost estimate needed to deorbit the ISS once a decision is made to deorbit the laboratory.

(f) STRATEGIC PLAN FOR INTERNATIONAL SPACE STATION RESEARCH.—

(1) IN GENERAL.—The Director of the Office of Science and Technology Policy, in consultation with the Administrator, academia, other Federal agencies, the International Space Station National Laboratory Advisory Committee, and other potential stakeholders, shall develop and transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a strategic plan for conducting competitive, peer-reviewed research in physical and life sciences and related technologies on the International Space Station through at least 2020.

(2) PLAN REQUIREMENTS.—The strategic plan shall—

(A) be consistent with the priorities and recommendations established by the National Academies in its Decadal Survey on Biological and Physical Sciences in Space;

(B) provide a research timeline and identify resource requirements for its implementation, including but not exclusive to, the facilities and instrumentation necessary for the conduct of such research; and

(C) identify—

(i) criteria for the proposed research, including—

(I) a justification for the research to be carried out in the space microgravity environment;

(II) the use of model systems;

(III) the testing of flight hardware to understand and ensure its functioning in the microgravity environment;

(IV) the use of controls to help distinguish among the direct and indirect effects of microgravity, among

other effects of the flight or space environment;

(V) approaches for facilitating data collection, analysis, and interpretation;

(VI) procedures to ensure repetition of experiments, as needed;

(VII) support for timely presentation of the peer-reviewed results of the research;

(VIII) defined metrics for the success of each study; and

(IX) how these activities enable the Exploration Roadmap described in section 202 of this Act.

(ii) instrumentation required to support the measurements and analysis of the research to be carried out under the strategic plan;

(iii) the capabilities needed to support direct, real-time communications between astronauts working on research experiments onboard the International Space Station and the principal investigator on the ground;

(iv) a process for involving the external user community in research planning, including planning for relevant flight hardware and instrumentation, and for utilization of the International Space Station, free flyers, or other research platforms;

(v) the acquisition strategies the Administration plans to use to acquire any new capabilities which are not operational on the International Space Station as of the date of enactment of this Act and which have an estimated total life cycle cost of $10,000,000 or more, along with a justification of any anticipated use of less than full and open competition and written approval therefor from the Administration's Assistant Administrator for Procurement; and

(vi) defined metrics for success of the research plan.

(3) REPORT.—

(A) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Comptroller General of the United States shall transmit to the Committee on Science, Space,

and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the progress of the organization chosen for the management of the International Space Station National Laboratory as directed in section 504 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18354).

(B) SPECIFIC REQUIREMENTS.—The report shall assess the management, organization, and performance of such organization and shall include a review of the status of each of the 7 required activities listed in section 504(c) of such Act (42 U.S.C. 18354(c)).

SEC. 212. COMMERCIAL CREW PROGRAM.

(a) SENSE OF CONGRESS.—It is the sense of Congress that once developed and certified to meet NASA's safety and reliability requirements, United States commercially provided crew transportation systems offer the potential of serving as the primary means of transporting American astronauts and international partner astronauts to and from the ISS and serving as ISS emergency crew rescue vehicles. At the same time, the budgetary assumptions used by NASA in its planning for the Commercial

Crew Program have consistently assumed significantly higher funding levels than have historically been authorized and appropriated by Congress. It is the sense of Congress that credibility in the Administration's budgetary estimates for the Commercial Crew Program can be enhanced by an independently developed cost estimate. Such credibility in budgetary estimates is an important factor in understanding program risk.

(b) OBJECTIVE.—The objective of NASA's Commercial Crew Program shall be to assist the development of at least one crew transportation system to carry NASA astronauts safely, reliably, and affordably to and from the ISS and to serve as an emergency crew rescue vehicle as soon as practicable within the funding levels authorized in this Act. The Administration shall not use any considerations beyond this objective in the overall acquisition strategy.

(c) SAFETY.—Consistent with the findings and recommendations of the Columbia Accident Investigation Board, the Administration shall—

(1) ensure that in its evaluation and selection of contracts for the development of commercial crew transportation capabilities, that safety is the highest priority; and

(2) seek to ensure that minimization of the probability of loss of crew shall be an important selection criterion of the Commercial Crew Transportation Capability Contract.

(d) COST MINIMIZATION.—The Administrator shall strive through the competitive selection process to minimize the life cycle cost to NASA through the planned period of commercially provided crew transportation services.

(e) TRANSPARENCY.—Transparency is the cornerstone of ensuring a safe and reliable commercial crew transportation service to the International Space Station. The Administrator shall, to the greatest extent practicable, ensure that every commercial crew transportation services provider has provided evidence based support for their costs and schedule.

(f) INDEPENDENT COST AND SCHEDULE ESTIMATE.—

(1) REQUIREMENT.—Not later than 30 days after the Federal Acquisition Regulation-based contract for the Commercial Crew Transportation Capability Contract is awarded, the Administrator shall arrange for the initiation of an Independent Cost and Schedule Estimate for—

(A) all activities associated with the development, test, demonstration, and certification of commercial crew transportation systems;

(B) transportation and rescue services required by NASA for ISS operations through calendar year 2020 or later if NASA requirements so dictate; and

(C) the estimated date of operational readiness for the program each assumption listed in paragraph (2) of this subsection.

(2) ASSUMPTIONS.—The Independent Cost and Schedule Estimate shall provide an estimate for each of the following scenarios:

(A) An appropriation of $600,000,000 over the next 3 fiscal years.

(B) An appropriation of $700,000,000 over the next 3 fiscal years.

(C) An appropriation of $800,000,000 over the next 3 fiscal years.

(D) The funding level assumptions over the next 3 fiscal years that are included as part of commercial crew transportation capability contract awards.

(3) TRANSMITTAL.—Not later than 180 days after initiation of the Independent Cost and Sched-

ule Estimate under paragraph (1), the Administrator shall transmit the results of the Independent Cost and Schedule Estimate to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

(g) IMPLEMENTATION STRATEGIES.—

(1) REPORT.—Not later than 60 days after the completion of the Independent Cost and Schedule Estimate under subsection (f), the Administrator shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report containing 4 distinct implementation strategies based on such Independent Cost and Schedule Estimate for the final stages of the commercial crew program.

(2) REQUIREMENTS.—These options shall include—

(A) a strategy that assumes an appropriation of $600,000,000 over the next 3 fiscal years;

(B) a strategy that assumes an appropriation of $700,000,000 over the next 3 fiscal years;

(C) a strategy that assumes an appropriation of $800,000,000 over the next 3 fiscal years; and

(D) a strategy that has yet to be considered previously in any budget submission but that the Administration believes could ensure the flight readiness date of 2017 for at least one provider.

(3) INCLUSIONS.—Each strategy shall include the contracting instruments the Administration will employ to acquire the services in each phase of development or acquisition and the number of commercial providers the Administration will include in the program.

TITLE III—SCIENCE

Subtitle A—General

SEC. 301. SCIENCE PORTFOLIO.

(a) BALANCED AND ADEQUATELY FUNDED ACTIVITIES.—Section 803 of the National Aeronautics and Space Administration Authorization Act of 2010 (124 Stat. 2832) is amended to read as follows:

"SEC. 803. OVERALL SCIENCE PORTFOLIO; SENSE OF CONGRESS.

''Congress reaffirms its sense, expressed in the National Aeronautics and Space Administration Authoriza-

tion Act of 2010, that a balanced and adequately funded set of activities, consisting of research and analysis grants programs, technology development, small, medium, and large space missions, and suborbital research activities, contributes to a robust and productive science program and serves as a catalyst for innovation and discovery.''.

(b) DECADAL SURVEYS.—In proposing the funding of programs and activities for the National Aeronautics and Space Administration for each fiscal year, the Administrator shall to the greatest extent practicable follow guidance provided in the current decadal surveys from the National Academies' Space Studies Board.

SEC. 302. RADIOISOTOPE POWER SYSTEMS.

(a) SENSE OF CONGRESS.—It is the sense of Congress that conducting deep space exploration requires radioisotope power systems, and establishing continuity in the production of the material needed to power these systems is paramount to the success of these future deep space missions. It is further the sense of Congress that Federal agencies supporting NASA through the production of such material should do so in a cost effective manner so as not to impose excessive reimbursement requirements on NASA.

(b) ANALYSIS OF REQUIREMENTS AND RISKS.—The Director of the Office of Science and Technology Policy

and the Administrator, in consultation with other Federal agencies, shall conduct an analysis of—

(1) the requirements of the Administration for radioisotope power system material that is needed to carry out planned, high priority robotic missions in the solar system and other surface exploration activities beyond low-Earth orbit; and

(2) the risks to missions of the Administration in meeting those requirements, or any additional requirements, due to a lack of adequate radioisotope power system material.

(c) CONTENTS OF ANALYSIS.—The analysis conducted under subsection (b) shall—

(1) detail the Administration's current projected mission requirements and associated timeframes for radioisotope power system material;

(2) explain the assumptions used to determine the Administration's requirements for the material, including—

(A) the planned use of advanced thermal conversion technology such as advanced thermocouples and Stirling generators and converters;

(B) the risks and implications of, and contingencies for, any delays or unanticipated tech-

nical challenges affecting or related to the Administration's mission plans for the anticipated use of advanced thermal conversion technology;

(3) assess the risk to the Administration's programs of any potential delays in achieving the schedule and milestones for planned domestic production of radioisotope power system material;

(4) outline a process for meeting any additional Administration requirements for the material;

(5) estimate the incremental costs required to increase the amount of material produced each year, if such an increase is needed to support additional Administration requirements for the material;

(6) detail how the Administration and other Federal agencies will manage, operate, and fund production facilities and the design and development of all radioisotope power systems used by the Administration and other Federal agencies as necessary;

(7) specify the steps the Administration will take, in consultation with the Department of Energy, to preserve the infrastructure and workforce necessary for production of radioisotope power systems and ensure that its reimbursements to the De-

partment of Energy associated with such preservation are equitable and justified; and

(8) detail how the Administration has implemented or rejected the recommendations from the National Research Council's 2009 report titled ''Radioisotope Power Systems: An Imperative for Maintaining U.S. Leadership in Space Exploration''.

(d) TRANSMITTAL.—Not later than 180 days after the date of enactment of this Act, the Administrator shall transmit the results of the analysis to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

SEC. 303. CONGRESSIONAL DECLARATION OF POLICY AND PURPOSE.

Section 20102(d) of title 51, United States Code, is amended by adding at the end the following new paragraph:

''(10) The direction of the unique competence of the Administration to the search for life's origin, evolution, distribution, and future in the Universe. In carrying out this objective, the Administration may use any practicable ground-based, airborne, or space-based technical means and spectra of electromagnetic radiation.''.

Subtitle B—Astrophysics

SEC. 311. DECADAL CADENCE.

In carrying out section 301(b), the Administrator shall seek to ensure to the extent practicable a steady cadence of large, medium, and small astrophysics missions.

SEC. 312. EXTRASOLAR PLANET EXPLORATION STRATEGY.

(a) STRATEGY.—The Administrator shall enter into an arrangement with the National Academies to develop a science strategy for the study and exploration of extrasolar planets, including the use of TESS, the James Webb Space Telescope, a potential WFIRST mission, or any other telescope, spacecraft, or instrument as appropriate. Such strategy shall—

(1) outline key scientific questions;

(2) identify the most promising research in the field;

(3) indicate the extent to which the mission priorities in existing decadal surveys address the key extrasolar planet research goals;

(4) make recommendations with respect to optimal coordination with international partners, commercial partners, and other not-for-profit partners; and

(5) make recommendations on the above as appropriate.

(b) USE OF STRATEGY.—The Administrator shall use the strategy to—

(1) inform roadmaps, strategic plans, and other activities of the Administration as they relate to extrasolar planet research and exploration; and

(2) provide a foundation for future activities and initiatives.

(c) REPORT TO CONGRESS.—Not later than 18 months after the date of enactment of this Act, the National Academies shall transmit a report to the Administrator, and to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, containing the strategy developed under subsection (a).

SEC. 313. JAMES WEBB TELESCOPE.

It is the sense of Congress that—

(1) the James Webb Space Telescope (JWST) will revolutionize our understanding of star and planet formation and how galaxies evolved, and advance the search for the origins of the universe;

(2) the JWST will enable American scientists to maintain their leadership in astrophysics and other disciplines;

(3) the JWST program is making steady progress towards a launch in 2018;

(4) the on-time and on-budget delivery of JWST is a high congressional priority; and

(5) maintaining this progress will require the Administrator to ensure that integrated testing is appropriately timed and sufficiently comprehensive to enable potential issues to be identified and addressed early enough to be handled within JWST's development schedule prior to launch.

SEC. 314. NATIONAL RECONNAISSANCE OFFICE TELESCOPE DONATION.

Not later than 90 days after the date of enactment of this Act, the Administrator shall transmit a report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate outlining the cost of the Administration's potential plan for developing the Wide-Field Infrared Survey Telescope as described in the 2010 National Academies' astronomy and astrophysics decadal survey, including an alternative plan for the Wide-Field Infrared Survey Telescope 2.4, which includes the donated 2.4-meter aperture National Reconnaissance Office telescope. Due to the budget constraints on the Administration's science programs, this report shall include—

(1) an assessment of cost efficient approaches to develop the Wide-Field Infrared Survey Telescope;

(2) a comparison to the development of mission concepts that exclude the utilization of the donated asset;

(3) an assessment of how the Administration's existing science missions will be affected by the utilization of the donated asset described in this section; and

(4) a description of the cost associated with storing and maintaining the donated asset.

Subtitle C—Planetary Science

SEC. 321. DECADAL CADENCE.

In carrying out section 301(b), the Administrator shall seek to ensure to the greatest extent practicable that the Administration carries out a balanced set of planetary science programs in accordance with the priorities established in the most recent decadal survey for planetary science. Such programs shall include, at a minimum—

(1) a Discovery-class mission at least once every 24 months;

(2) a New Frontiers-class mission at least once every 60 months; and

(3) at least one Flagship-class mission per decadal survey period, starting with a Europa mission with a goal of launching by 2021.

SEC. 322. NEAR-EARTH OBJECTS.

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

(1) Near-Earth objects pose a serious and credible threat to humankind, as many scientists believe that a major asteroid or comet was responsible for the mass extinction of the majority of the Earth's species, including the dinosaurs, approximately 65,000,000 years ago.

(2) Similar objects have struck the Earth or passed through the Earth's atmosphere several times in the Earth's history and pose a similar threat in the future.

(3) Several such near-Earth objects have only been discovered within days of the objects' closest approach to Earth, and recent discoveries of such large objects indicate that many large near-Earth objects remain to be discovered.

(4) The efforts undertaken by the Administration for detecting and characterizing the hazards of near-Earth objects should continue to seek to fully

determine the threat posed by such objects to cause widespread destruction and loss of life.

(b) DEFINITION.—For purposes of this section, the term ''near-Earth object'' means an asteroid or comet with a perihelion distance of less than 1.3 Astronomical Units from the Sun.

(c) NEAR-EARTH OBJECT SURVEY.—The Administrator shall continue to discover, track, catalogue, and characterize the physical characteristics of near-Earth objects equal to or greater than 140 meters in diameter in order to assess the threat of such near-Earth objects to the Earth, pursuant to the George E. Brown, Jr. Near-Earth Object Survey Act (42 U.S.C. 16691). It shall be the goal of the Survey program to achieve 90 percent completion of its near-Earth object catalogue (based on statistically predicted populations of near-Earth objects) by 2020.

(d) WARNING AND MITIGATION OF POTENTIAL HAZARDS OF NEAR-EARTH OBJECTS.—Congress reaffirms the policy set forth in section 20102(g) of title 51, United States Code (relating to detecting, tracking, cataloguing, and characterizing asteroids and comets).

(e) PROGRAM REPORT.—The Director of the Office of Science and Technology Policy and the Administrator shall transmit to the Committee on Science, Space, and

Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, not later than 1 year after the date of enactment of this Act, an initial report that provides—

(1) recommendations for carrying out the Survey program and an associated proposed budget;

(2) analysis of possible options that the Administration could employ to divert an object on a likely collision course with Earth; and

(3) a description of the status of efforts to coordinate and cooperate with other countries to discover hazardous asteroids and comets, plan a mitigation strategy, and implement that strategy in the event of the discovery of an object on a likely collision course with Earth.

(f) ANNUAL REPORTS.—Subsequent to the initial report the Administrator shall annually transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report that provides—

(1) a summary of all activities carried out pursuant to subsection (c) since the date of enactment of this Act, including the progress towards achieving

90 percent completion of the survey in subsection (c); and

(2) a summary of expenditures for all activities carried out pursuant to subsection (c) since the date of enactment of this Act.

(g) STUDY.—The Administrator, in collaboration with other relevant Federal agencies, shall carry out a technical and scientific assessment of the capabilities and resources to—

(1) accelerate the survey in subsection (c) and;

(2) expand NASA's Near-Earth Object Program to include the detection, tracking, cataloguing, and characterization of potentially hazardous near-Earth objects less than 140 meters in diameter.

(h) TRANSMITTAL.—Not later than 270 days after the date of enactment of this Act, the Administrator shall transmit the results of the assessment to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

SEC. 323. NEAR-EARTH OBJECTS PUBLIC-PRIVATE PARTNERSHIPS.

(a) SENSE OF CONGRESS.—It is the sense of Congress that the Administration should seek to leverage the capabilities of the private sector and philanthropic organi-

zations to the maximum extent practicable in carrying out the Near-Earth Object Survey program in order to meet the goal of the Survey program.

(b) REPORT.—Not later than 180 days after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, Transportation of the Senate a report describing how the Administration can expand collaborative partnerships to detect, catalogue, and categorize near-Earth asteroids.

SEC. 324. ASTROBIOLOGY STRATEGY.

(a) STRATEGY.—The Administrator shall enter into an arrangement with the National Academies to develop a science strategy for astrobiology that would outline key scientific questions, identify the most promising research in the field, and indicate the extent to which the mission priorities in existing decadal surveys address the search for life's origin, evolution, distribution, and future in the Universe. The strategy shall include recommendations for coordination with international partners.

(b) USE OF STRATEGY.—The Administrator shall use the strategy developed under subsection (a) in planning and funding research and other activities and initiatives in the field of astrobiology.

(c) REPORT TO CONGRESS.—Not later than 18 months after the date of enactment of this Act, the National Academies shall transmit a report to the Administrator, and to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, containing the strategy developed under subsection (a).

SEC. 325. ASTROBIOLOGY PUBLIC-PRIVATE PARTNERSHIPS.

Not later than 180 days after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, Transportation of the Senate a report describing how the Administration can expand collaborative partnerships to study life's origin, evolution, distribution, and future in the Universe.

SEC. 326. ASSESSMENT OF MARS ARCHITECTURE.

(a) ASSESSMENT.—The Administrator shall enter into an arrangement with the National Academies to assess—

(1) NASA's revised post-2016 Mars exploration architecture and its responsiveness to the strategies, priorities, and guidelines put forward by the National Academies' planetary science decadal surveys

and other relevant National Academies Mars-related reports;

(2) the long-term goals of NASA's Mars Exploration Program and such program's ability to optimize the science return, given the current fiscal posture of the program;

(3) the Mars architecture's relationship to Mars-related activities to be undertaken by agencies and organizations outside of the United States; and

(4) the extent to which the Mars architecture represents a reasonably balanced mission portfolio.

(b) TRANSMITTAL.—Not later than 18 months after the date of enactment of this Act, the Administrator shall transmit the results of the assessment to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

Subtitle D—Heliophysics

SEC. 331. DECADAL CADENCE.

In carrying out section 301(b), the Administrator shall seek to ensure to the extent practicable a steady cadence of large, medium, and small heliophysics missions.

Subtitle E—Earth Science

SEC. 341. REIMBURSEMENT FOR ADDITIONAL RESPONSIBILITIES.

It is the sense of Congress that NASA is being asked to undertake important Earth science activities in an environment of increasingly constrained fiscal resources, and that any transfer of additional responsibilities to NASA, such as climate instrument development and measurements that are currently part of the portfolio of the National Oceanic and Atmospheric Administration, should be accompanied by the provision of additional resources to allow NASA to carry out the increased responsibilities without adversely impacting its implementation of its existing Earth science programs and priorities.

TITLE IV—AERONAUTICS

SEC. 401. SENSE OF CONGRESS.

It is the sense of Congress that—

(1) a robust aeronautics research portfolio will help maintain the United States status as a leader in aviation, enhance the competitiveness of the United States in the world economy and improve the quality of life of all citizens;

(2) aeronautics research is essential to the Administration's mission, continues to be an important

core element of NASA's mission and should be supported;

(3) the Administrator should coordinate and consult with relevant Federal agencies and the private sector to minimize duplication and leverage resources; and

(4) carrying aeronautics research to a level of maturity that allows NASA's research results to be transitioned to the users, whether private or public sector, is critical to their eventual adoption.

SEC. 402. AERONAUTICS RESEARCH GOALS.

The Administrator shall ensure that the Administration maintains a strong aeronautics research portfolio ranging from fundamental research through integrated systems research with specific research goals, including the following:

(1) ENHANCE AIRSPACE OPERATIONS AND SAFETY.—NASA's Aeronautics Research Mission Directorate shall address research needs of the Next Generation Air Transportation System and identify critical gaps in technology which must be bridged to enable the implementation of the Next Generation Air Transportation System so that safety and productivity improvements can be achieved as soon as possible.

(2) IMPROVE AIR VEHICLE PERFORMANCE.—Such Directorate shall conduct research to improve aircraft performance and minimize environmental impacts. The Director shall consider and pursue concepts to reduce noise, emissions and fuel consumption while maintaining high safety standards, and conduct research related to the impact of alternative fuels on the safety, reliability and maintainability of current and new air vehicles.

(3) STRENGTHEN AVIATION SAFETY.—Such Directorate shall proactively address safety challenges associated with current and new air vehicles and with operations in the Nation's current and future air transportation system.

(4) DEMONSTRATE CONCEPTS AT THE SYSTEM LEVEL.—Such Directorate shall mature the most promising technologies to the point at which they can be demonstrated in a relevant environment and shall integrate individual components and technologies as appropriate to ensure that they perform in an integrated manner as well as they do when operated individually.

SEC. 403. UNMANNED AERIAL SYSTEMS RESEARCH AND DEVELOPMENT.

(a) IN GENERAL.—The Administrator, in consultation with the Administrator of the Federal Aviation Administration and other Federal agencies, shall carry out research and technological development to facilitate the safe integration of unmanned aerial systems into the National Airspace System, including—

(1) positioning and navigation systems;

(2) sense and avoid capabilities;

(3) secure data and communication links;

(4) flight recovery systems; and

(5) human systems integration.

(b) ROADMAP.—The Administrator shall update a roadmap for unmanned aerial systems research and development and transmit this roadmap to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 180 days after the date of enactment of this Act.

(c) COOPERATIVE UNMANNED AERIAL VEHICLE ACTIVITIES.—Section 31504 of title 51, United States Code, is amended by inserting ''Operational flight data derived from these cooperative agreements shall be made available, in appropriate and usable formats, to the Administration

and the Federal Aviation Administration for the development of regulatory standards.'' after ''in remote areas.''.

SEC. 404. RESEARCH PROGRAM ON COMPOSITE MATERIALS USED IN AERONAUTICS.

(a) PURPOSE OF RESEARCH.—The Administrator shall continue NASA's cooperative research program with industry to identify and demonstrate more effective and safe ways of developing, manufacturing, and maintaining composite materials for use in airframes, subsystems, and propulsion components.

(b) CONSULTATION.—The Administrator, in overseeing the Administration's work on composite materials, shall consult with relevant Federal agencies and partners in industry to accelerate safe development and certification processes for new composite materials and design methods while maintaining rigorous inspection of new composite materials.

(c) REPORT.—Not later than 1 year after the date of enactment of this Act, the Administrator shall transmit a report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate detailing the Administration's work on new composite materials and the coordination efforts among Federal agencies.

SEC. 405. HYPERSONIC RESEARCH.

Not later than 1 year after the date of enactment of this Act, the Administrator, in consultation with other Federal agencies, shall develop and transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a research and development roadmap for hypersonic aircraft research with the objective of exploring hypersonic science and technology using air-breathing propulsion concepts, through a mix of theoretical work, basic and applied research, and development of flight research demonstration vehicles. The roadmap shall prescribe appropriate agency contributions, coordination efforts, and technology milestones.

SEC. 406. SUPERSONIC RESEARCH.

(a) FINDINGS.—Congress finds that—

(1) the ability to fly commercial aircraft over land at supersonic speeds without adverse impacts on the environment or on local communities could open new global markets and enable new transportation capabilities; and

(2) continuing NASA's research program is necessary to assess the impact in a relevant environment of commercial supersonic flight operations and

provide the basis for establishing appropriate sonic boom standards for such flight operations.

(b) ROADMAP FOR SUPERSONIC RESEARCH.—Not later than 1 year after the date of enactment of this Act, the Administrator shall develop and transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a roadmap that allows for flexible funding profiles, for supersonic aeronautics research and development with the objective of developing and demonstrating, in a relevant environment, airframe and propulsion technologies to minimize the environmental impact, including noise, of supersonic overland flight in an efficient and economical manner. The roadmap shall include—

(1) the baseline research as embodied by the Administration's existing research on supersonic flight;

(2) a list of specific technological, environmental, and other challenges that must be overcome to minimize the environmental impact, including noise, of supersonic overland flight;

(3) a research plan to address such challenges, as well as a project timeline for accomplishing relevant research goals;

(4) a plan for coordination with stakeholders, including relevant government agencies and industry; and

(5) a plan for how NASA will ensure that sonic boom research is coordinated as appropriate with relevant Federal agencies.

SEC. 407. RESEARCH ON NEXTGEN AIRSPACE MANAGEMENT CONCEPTS AND TOOLS.

(a) IN GENERAL.—The Administrator shall, in consultation with other Federal agencies, review at least annually the alignment and timing of the Administration's research and development activities in support of the NextGen airspace management modernization initiative, and shall make any necessary adjustments by reprioritizing or retargeting the Administration's research and development activities in support of the NextGen initiative.

(b) ANNUAL REPORTS.—The Administrator shall report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate annually regarding the progress of the Administration's research and development activities in support of the NextGen airspace management modernization initiative, including details of technologies transferred to relevant

Federal agencies for eventual operation implementation, consultation with other Federal agencies, and any adjustments made to research activities.

SEC. 408. ROTORCRAFT RESEARCH.

Not later than 1 year after the date of enactment of this Act, the Administrator, in consultation with other Federal agencies, shall prepare and transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a roadmap for research relating to rotorcraft and other runway-independent air vehicles, with the objective of developing and demonstrating improved safety, noise, and environmental impact in a relevant environment. The roadmap shall include specific goals for the research, a timeline for implementation, metrics for success, and guidelines for collaboration and coordination with industry and other Federal agencies.

SEC. 409. TRANSFORMATIVE AERONAUTICS RESEARCH.

It is the sense of Congress that the Administrator, in looking strategically into the future and ensuring that NASA's Center personnel are at the leading edge of aeronautics research, should encourage investigations into the early-stage advancement of new processes, novel concepts, and innovative technologies that have the potential to meet

national aeronautics needs. The Administrator shall continue to ensure that awards for the investigation of these concepts and technologies are open for competition among NASA civil servants at its Centers, separate from other awards open only to non-NASA sources.

SEC. 410. STUDY OF UNITED STATES LEADERSHIP IN AERONAUTICS RESEARCH.

(a) STUDY.—The Administrator shall enter into an arrangement with the National Academies for a study to benchmark the position of the United States in civil aeronautics research compared to the rest of the world. The study shall—

(1) seek to define metrics by which relative leadership in civil aeronautics research can be determined;

(2) ascertain how the United States compares to other countries in the field of civil aeronautics research and any relevant trends; and

(3) provide recommendations on what can be done to regain or retain global leadership, including—

(A) identifying research areas where United States expertise has been or is at risk of being overtaken;

(B) defining appropriate roles for NASA;

(C) identifying public-private partnerships that could be formed; and

(D) estimating the impact on NASA's budget should such recommendations be implemented.

(b) REPORT.—Not later than 18 months after the date of enactment of this Act, the Administrator shall provide the results of the study to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

TITLE V—SPACE TECHNOLOGY

SEC. 501. SENSE OF CONGRESS.

It is the sense of Congress that space technology is critical to—

(1) enabling a new class of NASA missions beyond low-Earth orbit;

(2) developing technologies and capabilities that will make NASA's missions more affordable and more reliable; and

(3) improving technological capabilities and promoting innovation for NASA and the Nation.

SEC. 502. SPACE TECHNOLOGY PROGRAM.

(a) AMENDMENT.—Section 70507 of title 51, United States Code, is amended to read as follows:

"§ 70507. Space technology program authorized

''(a) PROGRAM AUTHORIZED.—The Administrator shall establish a Space Technology Program to pursue the research and development of advanced space technologies that have the potential of delivering innovative solutions and to support human exploration of the solar system or advanced space science. The program established by the Administrator shall take into consideration the recommendations of the National Academies' review of NASA Space Technology Roadmaps and Priorities, as well as applicable enabling aspects of the roadmap specified in section 70504. In conducting the space technology program established under this section, the Administrator shall—

''(1) to the maximum extent practicable, use a competitive process to select projects to be supported as part of the program;

''(2) make use of small satellites and NASA suborbital and ground-based platforms, to the extent practicable and appropriate, to demonstrate space technology concepts and developments; and

''(3) undertake partnerships with other Federal agencies, universities, private industry, and other spacefaring nations, as appropriate.

''(b) SMALL BUSINESS PROGRAMS.—The Administrator shall organize and manage the Administration's

Small Business Innovation Research program and Small Business Technology Transfer program within the Space Technology Program.

''(c) NONDUPLICATION CERTIFICATION.—The Administrator shall include in the budget for each fiscal year, as transmitted to Congress under section 1105(a) of title 31 a certification that no project, program, or mission undertaken by the Space Technology Program is duplicative of any other project, program, or mission conducted by another office or directorate of the Administration.''.

(b) COLLABORATION, COORDINATION, AND ALIGNMENT.—The Administrator shall ensure that the Administration's projects, programs, and activities in support of technology research and development of advanced space technologies are fully coordinated and aligned and that results from such work are shared and leveraged within the Administration. Projects, programs, and activities currently being conducted by the Human Exploration and Operations Mission Directorate in support of research and development of advanced space technologies and systems focusing on human space exploration should continue. The Administrator shall ensure that organizational responsibility for research and development activities in support of human space exploration not initiated as of the date of enactment is established on the basis of a sound ration-

ale. The Administrator shall provide the rationale in the report specified in subsection (d).

(c) REPORT.—Not later than 180 days after the date of enactment of this Act, the Administrator shall provide to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report comparing NASA's space technology investments with the high-priority technology areas identified by the National Academies in the National Research Council's report on NASA's Space Technology Roadmaps. The Administrator shall identify how NASA will address any gaps between the agency's investments and the recommended technology areas, including a projection of funding requirements.

(d) ANNUAL REPORT.—The Administrator shall include in the budget for each fiscal year the rationale for assigning organizational responsibility for, in the year prior to the budget fiscal year, each initiated project, program, and mission focused on research and development of advanced technologies for human space exploration.

(e) TABLE OF SECTIONS AMENDMENT.—The item relating to section 70507 in the table of sections for chapter 705 of title 51, United States Code, is amended to read as follows:

"70507. Space Technology Program authorized.".

SEC. 503. UTILIZATION OF THE INTERNATIONAL SPACE STATION FOR TECHNOLOGY DEMONSTRATIONS.

The Administrator shall utilize the International Space Station and commercial services for Space Technology Demonstration missions in low-Earth orbit whenever it is practical and cost effective to do so.

TITLE VI—POLICY PROVISIONS

SEC. 601. ASTEROID RETRIEVAL MISSION.

(a) ASTEROID RETRIEVAL REPORT.—Not later than 180 days after the date of enactment of this Act, the Administrator shall provide to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the proposed Asteroid Retrieval Mission. Such report shall include—

(1) a detailed budget profile, including cost estimates for the development of all necessary technologies and spacecraft required for the mission;

(2) a detailed technical plan that includes milestones and a specific schedule;

(3) a description of the technologies and capabilities anticipated to be gained from the proposed mission that will enable future human missions to Mars which could not be gained by lunar missions;

(4) a description of the technologies and capabilities anticipated to be gained from the proposed mission that will enable future planetary defense missions, against impact threats from near-Earth objects equal to or greater than 140 meters in diameter, which could not be gained by robotic missions; and

(5) a complete assessment by the Small Bodies Assessment Group and the NASA Advisory Council of how the proposed mission is in the strategic interests of the United States in space exploration.

(b) MARS FLYBY REPORT.—Not later than 60 days after the date of enactment of this Act, an independent, private systems engineering and technical assistance organization contracted by the Human Exploration Operations Mission Directorate shall transmit to the Administrator, the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report analyzing the proposal for a Mars Flyby human spaceflight mission to be launched in 2021. Such report shall include—

(1) a technical development, test, fielding, and operations plan using the Space Launch System and

other systems to successfully mount a Mars Flyby mission by 2021;

(2) a description of the benefits in scientific knowledge and technologies demonstrated by a Mars Flyby mission to be launched in 2021 suitable for future Mars missions; and

(3) an annual budget profile, including cost estimates, for the development test, fielding, and operations plan to carry out a Mars Flyby mission through 2021 and comparison of that budget profile to the current 5-year budget profile contained in the President's Budget request for fiscal year 2015.

(c) ASSESSMENT.—Not later than 60 days after transmittal of the report specified in subsection (b), the Administrator shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate an assessment by the NASA Advisory Council of whether the proposal for a Mars Flyby Mission to be launched in 2021 is in the strategic interests of the United States in space exploration.

(d) CREWED MISSION.—The report transmitted in subsection (b) may consider a crewed mission with the Space Launch System in cis-lunar space prior to the Mars Flyby mission in 2021.

SEC. 602. TERMINATION LIABILITY.

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

(1) The International Space Station, the Space Launch System, and the Orion crew capsule will enable the Nation to continue operations in low-Earth orbit and to send its astronauts to deep space. The James Webb Space Telescope will revolutionize our understanding of star and planet formation and how galaxies evolved and advance the search for the origins of our universe. As a result of their unique capabilities and their critical contribution to the future of space exploration, these systems have been designated by Congress and the Administration as priority investments.

(2) In addition, contractors are currently holding program funding, estimated to be in the hundreds of millions of dollars, to cover the potential termination liability should the Government choose to terminate a program for convenience. As a result, hundreds of millions of taxpayer dollars are unavailable for meaningful work on these programs.

(3) According to the Government Accountability Office, the Administration procures most of its goods and services through contracts, and it terminates very few of them. In fiscal year 2010, the Ad-

ministration terminated 28 of 16,343 active contracts and orders—a termination rate of about 0.17 percent.

(4) Providing processes requiring congressional notification on termination of these high-priority programs would enable contractors to apply taxpayer dollars to making maximum progress in meeting the established technical goals and schedule milestones of these programs.

(b) NASA TERMINATION LIABILITY.—

(1) GENERAL RULE.—Termination liability costs for a covered program shall be provided only pursuant to this subsection.

(2) PROHIBITION ON RESERVING FUNDS.—The Administrator may not reserve funds from amounts appropriated for a covered program, or require the reservation of funds by the prime contractor, for potential termination liability costs with respect to a covered program.

(3) INTENT OF CONGRESS.—It is the intent of Congress that funds authorized to be appropriated for covered programs be applied in meeting established technical goals and schedule milestones.

(4) APPLICATION OF PRIOR RESERVED FUNDS.—Funds that have been reserved before the

date of enactment of this Act for potential termination liability shall be promptly used to make maximum progress in meeting the established goals and milestones of the covered program.

(5) NOTIFICATION.—The Administrator shall notify the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate at least 12 months in advance of initiating termination for convenience or termination for cause of a prime contract on a covered program.

(6) SUPPLEMENTAL APPROPRIATION REQUEST.—

(A) REQUEST.—If the Administrator initiates termination of a prime contract on a covered program pursuant to paragraph (5), and sufficient unobligated appropriations are not available to cover termination liability costs in the appropriations account that is funding the prime contract being terminated, the Administrator shall provide to Congress a notification that an authorization of appropriations is necessary not later than 120 days in advance of

the proposed contract termination settlement for the covered program.

(B) INTENT OF CONGRESS.—It is the intent of Congress to provide additional authorization for appropriations as may be necessary to pay termination liability costs on prime contracts for covered programs if Congress deems it appropriate that the Administration terminate such prime contracts. The Administration shall be responsible for applying these additional funds for payment of all allowable and reasonable negotiated termination liability costs if the Administration terminates a prime contract for a covered program. If the Administration terminates a prime contract for a covered program for the convenience of the Federal Government, then the Federal Government is responsible for payment of all allowable and reasonable negotiated termination liability costs on the prime contract.

(c) REPORTING.—Not later than 6 months after the date of enactment of this Act, and every 6 months thereafter for the duration of the prime contracts on covered programs, the Administrator shall transmit to the Committee on Science, Space, and Technology of the House

of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report that provides—

(1) the estimated termination liability costs for each of the prime contracts; and

(2) the basis for how such estimate was determined.

(d) DEFINITIONS.—For purposes of this section:

(1) COVERED PROGRAM.—The term ''covered program'' means the International Space Station, the Space Launch System, the Orion crew capsule, and the James Webb Space Telescope.

(2) PRIME CONTRACT.—The term ''prime contract'' means a contract entered directly between a person or entity and the Federal Government for the performance of all or the majority of the responsibilities for developing, integrating, fielding, operating, or sustaining a covered program.

(3) PRIME CONTRACTOR.—The term ''prime contractor'' means a person or entity contracting directly with the Federal Government on a covered program.

(4) TERMINATION LIABILITY COSTS.—The term ''termination liability costs'' means any costs incurred by a prime contractor, or by any subcon-

tractor of a prime contractor, for which the Federal Government is liable as a result of termination of a prime contract by the Administrator.

SEC. 603. BASELINE AND COST CONTROLS.

Section 30104 of title 51, United States Code, is amended—

(1) in subsection (a), by striking ''Procedural Requirements 7120.5c, dated March 22, 2005'' and inserting ''Procedural Requirements 7120.5E, dated August 14, 2012''; and

(2) in subsection (f), by striking ''beginning 18 months after the date the Administrator transmits a report under subsection (e)(1)(A)'' and inserting ''beginning 18 months after the Administrator makes such determination''.

SEC. 604. PROJECT AND PROGRAM RESERVES.

(a) SENSE OF CONGRESS.—It is the sense of Congress that the judicious use of program and project reserves provides NASA project and program managers with the flexibility needed to manage projects and programs to ensure that the impacts of contingencies can be mitigated.

(b) REPORT.—Not later than 180 days after the date of enactment of this Act the Administrator shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Com-

merce, Science, and Transportation of the Senate a report describing—

(1) NASA's criteria for establishing the amount of reserves held at the project and program levels;

(2) how such criteria relate to the agency's policy of budgeting at a 70-percent confidence level; and

(3) NASA's criteria for waiving the policy of budgeting at a 70-percent confidence level and alternative strategies and mechanisms aimed at controlling program and project costs when a waiver is granted.

SEC. 605. INDEPENDENT REVIEWS.

Not later than 270 days after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report describing—

(1) the Administration's procedures for conducting independent reviews of projects and programs at lifecycle milestones and how the Administration ensures the independence of the individuals who conduct those reviews prior to their assignment;

(2) the internal and external entities independent of project and program management that conduct reviews of projects and programs at life cycle milestones; and

(3) how NASA ensures the independence of such entities and their members.

SEC. 606. COMMERCIAL TECHNOLOGY TRANSFER PROGRAM.

Section 50116(a) of title 51, United States Code, is amended by inserting ", while protecting national security" after "research community".

SEC. 607. NASA ADVISORY COUNCIL.

(a) STUDY.—The Administrator shall enter into an arrangement with the National Academy of Public Administration for an assessment of the effectiveness of the NASA Advisory Council, any organizational or other issues that the Academy determines need to be addressed, and any recommendations for improving the Council's effectiveness.

(b) CONSULTATION AND ADVICE.—Section 20113(g) of title 51, United States Code, is amended by inserting "and Congress" after "advice to the Administration".

(c) SUNSET.—Subsection (b) shall expire on September 30, 2014.

SEC. 608. COST ESTIMATION.

(a) SENSE OF CONGRESS.—It is the sense of Congress that realistic cost estimating is critically important to the ultimate success of major space development projects. NASA has devoted significant efforts over the past five years to improving its cost estimating capabilities, but it is important that NASA continue its efforts to develop and implement guidance in establishing realistic cost estimates.

(b) GUIDANCE AND CRITERIA.—The Administrator shall provide to programs and projects and in a manner consistent with NASA Space Flight Program and Project Management Requirements—

(1) guidance on when an Independent Cost Estimate and Independent Cost Assessment should be used; and

(2) the criteria to be used to make such a determination.

(c) REPORT.—Not later than 270 days after the date of enactment of this Act, the Administrator shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report—

(1) describing efforts to enhance internal cost estimation and assessment expertise;

(2) describing the mechanisms the Administration is using and will continue to use to ensure that adequate resources are dedicated to cost estimation;

(3) listing the steps the Administration is undertaking to advance consistent implementation of the joint cost and schedule (JCL) process;

(4) identifying criteria used by programs and projects in determining when to conduct an Independent Cost Estimate and Independent Cost Assessment; and

(5) listing—

(A) the costs of each individual Independent Cost Estimate or Independent Cost Assessment activity conducted in fiscal year 2011, fiscal year 2012, and fiscal year 2013;

(B) the purpose of the activity;

(C) identification of the primary NASA unit or outside body that conducted the activity; and

(D) key findings and recommendations.

(d) UPDATED REPORT.—Subsequent to submission of the report under subsection (c), for each subsequent year, the Administrator shall provide an update of listed elements in conjunction with subsequent congressional budget justifications.

SEC. 609. AVOIDING ORGANIZATIONAL CONFLICTS OF INTEREST IN MAJOR NASA ACQUISITION PROGRAMS.

(a) REVISED REGULATIONS REQUIRED.—Not later than 270 days after the date of enactment of this Act, the Administrator shall revise the NASA Supplement to the Federal Acquisition Regulation to provide uniform guidance and recommend revised requirements for organizational conflicts of interest by contractors in major acquisition programs in order to address elements identified in subsection (b).

(b) ELEMENTS.—The revised regulations required by subsection (a) shall, at a minimum—

(1) address organizational conflicts of interest that could potentially arise as a result of—

(A) lead system integrator contracts on major acquisition programs and contracts that follow lead system integrator contracts on such programs, particularly contracts for production;

(B) the ownership of business units performing systems engineering and technical assistance functions, professional services, or management support services in relation to major acquisition programs by contractors who simultaneously own business units competing to perform as either the prime contractor or the

supplier of a major subsystem or component for such programs;

(C) the award of major subsystem contracts by a prime contractor for a major acquisition program to business units or other affiliates of the same parent corporate entity, and particularly the award of subcontracts for software integration or the development of a proprietary software system architecture; or

(D) the performance by, or assistance of, contractors in technical evaluations on major acquisition programs;

(2) ensure that NASA receives advice on systems architecture and systems engineering matters with respect to major acquisition programs from objective sources independent of the prime contractor;

(3) require that a contract for the performance of systems engineering and technical assistance functions for a major acquisition program contains a provision prohibiting the contractor or any affiliate of the contractor from participating as a prime contractor or a major subcontractor in the development of a system under the program; and

(4) establish such limited exceptions to the requirement in paragraphs (2) and (3) as may be nec-

essary to ensure that NASA has continued access to advice on systems architecture and systems engineering matters from highly-qualified contractors with domain experience and expertise, while ensuring that such advice comes from sources that are objective and unbiased.

SEC. 610. FACILITIES AND INFRASTRUCTURE.

(a) SENSE OF CONGRESS.—It is the sense of Congress that—

(1) NASA must reverse the deteriorating condition of its facilities and infrastructure, as this condition is hampering the effectiveness and efficiency of research performed by both NASA and industry participants making use of NASA facilities, thus reducing the competitiveness of the United States aerospace industry;

(2) NASA has a role in providing laboratory capabilities to industry participants that are economically viable as commercial entities and thus are not available elsewhere;

(3) to ensure continued access to reliable and efficient world-class facilities by researchers, NASA should seek to establish strategic partnerships with other Federal agencies, academic institutions, and industry, as appropriate; and

(4) decisions on whether to dispose of, maintain, or modernize existing facilities must be made in the context of meeting future NASA and other Federal agencies' laboratory needs, including those required to meet the activities supporting the Exploration Roadmap required by section 202(c).

(b) POLICY.—It is the policy of the United States that NASA maintain reliable and efficient facilities and that decisions on whether to dispose of, maintain, or modernize existing facilities be made in the context of meeting future NASA needs.

(c) PLAN.—The Administrator shall develop a plan that has the goal of positioning NASA to have the facilities, laboratories, tools, and approaches necessary to address future NASA requirements. Such plan shall identify—

(1) future NASA research and development and testing needs;

(2) a strategy for identifying facilities that are candidates for disposal, that is consistent with the national strategic direction set forth in—

(A) the current National Space Policy;

(B) the National Aeronautics Research, Development, Test and Evaluation (RDT&E) Infrastructure Plan;

(C) NASA Authorization Acts; and

(D) the Roadmap specified in section 202(c);

(3) a strategy for the maintenance, repair, upgrading, and modernization of NASA's laboratories, facilities, and equipment;

(4) criteria for prioritizing deferred maintenance tasks and also for upgrading or modernizing laboratories, facilities, and equipment and implementing processes, plans, and policies for guiding Centers on whether to maintain, repair, upgrade, or modernize a facility and for determining the type of instrument to be used;

(5) an assessment of modifications needed to maximize usage of facilities that offer unique and highly specialized benefits to the aerospace industry and the American public; and

(6) implementation steps, including a timeline, milestones, and an estimate of resources required for carrying out the plan.

(d) POLICY.—Not later than 180 days after enactment of this Act, the Administrator shall establish and make publically available a policy that guides the agency's use of existing authorities to out-grant, lease, excess to the General Services Administration, sell, decommission,

demolish, or otherwise transfer property, facilities, or infrastructure. This policy shall establish criteria for the use of authorities, best practices, standardized procedures, and guidelines for how to appropriately manage property, infrastructure, and facilities.

(e) TRANSMITTAL.—Not later than one year after the date of enactment of this Act, the Administrator shall transmit the plan to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

(f) ESTABLISHMENT OF CAPITAL FUND.—The Administrator shall establish a capital fund for the modernization of facilities and laboratories. The Administrator shall ensure to the maximum extent practicable that all financial savings achieved by closing outdated or surplus facilities at a NASA field center shall be made available to that center for the purpose of modernizing the field center's facilities and laboratories and for upgrading the infrastructure at the field center.

(g) REPORT ON CAPITAL FUND.—This fund shall require review and approval by the Administrator and the status, including the amounts held in the Working Capital Fund, shall be reported to the Committee on Science, Space, and Technology of the House of Representatives

and the Committee on Commerce, Science, and Transportation of the Senate in conjunction with annual budget justifications.

SEC. 612. DETECTION AND AVOIDANCE OF COUNTERFEIT ELECTRONIC PARTS.

(a) REGULATIONS.—

(1) IN GENERAL.—Not later than 270 days after the date of the enactment of this Act, the Administrator shall revise the NASA Supplement to the Federal Acquisition Regulation to address the detection and avoidance of counterfeit electronic parts.

(2) CONTRACTOR RESPONSIBILITIES.—The revised regulations issued pursuant to paragraph (1) shall provide that—

(A) Administration contractors who supply electronic parts or products that include electronic parts are responsible for detecting and avoiding the use or inclusion of counterfeit electronic parts or suspect counterfeit electronic parts in such products and for any rework or corrective action that may be required to remedy the use or inclusion of such parts; and

(B) the cost of counterfeit electronic parts and suspect counterfeit electronic parts and the

cost of rework or corrective action that may be required to remedy the use or inclusion of such parts are not allowable costs under Agency contracts, unless—

(i) the covered contractor has an operational system to detect and avoid counterfeit parts and suspect counterfeit electronic parts that has been reviewed and approved by the Administration or the Department of Defense;

(ii) the covered contractor provides timely notice to the Administration pursuant to paragraph (4); or

(iii) the counterfeit electronic parts or suspect counterfeit electronic parts were provided to the contractor as Government property in accordance with part 45 of the Federal Acquisition Regulation.

(3) SUPPLIERS OF ELECTRONIC PARTS.—The revised regulations issued pursuant to paragraph (1) shall—

(A) require that the Administration and Administration contractors and subcontractors at all tiers—

(i) obtain electronic parts that are in production or currently available in stock from the original manufacturers of the parts or their authorized dealers, or from suppliers who obtain such parts exclusively from the original manufacturers of the parts or their authorized dealers; and

(ii) obtain electronic parts that are not in production or currently available in stock from suppliers that meet qualification requirements established pursuant to subparagraph (C);

(B) establish documented requirements consistent with published industry standards or Government contract requirements for—

(i) notification of the Administration; and

(ii) inspection, testing, and authentication of electronic parts that the Administration or an Administration contractor or subcontractor obtains from any source other than a source described in subparagraph (A);

(C) establish qualification requirements, consistent with the requirements of section

2319 of title 10, United States Code, pursuant to which the Administration may identify suppliers that have appropriate policies and procedures in place to detect and avoid counterfeit electronic parts and suspect counterfeit electronic parts; and

(D) authorize Administration contractors and subcontractors to identify and use additional suppliers beyond those identified pursuant to subparagraph (C), provided that—

(i) the standards and processes for identifying such suppliers comply with established industry standards;

(ii) the contractor or subcontractor assumes responsibility for the authenticity of parts provided by such suppliers as provided in paragraph (2); and

(iii) the selection of such suppliers is subject to review and audit by appropriate Administration officials.

(4) TIMELY NOTIFICATION.—The revised regulations issued pursuant to paragraph (1) shall require that any Administration contractor or subcontractor who becomes aware, or has reason to suspect, that any end item, component, part, or mate-

rial contained in supplies purchased by the Administration, or purchased by a contractor or subcontractor for delivery to, or on behalf of, the Administration, contains counterfeit electronic parts or suspect counterfeit electronic parts, shall provide notification to the applicable Administration contracting officer within 30 calendar days.

(b) DEFINITIONS.—In this section, the term ''electronic part'' means a discrete electronic component, including a microcircuit, transistor, capacitor, resistor, or diode that is intended for use in a safety or mission critical application.

SEC. 613. SPACE ACT AGREEMENTS.

(a) COST SHARING.—To the extent that the Administrator determines practicable, the funds provided by the Government under a funded Space Act Agreement shall not exceed the total amount provided by other parties to the Space Act Agreement.

(b) NEED.—A funded Space Act Agreement may be used only when the use of a standard contract, grant, or cooperative agreement is not feasible or appropriate, as determined by the Associate Administrator for Procurement.

(c) PUBLIC NOTICE AND COMMENT.—The Administrator shall make available for public notice and comment

each proposed Space Act Agreement at least 30 days before entering into such agreement, with appropriate redactions for proprietary, sensitive, or classified information.

(d) TRANSPARENCY.—The Administrator shall publicly disclose on the Administration's website and make available in a searchable format all Space Act Agreements, with appropriate redactions for proprietary, sensitive, or classified information, not later than 60 days after such agreement is signed.

(e) ANNUAL REPORT.—

(1) REQUIREMENT.—Not later than 90 days after the end of each fiscal year, the Administrator shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the use of Space Act Agreement authority by the Administration during the previous fiscal year.

(2) CONTENTS.—The report shall include for each Space Act Agreement in effect at the time of the report—

(A) an indication of whether the agreement is a reimbursable, nonreimbursable, or funded Space Act Agreement;

(B) a description of—

(i) the subject and terms;

(ii) the parties;

(iii) the responsible—

(I) mission directorate;

(II) center; or

(III) headquarters element;

(iv) the value;

(v) the extent of the cost sharing among Federal Government and non-Federal sources;

(vi) the time period or schedule; and

(vii) all milestones; and

(C) an indication of whether the agreement was renewed during the previous fiscal year.

(3) ANTICIPATED AGREEMENTS.—The report shall also include a list of all anticipated reimbursable, nonreimbursable, and funded Space Act Agreements for the upcoming fiscal year.

(4) CUMULATIVE PROGRAM BENEFITS.—The report shall also include, with respect to the Space Act Agreements covered by the report, a summary of—

(A) the technology areas in which research projects were conducted under such agreements;

(B) the extent to which the use of the Space Act Agreements—

(i) has contributed to a broadening of the technology and industrial base available for meeting Administration needs; and

(ii) has fostered within the technology and industrial base new relationships and practices that support the United States; and

(C) the total amount of value received by the Federal Government during the fiscal year pursuant to such Space Act Agreements.

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