115TH CONGRESS
1ST SESSION

S. 212

To provide for the development of a United States strategy for greater human space exploration, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JANUARY 24, 2017

Mr. CORNYN introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

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A BILL

To provide for the development of a United States strategy for greater human space exploration, and for other purposes.

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

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Mapping a New and Innovative Focus on Our Exploration Strategy for Human Spaceflight Act of 2017'' or the ''MANIFEST for Human Spaceflight Act of 2017''.

SEC. 2. REAFFIRMATION OF POLICY AND FINDINGS.

(a) REAFFIRMATION OF POLICY.—Congress reaffirms that the long-term goal of the human space flight

and exploration efforts of the National Aeronautics and Space Administration shall be to expand permanent human presence beyond low-Earth orbit and to do so, where practical, in a manner involving international partners, as stated in section 202(a) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18312(a)).

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

(1) In accordance with section 204 of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267; 124 Stat. 2813), the National Academy of Sciences, through its Committee on Human Spaceflight, conducted a review of the goals, core capabilities, and direction of human space flight, and published the findings and recommendations in a 2014 report entitled ''Pathways to Exploration: Rationales and Approaches for a U.S. Program of Human Space Exploration''.

(2) The Committee on Human Spaceflight included leaders from the aerospace, scientific, security, and policy communities. With input from the public, the Committee on Human Spaceflight concluded that many practical and aspirational ration-

ales together constitute a compelling case for human space exploration. These rationales include economic benefits, national security, national prestige, inspiring students and other citizens, scientific discovery, human survival, and a sense of shared destiny.

(3) The Committee on Human Spaceflight affirmed that Mars is the appropriate long-term goal for the human space flight program.

(4) The Committee on Human Spaceflight recommended that the National Aeronautics and Space Administration define a series of sustainable steps and conduct mission planning and technology development as needed to achieve the long-term goal of placing humans on the surface of Mars.

SEC. 3. HUMAN EXPLORATION STRATEGY.

(a) HUMAN EXPLORATION OF MARS.—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'' at the end;

(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 achieve human exploration of Mars, including the establishment of a capability to extend human presence to the surface of Mars.''.

(b) EXPLORATION STRATEGY.—

(1) IN GENERAL.—In accordance with this subsection, the Administrator of the National Aeronautics and Space Administration shall submit an interim report and final report setting forth a strategy to achieve the objective in paragraph (5) of section 202(b) of the National Aeronautics and Space Administration Authorization Act of 2010, as amended by subsection (a) of this section, through a series of successive, sustainable, free-standing, but complementary missions making robust utilization of cis-lunar space and employing the Space Launch System, Orion crew capsule, and other capabilities provided under titles III, IV, V, and IX of that Act (42 U.S.C. 18301 et seq.).

(2) STRATEGY REQUIREMENTS.—In developing the strategy under paragraph (1), the Administrator shall include—

(A) the utility of an expanded human presence in cis-lunar space toward enabling missions to various lunar orbits, the lunar surface, asteroids, Mars, the moons of Mars, and other

destinations of interest for future human exploration and development;

(B) the utility of an expanded human presence in cis-lunar space for economic, scientific, and technological advances;

(C) the opportunities for collaboration with—

(i) international partners;

(ii) private industry; and

(iii) other Federal agencies, including missions relevant to national security or scientific needs;

(D) the opportunities specifically afforded by the International Space Station (ISS) to support high priority scientific research and technological developments useful in expanding and sustaining a human presence in cis-lunar space and beyond;

(E) a range of exploration mission architectures and approaches for the missions identified under paragraph (1), including capabilities for the Orion crew capsule and the Space Launch System;

(F) a comparison of architectures and approaches based on—

(i) assessed value of factors including cost effectiveness, schedule resiliency, safety, sustainability, and opportunities for international collaboration;

(ii) the extent to which certain architectures and approaches may enable new markets and opportunities for United States private industry, provide compelling opportunities for scientific discovery and technological excellence, sustain United States competitiveness and leadership, and address critical national security considerations and requirements; and

(iii) the flexibility of such architectures and approaches to adjust to evolving technologies, partners, priorities, and budget projections and constraints;

(G) measures for setting standards for ensuring crew health and safety, including limits regarding radiation exposure and countermeasures necessary to meet those limits, means and methods for addressing urgent medical conditions or injuries, and other such safety, health, and medical issues that can be antici-

pated in the conduct of the missions identified under paragraph (1);

(H) a description of crew training needs and capabilities (including space suits and life support systems) necessary to support the conduct of missions identified under paragraph (1);

(I) a detailed plan for prioritizing and phasing near-term intermediate destinations and missions identified under paragraph (1);

(J) an assessment of the recommendations of the report prepared in compliance with section 204 of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267; 124 Stat. 2813), including a detailed explanation of how the Administrator has ensured such recommendations have been, to the extent practicable, incorporated into the strategy under paragraph (1); and

(K) technical information as needed to identify interest from potential stakeholder or partner communities.

(3) INDEPENDENT REVIEW.—

(A) IN GENERAL.—The Administrator shall enter into an arrangement with the National Academy of Sciences to review and com-

ment on each interim report pursuant to paragraph (1). Under the arrangement, the National Academy of Sciences shall review each interim report on the strategy described in paragraph (1) and identify the following:

(i) Matters in such interim report agreed upon by the National Academy of Sciences.

(ii) Matters in such interim report raising concerns for the National Academy of Sciences.

(iii) Such further recommendations with respect to matters covered by such interim report as the National Academy of Sciences considers appropriate.

(B) TIMING OF REVIEW AND COMMENT.—The Administrator shall ensure that the review and comment on an interim report provided for pursuant to subparagraph (A) is conducted in a timely manner to comply with the requirements of this subsection and, to the maximum extent practicable, to facilitate the incorporation of the comments of the National Academy of Sciences pursuant to subparagraph (A) into the

applicable final report required by this subsection.

(4) DEADLINES.—

(A) INTERIM REPORTS.—Not later than 90 days after the date of the enactment of this Act, and not less than every five years thereafter, the Administrator shall submit to the National Academy of Sciences an interim report on the strategy required by paragraph (1) in order to facilitate the independent review and comment on the strategy as provided for by paragraph (3).

(B) FINAL REPORTS.—Not later than one year after the date of the enactment of this Act, and not less than every five years thereafter, the Administrator shall submit to Congress a final report on the strategy required by paragraph (1), which shall include and incorporate the response of the National Academy of Sciences to the most recent interim report pursuant to paragraph (3).

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