

Section-by-Section

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT OF 2010

U.S. Senate Committee on Commerce, Science & Transportation

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TITLE II – POLICY, GOALS AND OBJECTIVES FOR HUMAN SPACE FLIGHT AND EXPLORATION

Sec. 201 – United States Human Space Flight Policy – The U.S. shall rely upon non-U.S. human space flight (HSF) capabilities only on a temporary basis under circumstances where no U.S. capability is available. Reaffirms policy of 2005 NASA reauthorization stating that the U.S. will maintain an uninterrupted HSF capability and operation in low-earth orbit (LEO) to maintain national security and leadership in exploration and utilization of space.

Sec. 202 – Goals and Objectives – The long-term goal of U.S. HSF efforts shall be to expand permanent human presence beyond LEO through establishment of a long-term LEO presence via the space station and commercial capabilities; to determine if humans can, in fact, live in an extended manner in space; lay foundation for sustainable economic activities in space, maximize role of HSF in advancing knowledge of the universe, national security and global competitive posture.

Sec. 203 – Assurance of Core Capabilities – Sense of Congress that the ISS, technology developments, Shuttle and follow-on transportation capabilities authorized under this act form the foundation for initial missions beyond LEO. Development of the follow-on transportation system will allow for the capability to restart and fly the Shuttle, if directed by Congress or the President, prior to completion of the final Shuttle mission. Authorizes refurbishment of manufactured external tank of the Shuttle designated as ET-94

Sec. 204 – Independent Study on Human Exploration of Space - Provides for an assessment by the National Academies of the President’s plan for HSF and exploration.

TITLE III – EXPANSION OF HUMAN SPACE FLIGHT BEYOND THE INTERNATIONAL SPACE STATION AND LOW-EARTH ORBIT

Sec. 301 – Human Space Flight Beyond Low-Earth Orbit – Includes additional findings. Requires report regarding international collaboration on ISS and NASA efforts to define Cis-Lunar Space human missions.

Sec. 302 - Space Launch System as Follow-on Launch Vehicle to the Space Shuttle – NASA will initiate development of a Government-owned and NASA-managed “Space Launch System” - heavy lift launch capability - as soon as practicable after enactment of this act. Extends existing contracts necessary to carry out this title to limit termination liability and other costs associated with this title. NASA shall ensure that existing critical capabilities are maintained: lifting payloads of 70-100 tons initially with an evolutionary design leading to eventual 150-ton payload capability to enable missions beyond low-Earth orbit, lift the multipurpose crew vehicle, serve as a crew and cargo launch backup for ISS delivery requirements not otherwise met by commercial or international partners, ensure critical skills are retained, modified and developed as necessary. These critical skills must also be evolvable to launch objects to beyond-Earth orbit, carry payloads up to 150 ton, and to incorporate new technologies. To support transition, NASA will retain critical skills pertaining to solid and liquid engines, large-diameter fuel tanks, rocket propulsion, and other ground test capabilities.

Sec. 303 – Multi-Purpose Crew Transportation Vehicle – NASA shall pursue development of a multi-purpose crew transportation vehicle based on Orion for use with the Space Launch System. It shall be the goal to reach full operational capability by December 31, 2016. Minimum capabilities include missions beyond LEO, conducting in-space operations, providing means of alternative crew delivery to ISS and the capacity for vehicle modifications.

Sec. 304 – Utilization of Existing Workforce and Assets in Development of Space Launch System and Multi-Purpose Crew Vehicle – In developing the Space Launch system, NASA shall utilize existing contracts, workforce, capabilities, etc. from the Shuttle and former Orion and Aries I projects, and should minimize the modification and development of ground infrastructure. Requires timely and cost-effective development of the SLS and crew vehicle.

Sec. 305 – NASA Launch Support and Infrastructure Modernization Program - In preparation for the Space Launch System, NASA shall upgrade KFC infrastructure in preparation for the Space Launch System through streamlining and minimizing of vehicle processing complexity. Elements will include civil and national security operations, providing multi-vehicle support, etc. Requires report on modernization plan within 120 days.

Sec. 306 – Report on Effects of Transition to Space Launch System on the Solid and Liquid Rocket Motor Industrial Bases – Requires report in consultation with Departments of Defense and Commerce assessing effects of retirement of the Shuttle and transition to the Space Launch system on the solid and liquid rocket motor industrial bases.

Sec 307 – Sense of the Congress on Other Technology and Robotic Elements in Human Space Flight and Exploration – Details the need for balance between expanding existing capabilities and investing in new capabilities.

Sec. 308 – Development of Technologies and In-Space Capabilities for Beyond Near-Earth Space Missions – NASA may develop technologies for missions beyond NES, related in-space capabilities and

make investments in the following: technologies to enable missions beyond LEO and ultimately landing on Mars, a space-based transfer vehicle, advanced life support technology, space suit development, in-space propulsion, refueling and energy, etc.

TITLE IV – DEVELOPMENT AND USE OF COMMERCIAL CREW AND CARGO TRANSPORTATION CAPABILITIES

Sec. 401 – Commercial Cargo Development Program – NASA shall continue the Commercial Orbital Transportation Services Program (COTS) in support of providing cargo services to the ISS. Funds may be applied towards activities reducing risk to the timely start of these services.

Sec. 402 – Commercial Crew Development Program (CCDev) – Continues the CCDev program through 2011. Continues certain CCDev activities and agreements initiated in FY 2010 that advance the development of commercial crew services.

Sec. 403 – Requirements Applicable to Development of Commercial Crew Transportation Capabilities - NASA cannot enter into any contract or procurement agreement for follow-on commercial crew development during FY 2011. Allows support of commercially developed crew or cargo launch capability starting in 2012 contingent upon completion of establishment of human rating requirements, a commercial market assessment and a procurement system review. Requires consideration of the anticipated contribution of government cost, expertise, technology and infrastructure needed to support any commercially-developed crew or cargo launch capability. Establishes milestones and minimum performance objectives to be achieved before procurement authority is granted. Requires commercial crew capabilities to also provide crew rescue services.

Sec. 404 – Report on International Space Station Cargo Return Capability – Requires report on alternative commercially-developed means for the soft-landing return on land of research and other small payloads.

TITLE V – CONTINUATION, SUPPORT, AND EVOLUTION OF THE INTERNATIONAL SPACE STATION

Sec. 501 – Continuation of the International Space Station through 2020 – It shall be the policy of the U.S. to support full utilization of the ISS through at least 2020.

Sec. 502 – Maximum Utilization of the ISS – NASA shall maximize returns from the ISS through innovation, international cooperation and collaboration with domestic government and non-government research entities.

Sec. 503 – Maintenance of the U.S. Segment and Assurance of Continued Operations of the ISS – Ensures safe and effective operation, maintenance and maximum utilization of ISS through 2020 through a comprehensive assessment of essential systems, components, elements, etc., on board or planned for delivery and installation, including spare and replacement parts needed through 2020. Requires a report to Congress within 90 days of enactment that will detail each part, its function, location, criticality to ISS function and planned method of delivery, as well as procurement and delivery costs. Requires GAO review of the report.

Authorizes and directs Administrator to fly the Shuttle Launch on Need (LON) flight pending results of the report. Preserves Shuttle capabilities through 2011 to complete the current manifest and prohibits termination of any contracts that would inhibit launching of the Shuttle as described in this section.

Sec. 504 – Management of the U.S. National Laboratory of the International Space Station – Requires NASA to enter into an agreement with a non-profit organization whose sole purpose is to manage and plan the activities of the National Lab and develop and implement research and development projects. Guarantees National Lab managed experiments access to a minimum 50% of U.S. research facilities and crew time.

TITLE VI – SPACE SHUTTLE RETIREMENT AND TRANSITION

Sec. 601 – Sense of the Congress on the Space Shuttle Program – Retirement of the Shuttle and transition to new HSF capabilities must be done in a manner that builds upon the Shuttle legacy and retains the skills and industrial capability to provide a follow-on space launch system designed for missions beyond Near-Earth-Space (NES).

Sec. 602 – Retirement of the Space Shuttle Orbiters and Transition of Space Shuttle Program – The retirement schedule shall be consistent with ISS contingency requirement under this act. To the extent practicable, NASA will utilize Shuttle skills and capabilities in efforts relating to initiation of the follow-on space launch system authorized under this act. Workers not covered in this section will be provided retraining and other placement efforts.

Sec. 603 – Disposition of Orbiter Vehicles – Upon retirement, NASA shall decommission orbiter vehicles through established safety and competitive processes with priority given to locations with the best public value, educational opportunities and historical connections the orbiters.

Title VII – EARTH SCIENCE

Sec. 701 Sense of Congress - Earth observations are critical to scientific understanding, protecting human health and property and national security. NASA plays a critical role in providing environmental data. Existing government agency and international partner sharing of satellite data should be maintained. Satellites and monitoring programs will continue to play a vital role in climate science and mitigation of destructive environmental impacts.

Sec. 702 – Inter-Agency Collaboration Implementation Approach – OSTP shall establish a mechanism to ensure greater coordination of civilian Earth observation activities among government agencies.

Sec. 703 – Transitioning Experimental Research into Operation Services – NASA shall coordinate with NOAA to establish a mechanism to plan, coordinate and support transitioning of NASA research to NOAA operations.

Sec. 704 – Decadal Survey Missions Implementation for Earth Observation – NASA will undertake certain missions identified in the National Research Council’s Earth Science Decadal Survey.

Sec. 705 – Expansion of Earth Science Applications – It is a Sense of Congress that NASA should expand its role in Earth Science applications with State and local governments and other entities.

Sec. 706 - Instrument Test Beds and Venture Class Missions – NASA will pursue innovative ways to fly instrument-level payloads for early demonstration. The ISS is encouraged as a platform for such activities.

Sec. 707 – Sense of Congress on NPOESS Follow-On Program –The National Polar Orbiting Environmental Satellite System (NPOESS) has suffered chronic rising costs and delays. Congress supports independent recommendation and OSTP decision to restructure the program to minimize future cost increases and schedule slips. Encourages NOAA and DOD to make full use of NPOESS and to structure their programs to maintain continuity across agencies.

TITLE VIII – SPACE SCIENCE

Sec. 801 – Technology Development – The Science Mission Directorate shall maintain a long-term technology development program for space and Earth.

Sec. 802 – Suborbital Research Activities – Establishes a Suborbital Research Program to advance science and train future scientists and engineers in skills critical to maintaining the aerospace workforce.

Sec. 803 – Overall Science Portfolio–Sense of the Congress – Adequately funded research, technology development and space missions contribute to a robust science program and innovation.

Sec. 804 – In-Space Servicing – Ensures provisions are made for on-orbit or human servicing of observatory-class scientific research spacecraft deployed in Earth-orbit or at a Lagrangian point.

Sec. 805 – Decadal Results – NASA should take the current Decadal Surveys from the National Academies’ Space Studies Board into account when submitting the President’s budget request.

Sec. 806 – On-Going Restoration of Radioisotope Thermoelectric Generator Material Production – Radioisotope power systems are the only viable power source for deep-space missions. Current supplies will not support planned future missions and continuing to rely on Russia is not a secure option. NASA and the Department of Energy will pursue restarting and sustaining domestic radioisotope thermoelectric generator material production to power deep space satellite, robotic and other science missions.

Sec. 807 – Collaboration with EMSD and SOMD on Robotic Missions – ESMD and SOMD shall coordinate with SMD on interagency and international collaboration on certain robotic missions. Requires a report detailing the chosen approach, which must be submitted prior to acting on any robotic EMSD or Robotic SMD project.

Sec. 808 – Near-Earth Object Survey and Policy with Respect to Threats Posed - Reaffirms policy regarding near-earth asteroids and comets. OSTP shall implement a policy for notifying relevant emergency response institutions pending a threat posing a public-safety risk.

Sec. 809 – Space Weather – Requires OSTP to improve the Nation’s ability to prepare, avoid, mitigate, respond to and recover from potentially devastating impacts of space weather events. Requires report on current ground and space-based data sources and detail data systems needed for space weather forecasting for next 10 years.

TITLE IX – AERONAUTICS AND SPACE TECHNOLOGY

Sec. 901 – Sense of the Congress – Recognizes importance of and need to continue support of aeronautics research, the National Science and Technology Council and NASA-developed Aeronautics technologies.

Sec. 902 – Aeronautics Research Goals – Specific research goals include the Next Generation Air Transportation System, noise, emissions, fuel consumption, alternative fuels and aviation safety.

Sec. 903 – Research Collaboration – NASA will continue to collaborate with the Department of Defense and Federal Aviation Administration regarding aeronautics infrastructure and explore areas for greater collaboration.

Sec. 904 – Goal for Agency Space Technology – NASA will maintain a space technology base that helps align mission directorate investments and supports long-term needs. NASA will seek partners as is practicable.

Sec. 905 – Implementation Plan for Agency Space Technology – NASA will provide a plan detailing how it will meet the goals outlined in this title and certain other sections.

Sec. 906 – National Space Technology Policy - Requires the President to develop a national policy to guide U.S. space technology development programs through 2020.

TITLE X – EDUCATION

Sec. 1001 – Report on Education Implementation Outcomes – Requires report on the development of a national Science, Technology, Engineering and Math (STEM) workforce, STEM student retention, and STEM education providers.

Sec. 1002 – Sense of Congress on the Experimental Program to Stimulate Competitive Research – The EPSCoR strengthens the research capabilities or jurisdictions that did not historically participate in competitive aerospace-related research activities, has provided taxpayer and excellent return on investment, has been successful in achieving broader geographical distribution of R&D support and NASA EPSCoR research should the departments of Energy, Agriculture, Defense, EPA and NIH.

Sec. 1003 – Science, Technology, Engineering, and Mathematics Commercial Orbital Platform Program - Establishes program to annually sponsor at least 50 scientific and educational payloads developed with U.S. student and educator involvement to be carried on commercial systems. NASA shall engage with students and educators to make available relevant expertise to those selected to participate.

TITLE XI – RESCOPING AND REVITALIZING INSTITUTIONAL CAPABILITIES

Sec. 1101 – Sense of the Congress – NASA needs to rescope infrastructure to fit current and future missions and funding levels.

Sec. 1102 – Institutional Requirements Study - Requires a study to lay out approach to get to the most efficient NASA footprint of facilities and infrastructure, paying specific attention to eliminating unneeded duplication or infrastructure. The study will include a reinvestment strategy to upgrade needed equipment and facilities.

Sec. 1103 – NASA Capabilities Study Requirement – NASA shall contract with an independent entity to examine alternative management models for NASA’s workforce, Centers and certain other Capabilities.

Sec. 1104 – Sense of Congress on Community Transition Support - Recognizes efforts to assist communities adversely affected by NASA program changes. Eligible communities include all those in which NASA maintains mission-related centers. Makes certain other communities eligible as well.

Sec . 1105 – Workforce Stabilization and Critical Skills Preservation – Prior to receipt of the report detailed in Sec. 1103, NASA may not transfer the functions, missions or activities, and associated civil service and contractor positions, from any NASA facility without authorization by Congress. NASA will preserve the critical skills and competencies at NASA centers to facilitate timely implementation of this Act and minimize disruption to the workforce. NASA may not implement any reduction in force, other than for cause, prior to receipt of the report.

TITLE XII – OTHER MATTERS

Sec. 1201 – Report on Space Traffic Management - Requires report on the status discussions with other nations on a framework to address space traffic management concerns.

Sec. 1202 – National and International Orbital Debris Mitigation – NASA shall, in consultation with other space nations, initiate discussions to determine a framework and actions to deal with orbital space debris. OSTP and the National Security Council will develop the strategy for Review by the President.

Sec. 1203 – Reports on Program and Cost Assessment and Control Assessment –Requires annual reports on the implementation of NASA’s corrective action plan to address issues adhering to program cost and schedule targets. The report will focus on each program that has exceeded its cost baseline by 15% or is more than 2 years behind schedule.

Sec. 1204 – Eligibility for Service of Individual Currently Serving as Administrator of the National Aeronautics and Space Administration – Complies with current law to require NASA Administrator be a civilian at the time of appointment.

Sec. 1205 – Sense of Congress on Independent Verification and Validation of NASA Software – Supports the importance of and NASA activities to use independent verification and validation to ensure safety-critical software will operate dependably and support mission success.

Sec. 1206 – Counterfeit Parts – Requires a program, in coordination with other federal agencies, to detect, track, catalog, and reduce the number of counterfeit electronic parts in the NASA supply chain.

Sec. 1207 – Information Security – Requires biennial report on efforts to implement system to provide information on the risk of unauthorized use or access for information infrastructure. Institutes information security awareness and education program for all users of NASA information infrastructure.