

114TH CONGRESS
2D SESSION

S. 2617

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

MARCH 2, 2016

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

A BILL

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

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Mapping a New and
5 Innovative Focus on Our Exploration Strategy for Human
6 Spaceflight Act of 2016” or the “MANIFEST for Human
7 Spaceflight Act of 2016”.

8 **SEC. 2. REAFFIRMATION OF POLICY AND FINDINGS.**

9 (a) REAFFIRMATION OF POLICY.—Congress reaf-
10 firms that the long-term goal of the human space flight

1 and exploration efforts of the National Aeronautics and
2 Space Administration shall be to expand permanent
3 human presence beyond low-Earth orbit and to do so,
4 where practical, in a manner involving international part-
5 ners, as stated in section 202(a) of the National Aero-
6 nautics and Space Administration Authorization Act of
7 2010 (42 U.S.C. 18312(a)).

8 (b) FINDINGS.—Congress makes the following find-
9 ings:

10 (1) In accordance with section 204 of the Na-
11 tional Aeronautics and Space Administration Au-
12 thorization Act of 2010 (Public Law 111–267; 124
13 Stat. 2813), the National Academy of Sciences,
14 through its Committee on Human Spaceflight, con-
15 ducted a review of the goals, core capabilities, and
16 direction of human space flight, and published the
17 findings and recommendations in a 2014 report enti-
18 tled “Pathways to Exploration: Rationales and Ap-
19 proaches for a U.S. Program of Human Space Ex-
20 ploration”.

21 (2) The Committee on Human Spaceflight in-
22 cluded leaders from the aerospace, scientific, secu-
23 rity, and policy communities. With input from the
24 public, the Committee on Human Spaceflight con-
25 cluded that many practical and aspirational ration-

1 ales together constitute a compelling case for human
2 space exploration. These rationales include economic
3 benefits, national security, national prestige, inspir-
4 ing students and other citizens, scientific discovery,
5 human survival, and a sense of shared destiny.

6 (3) The Committee on Human Spaceflight af-
7 firmed that Mars is the appropriate long-term goal
8 for the human space flight program.

9 (4) The Committee on Human Spaceflight rec-
10 ommended that the National Aeronautics and Space
11 Administration define a series of sustainable steps
12 and conduct mission planning and technology devel-
13 opment as needed to achieve the long-term goal of
14 placing humans on the surface of Mars.

15 **SEC. 3. HUMAN EXPLORATION STRATEGY.**

16 (a) HUMAN EXPLORATION OF MARS.—Section
17 202(b) of the National Aeronautics and Space Administra-
18 tion Authorization Act of 2010 (42 U.S.C. 18312(b)) is
19 amended—

20 (1) in paragraph (3), by striking “and” at the
21 end;

22 (2) in paragraph (4), by striking the period at
23 the end and inserting “; and”; and

24 (3) by adding at the end the following:

1 “(5) to achieve human exploration of Mars, in-
2 cluding the establishment of a capability to extend
3 human presence to the surface of Mars.”.

4 (b) EXPLORATION STRATEGY.—

5 (1) IN GENERAL.—In accordance with this sub-
6 section, the Administrator of the National Aero-
7 nautics and Space Administration shall submit an
8 interim report and final report setting forth a strat-
9 egy to achieve the objective in paragraph (5) of sec-
10 tion 202(b) of the National Aeronautics and Space
11 Administration Authorization Act of 2010, as
12 amended by subsection (a) of this section, through
13 a series of successive, sustainable, free-standing, but
14 complementary missions making robust utilization of
15 cis-lunar space and employing the Space Launch
16 System, Orion crew capsule, and other capabilities
17 provided under titles III, IV, V, and IX of that Act
18 (42 U.S.C. 18301 et seq.).

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

22 (A) the utility of an expanded human pres-
23 ence in cis-lunar space toward enabling mis-
24 sions to various lunar orbits, the lunar surface,
25 asteroids, Mars, the moons of Mars, and other

1 destinations of interest for future human explo-
2 ration and development;

3 (B) the utility of an expanded human pres-
4 ence in cis-lunar space for economic, scientific,
5 and technological advances;

6 (C) the opportunities for collaboration
7 with—

8 (i) international partners;

9 (ii) private industry; and

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

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

19 (E) a range of exploration mission archi-
20 tectures and approaches for the missions identi-
21 fied under paragraph (1), including capabilities
22 for the Orion crew capsule and the Space
23 Launch System;

24 (F) a comparison of architectures and ap-
25 proaches based on—

1 (i) assessed value of factors including
2 cost effectiveness, schedule resiliency, safe-
3 ty, sustainability, and opportunities for
4 international collaboration;

5 (ii) the extent to which certain archi-
6 tectures and approaches may enable new
7 markets and opportunities for United
8 States private industry, provide compelling
9 opportunities for scientific discovery and
10 technological excellence, sustain United
11 States competitiveness and leadership, and
12 address critical national security consider-
13 ations and requirements; and

14 (iii) the flexibility of such architec-
15 tures and approaches to adjust to evolving
16 technologies, partners, priorities, and
17 budget projections and constraints;

18 (G) measures for setting standards for en-
19 suring crew health and safety, including limits
20 regarding radiation exposure and counter-
21 measures necessary to meet those limits, means
22 and methods for addressing urgent medical con-
23 ditions or injuries, and other such safety,
24 health, and medical issues that can be antici-

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

3 (H) a description of crew training needs
4 and capabilities (including space suits and life
5 support systems) necessary to support the con-
6 duct of missions identified under paragraph (1);

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

10 (J) an assessment of the recommendations
11 of the report prepared in compliance with sec-
12 tion 204 of the National Aeronautics and Space
13 Administration Authorization Act of 2010
14 (Public Law 111–267; 124 Stat. 2813), includ-
15 ing a detailed explanation of how the Adminis-
16 trator has ensured such recommendations have
17 been, to the extent practicable, incorporated
18 into the strategy under paragraph (1); and

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

22 (3) INDEPENDENT REVIEW.—

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

1 ment on each interim report pursuant to para-
2 graph (1). Under the arrangement, the Na-
3 tional Academy of Sciences shall review each in-
4 terim report on the strategy described in para-
5 graph (1) and identify the following:

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

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

12 (iii) Such further recommendations
13 with respect to matters covered by such in-
14 terim report as the National Academy of
15 Sciences considers appropriate.

16 (B) TIMING OF REVIEW AND COMMENT.—

17 The Administrator shall ensure that the review
18 and comment on an interim report provided for
19 pursuant to subparagraph (A) is conducted in
20 a timely manner to comply with the require-
21 ments of this subsection and, to the maximum
22 extent practicable, to facilitate the incorporation
23 of the comments of the National Academy of
24 Sciences pursuant to subparagraph (A) into the

1 applicable final report required by this sub-
2 section.

3 (4) DEADLINES.—

4 (A) INTERIM REPORTS.—Not later than 90
5 days after the date of the enactment of this
6 Act, and not less than every five years there-
7 after, the Administrator shall submit to the Na-
8 tional Academy of Sciences an interim report
9 on the strategy required by paragraph (1) in
10 order to facilitate the independent review and
11 comment on the strategy as provided for by
12 paragraph (3).

13 (B) FINAL REPORTS.—Not later than one
14 year after the date of the enactment of this Act,
15 and not less than every five years thereafter,
16 the Administrator shall submit to Congress a
17 final report on the strategy required by para-
18 graph (1), which shall include and incorporate
19 the response of the National Academy of
20 Sciences to the most recent interim report pur-
21 suant to paragraph (3).

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