

113TH CONGRESS  
2D SESSION

# H. R. 4412

To authorize the programs of the National Aeronautics and Space  
Administration, and for other purposes.

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## IN THE HOUSE OF REPRESENTATIVES

APRIL 7, 2014

Mr. PALAZZO (for himself and Mr. SMITH of Texas) introduced the following  
bill; which was referred to the Committee on Science, Space, and Technology

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## A BILL

To authorize the programs of the National Aeronautics and  
Space Administration, 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; TABLE OF CONTENTS.**

4       (a) SHORT TITLE.—This Act may be cited as the  
5       “National Aeronautics and Space Administration Author-  
6       ization Act of 2014”.

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

Sec. 1. Short title; table of contents.

Sec. 2. Definitions.

TITLE I—AUTHORIZATION OF APPROPRIATIONS

Sec. 101. Fiscal year 2014.

## TITLE II—HUMAN SPACE FLIGHT

### Subtitle A—Exploration

- Sec. 201. Space exploration policy.
- Sec. 202. Stepping stone approach to exploration.
- Sec. 203. Space Launch System.
- Sec. 204. Orion crew capsule.
- Sec. 205. Advanced booster competition.

### Subtitle B—Space Operations

- Sec. 211. Findings.
- Sec. 212. International Space Station.
- Sec. 213. Commercial crew report.
- Sec. 214. Flight readiness demonstration.
- Sec. 215. Aerospace Safety Advisory Panel advice.
- Sec. 216. Space communications.

## TITLE III—SCIENCE

### Subtitle A—General

- Sec. 301. Science portfolio.
- Sec. 302. Assessment of science mission extensions.
- Sec. 303. Radioisotope thermoelectric generators.
- Sec. 304. Congressional declaration of policy and purpose.
- Sec. 305. Utilization of International Space Station for Science Missions.

### Subtitle B—Astrophysics

- Sec. 311. Decadal cadence.
- Sec. 312. Extrasolar planet exploration strategy.
- Sec. 313. James Webb Space Telescope.
- Sec. 314. Wide-Field Infrared Survey Telescope.
- Sec. 315. National Reconnaissance Office telescope donation.

### Subtitle C—Planetary Science

- Sec. 321. Decadal cadence.
- Sec. 322. Near-Earth objects.
- Sec. 323. Astrobiology strategy.
- Sec. 324. Public-private partnerships.

### Subtitle D—Heliophysics

- Sec. 331. Decadal cadence.
- Sec. 332. Review of space weather.
- Sec. 333. Deep Space Climate Observatory.

### Subtitle E—Earth Science

- Sec. 341. Goal.
- Sec. 342. Decadal cadence.
- Sec. 343. Research to operations.
- Sec. 344. Interagency coordination.
- Sec. 345. Joint Polar Satellite System climate sensors.

- Sec. 346. Land imaging.
- Sec. 347. Sources of Earth science data.

#### TITLE IV—AERONAUTICS

- Sec. 401. Sense of Congress.
- Sec. 402. Unmanned aerial systems research and development.
- Sec. 403. Research program on composite materials used in aeronautics.
- Sec. 404. Hypersonic research.
- Sec. 405. Supersonic research.
- Sec. 406. Research on NextGen airspace management concepts and tools.
- Sec. 407. Rotorcraft research.

#### TITLE V—SPACE TECHNOLOGY

- Sec. 501. Space technology.
- Sec. 502. Utilization of the International Space Station for technology demonstrations.

#### TITLE VI—EDUCATION

- Sec. 601. Education.
- Sec. 602. Independent review of the National Space Grant College and Fellowship Program.

#### TITLE VII—POLICY PROVISIONS

- Sec. 701. Asteroid Retrieval Mission.
- Sec. 702. Termination liability.
- Sec. 703. Baseline and cost controls.
- Sec. 704. Project and program reserves.
- Sec. 705. Independent reviews.
- Sec. 706. Space Act Agreements.
- Sec. 707. Human spaceflight accident investigations.
- Sec. 708. Commercial technology transfer program.
- Sec. 709. Orbital debris.
- Sec. 710. NASA Advisory Council.
- Sec. 711. Cost estimation.
- Sec. 712. Detection and avoidance of counterfeit electronic parts.
- Sec. 713. Prohibition on use of funds for contractors that have committed fraud or other crimes.

### 1 **SEC. 2. DEFINITIONS.**

2 In this Act:

3 (1) ADMINISTRATION.—The term “Administra-  
 4 tion” means the National Aeronautics and Space  
 5 Administration.

1           (2) ADMINISTRATOR.—The term “Adminis-  
2           trator” means the Administrator of the Administra-  
3           tion.

4           (3) ORION CREW CAPSULE.—The term “Orion  
5           crew capsule” refers to the multipurpose crew vehi-  
6           cle described in section 303 of the National Aero-  
7           nautics and Space Administration Authorization Act  
8           of 2010 (42 U.S.C. 18323).

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

14          (5) SPACE LAUNCH SYSTEM.—The term “Space  
15          Launch System” refers to the follow-on Government-  
16          owned civil launch system developed, managed, and  
17          operated by the Administration to serve as a key  
18          component to expand human presence beyond low-  
19          Earth orbit, as described in section 302 of the Na-  
20          tional Aeronautics and Space Administration Au-  
21          thorization Act of 2010 (42 U.S.C. 18322).

1       **TITLE I—AUTHORIZATION OF**  
2                   **APPROPRIATIONS**

3   **SEC. 101. FISCAL YEAR 2014.**

4       There are authorized to be appropriated to the Ad-  
5   ministration for fiscal year 2014 \$17,646,500,000 as fol-  
6   lows:

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

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

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

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

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

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

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

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

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

4 (C) \$668,000,000 shall be for Astro-  
 5 physics;

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

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

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

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

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

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

14 (8) For Construction and Environmental Com-  
 15 pliance and Restoration, \$515,000,000.

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

## 17 **TITLE II—HUMAN SPACE FLIGHT**

### 18 **Subtitle A—Exploration**

#### 19 **SEC. 201. SPACE EXPLORATION POLICY.**

20 (a) FINDINGS.—Congress finds the following:

21 (1) Congress supports a human exploration pro-  
 22 gram that is not critically dependent on the achieve-  
 23 ment of milestones by fixed dates and an exploration  
 24 technology development program to enable lunar  
 25 human and robotic operations, as described in para-

1       graphs (1) and (2) of section 70502 of title 51,  
2       United States Code.

3           (2) Congress supports the expansion of perma-  
4       nent human presence beyond low-Earth orbit, in a  
5       manner involving international partners, commercial  
6       partners, and other not-for-profit partners where  
7       practical.

8           (3) Congress remains committed to ensuring  
9       that authorized budgets for the human space flight  
10      program should allow the Administration to main-  
11      tain high safety standards.

12          (4) Exploration deeper into the solar system  
13      should be the core mission of the Administration.

14          (5) Congress strongly supports the development  
15      of the Space Launch System and the Orion crew  
16      capsule as the enabling elements for human explo-  
17      ration, advanced scientific missions, and national se-  
18      curity priorities beyond low-Earth orbit.

19      (b) POLICY.—It is the policy of the United States  
20      that the development of capabilities and technologies nec-  
21      essary for human missions to lunar orbit, the surface of  
22      the Moon, the surface of Mars, and beyond shall be the  
23      goal of the Administration’s human space flight program.

24      (c) VISION FOR SPACE EXPLORATION.—Section  
25      20302 of title 51, United States Code, is amended—

1           (1) by striking subsection (a) and inserting the  
2           following:

3           “(a) IN GENERAL.—The Administrator shall estab-  
4           lish a program to develop a sustained human presence on  
5           the Moon and the surface of Mars, including a robust pre-  
6           cursor program that follows the stepping stone plan re-  
7           quired in section 70504 to promote exploration, science,  
8           commerce, and United States preeminence in space. The  
9           Administrator is further authorized to develop and con-  
10          duct appropriate international collaborations, commercial  
11          collaborations, and other not-for-profit collaborations in  
12          pursuit of such program, but the absence of such partner-  
13          ships may not be justification for failure to pursue such  
14          program in a timely manner.”;

15          (2) in subsection (b)—

16                (A) by striking paragraph (1) and insert-  
17                ing the following:

18                “(1) Returning Americans to the Moon.”;

19                (B) by striking paragraph (2) and insert-  
20                ing the following:

21                “(2) Launching the first crewed mission of the  
22                fully integrated Orion crew capsule with the Space  
23                Launch System as close to 2020 as possible.”; and



1 (C) in paragraph (4), by striking “from  
2 Mars and” and inserting “from the Moon,  
3 Mars, and”; and

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

5 “(c) DEFINITIONS.—In this section:

6 “(1) ORION CREW CAPSULE.—The term ‘Orion  
7 crew capsule’ refers to the multipurpose crew vehicle  
8 described in section 303 of the National Aeronautics  
9 and Space Administration Authorization Act of 2010  
10 (42 U.S.C. 18323).

11 “(2) SPACE LAUNCH SYSTEM.—The term  
12 ‘Space Launch System’ refers to the follow-on Gov-  
13 ernment-owned civil launch system developed, man-  
14 aged, and operated by the Administration to serve as  
15 a key component to expand human presence beyond  
16 low-Earth orbit, as described in section 302 of the  
17 National Aeronautics and Space Administration Au-  
18 thorization Act of 2010 (42 U.S.C. 18322).”.

19 (d) KEY OBJECTIVES.—Section 202(b) of the Na-  
20 tional Aeronautics and Space Administration Authoriza-  
21 tion Act of 2010 (42 U.S.C. 18312(b)) is amended—

22 (1) in paragraph (3), by striking “and” after  
23 the semicolon;

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

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

2 “(5) to accelerate the development of capabili-  
3 ties to enable a human exploration mission to the  
4 surface of Mars and beyond through the  
5 prioritization of those technologies and capabilities  
6 best suited for such a mission in accordance with the  
7 Mars Human Exploration Roadmap under section  
8 70504 of title 51, United States Code.”.

9 (e) USE OF NON-UNITED STATES HUMAN SPACE  
10 FLIGHT TRANSPORTATION CAPABILITIES.—Section  
11 201(a) of the National Aeronautics and Space Administra-  
12 tion Authorization Act of 2010 (42 U.S.C. 18311(a)) is  
13 amended to read as follows:

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

16 “(1) IN GENERAL.—NASA may not obtain non-  
17 United States human space flight capabilities unless  
18 no domestic commercial or public-private partnership  
19 provider that the Administrator has determined to  
20 meet safety requirements established by NASA for  
21 the transport of its astronauts is available to provide  
22 such capabilities.

23 “(2) DEFINITION.—For purposes of this sub-  
24 section, the term ‘domestic commercial provider’  
25 means a person providing space transportation serv-

1       ices or other space-related activities, the majority  
2       control of which is held by persons other than a  
3       Federal, State, local, or foreign government, foreign  
4       company, or foreign national.”.

5       (f) REPEAL OF SPACE SHUTTLE CAPABILITY ASSUR-  
6       ANCE.—Section 203 of the National Aeronautics and  
7       Space Administration Authorization Act of 2010 (42  
8       U.S.C. 18313) is amended—

9               (1) by striking subsection (b);

10              (2) in subsection (d), by striking “subsection  
11       (c)” and inserting “subsection (b)”; and

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

14       (g) FULLEST COMMERCIAL USE OF SPACE.—

15              (1) REPORT.—Not later than 90 days after the  
16       date of enactment of this Act, the Administrator  
17       shall transmit to the Committee on Science, Space,  
18       and Technology of the House of Representatives and  
19       the Committee on Commerce, Science, and Trans-  
20       portation of the Senate a report on current and con-  
21       tinuing efforts by the Administration to “seek and  
22       encourage, to the maximum extent possible, the full-  
23       est commercial use of space,” as described in section  
24       20102(c) of title 51, United States Code.

1           (2) ELEMENTS.—The report required under  
2       subsection (a) shall include—

3                   (A) an assessment of the Administration’s  
4       efforts to comply with the policy;

5                   (B) an explanation of criteria used to de-  
6       fine compliance;

7                   (C) a description of programs, policies, and  
8       activities the Administration is using, and will  
9       continue to use, to ensure compliance;

10                  (D) an explanation of how the Administra-  
11       tion could expand on the efforts to comply; and

12                  (E) a summary of all current and planned  
13       activities pursuant to this policy.

14       (h) BARRIERS TO FULLEST COMMERCIAL USE OF  
15       SPACE.—Not later than 90 days after the date of enact-  
16       ment of this Act, the Administrator shall transmit to the  
17       Committee on Science, Space, and Technology of the  
18       House of Representatives and the Committee on Com-  
19       merce, Science, and Transportation of the Senate a report  
20       on current and continuing efforts by the Administration  
21       to reduce impediments, bureaucracy, redundancy, and  
22       burdens to ensure the fullest commercial use of space as  
23       required in section 20102(c) of title 51, United States  
24       Code.

1 **SEC. 202. STEPPING STONE APPROACH TO EXPLORATION.**

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

4 **“§ 70504. Stepping stone approach to exploration**

5 “(a) IN GENERAL.—In order to maximize the cost  
6 effectiveness of the long-term space exploration and utili-  
7 zation activities of the United States, the Administrator  
8 shall direct the Human Exploration and Operations Mis-  
9 sion Directorate to develop a Mars Human Exploration  
10 Roadmap to define the specific capabilities and tech-  
11 nologies necessary to extend human presence to the sur-  
12 face of Mars and the mission sets required to demonstrate  
13 such capabilities and technologies.

14 “(b) INTERNATIONAL PARTICIPATION.—The Presi-  
15 dent should invite the United States partners in the Inter-  
16 national Space Station program and other nations, as ap-  
17 propriate, to participate in an international initiative  
18 under the leadership of the United States to achieve the  
19 goal of successfully conducting a crewed mission to the  
20 surface of Mars.

21 “(c) ROADMAP REQUIREMENTS.—In developing the  
22 Mars Human Exploration Roadmap, the Administrator  
23 shall—

24 “(1) include the specific set of capabilities and  
25 technologies required to extend human presence to  
26 the surface of Mars and the mission sets necessary

1 to demonstrate the proficiency of these capabilities  
2 and technologies with an emphasis on using the  
3 International Space Station, lunar landings, cis-  
4 lunar space, trans-lunar space, Lagrangian points,  
5 and the natural satellites of Mars, Phobos and  
6 Deimos, as testbeds, as necessary, and shall include  
7 the most appropriate process for developing such ca-  
8 pabilities and technologies;

9 “(2) describe those technologies already under  
10 development across the Federal Government or by  
11 nongovernment entities which meet or exceed the  
12 needs described in paragraph (1);

13 “(3) provide a specific process for the evolution  
14 of the capabilities of the fully integrated Orion crew  
15 capsule with the Space Launch System and how  
16 these systems demonstrate the capabilities and tech-  
17 nologies described in paragraph (1);

18 “(4) provide a description of the capabilities  
19 and technologies that could be demonstrated or re-  
20 search data that could be gained through the utiliza-  
21 tion of the International Space Station and the sta-  
22 tus of the development of such capabilities and tech-  
23 nologies;

24 “(5) describe a framework for international co-  
25 operation in the development of all technologies and

1 capabilities required in this section, as well as an as-  
2 sessment of the risks posed by relying on inter-  
3 national partners for capabilities and technologies on  
4 the critical path of development;

5 “(6) describe a process for utilizing nongovern-  
6 mental entities for future human exploration beyond  
7 trans-lunar space and specify what, if any, synergy  
8 could be gained from—

9 “(A) partnerships using Space Act Agree-  
10 ments (as defined in section 2 of the National  
11 Aeronautics and Space Administration Author-  
12 ization Act of 2014); or

13 “(B) other acquisition instruments;

14 “(7) include in the Roadmap an addendum  
15 from the NASA Advisory Council, and an addendum  
16 from the Aerospace Safety Advisory Panel, each  
17 with a statement of review of the Roadmap that  
18 shall include—

19 “(A) subjects of agreement;

20 “(B) areas of concern; and

21 “(C) recommendations; and

22 “(8) include in the Roadmap an examination of  
23 the benefits of utilizing current Administration  
24 launch facilities for trans-lunar missions.

1       “(d) UPDATES.—The Administrator shall update  
2 such Roadmap at least every 4 years and include it in the  
3 budget for that fiscal year transmitted to Congress under  
4 section 1105(a) of title 31, and describe—

5               “(1) the achievements and goals reached in the  
6 process of developing such capabilities and tech-  
7 nologies during the 4-year period prior to the sub-  
8 mission of the Roadmap to Congress; and

9               “(2) the expected goals and achievements in the  
10 following 4-year period.

11       “(e) DEFINITIONS.—The terms ‘Orion crew capsule’  
12 and ‘Space Launch System’ have the meanings given such  
13 terms in section 20302.”.

14       (b) REPORT.—

15               (1) IN GENERAL.—Not later than 1 year after  
16 the date of enactment of this Act, the Administrator  
17 shall transmit a copy of the Mars Human Explo-  
18 ration Roadmap developed under section 70504 of  
19 title 51, United States Code, to the Committee on  
20 Science, Space, and Technology of the House of  
21 Representatives and the Committee on Commerce,  
22 Science, and Transportation of the Senate.

23               (2) UPDATES.—The Administrator shall trans-  
24 mit a copy of each updated Mars Human Explo-  
25 ration Roadmap to the Committee on Science,



1 Space, and Technology of the House of Representa-  
2 tives and the Committee on Commerce, Science, and  
3 Transportation of the Senate not later than 7 days  
4 after such Roadmap is updated under section  
5 70504(b)(6) of such title.

6 **SEC. 203. SPACE LAUNCH SYSTEM.**

7 (a) FINDINGS.—Congress finds that—

8 (1) the Space Launch System is the most prac-  
9 tical approach to reaching the Moon, Mars, and be-  
10 yond, and Congress reaffirms the policy and min-  
11 imum capability requirements for the Space Launch  
12 System contained in section 302 of the National  
13 Aeronautics and Space Administration Authorization  
14 Act of 2010 (42 U.S.C. 18322);

15 (2) the primary goal for the design of the fully  
16 integrated Space Launch System is to safely carry  
17 a total payload of 130 tons or more to low-Earth  
18 orbit to enable human space exploration of the  
19 Moon, Mars, and beyond over the course of the next  
20 century as required in section 302(c) of the National  
21 Aeronautics and Space Administration Authorization  
22 Act of 2010 (42 U.S.C. 18322(c));

23 (3) the uncrewed flight test of the 70-ton core  
24 element of the Space Launch System fully inte-  
25 grated with the Orion crew capsule as described in

1 section 302(c)(1) of the National Aeronautics and  
2 Space Administration Authorization Act of 2010 (42  
3 U.S.C. 18322(c)(1)) is a necessary flight demonstra-  
4 tion in an overall program plan, subject to appro-  
5 priations; and

6 (4) the schedule of the 70-ton core element  
7 crewed flight demonstration in 2021 with the Space  
8 Launch System fully integrated with the Orion crew  
9 capsule as described in section 302(c)(1) of the Na-  
10 tional Aeronautics and Space Administration Au-  
11 thorization Act of 2010 (42 U.S.C. 18322(c)(1)) is  
12 subject to appropriations.

13 (b) IN GENERAL.—As required in section 302(c)(2)  
14 of the National Aeronautics and Space Administration Au-  
15 thorization Act of 2010 (42 U.S.C. 18322(c)(2)), the Ad-  
16 ministration shall design the Space Launch System as a  
17 fully integrated vehicle capable of carrying a total payload  
18 of 130 tons or more into low-Earth orbit in preparation  
19 for transit for missions beyond low-Earth orbit.

20 (c) PROGRESS REPORT.—

21 (1) IN GENERAL.—Using the President’s budg-  
22 et request for fiscal year 2014 and notional numbers  
23 requested therein as a baseline, not later than 90  
24 days after the date of enactment of this Act the Ad-  
25 ministrator shall transmit to the Committee on

1 Science, Space, and Technology of the House of  
2 Representatives and the Committee on Commerce,  
3 Science, and Transportation of the Senate an esti-  
4 mate of—

5 (A) when the 70-ton core element of the  
6 Space Launch System fully integrated with the  
7 Orion crew capsule may be demonstrated as an  
8 operational capability;

9 (B) when the 130-ton Space Launch Sys-  
10 tem fully integrated with the Orion crew cap-  
11 sule may be demonstrated as an operational ca-  
12 pability;

13 (C) the projected annual operational costs  
14 through 2030 for the 130-ton Space Launch  
15 System fully integrated with the Orion crew  
16 capsule after its operational capability has been  
17 demonstrated; and

18 (D) the projected flight rate for the 130-  
19 ton Space Launch System fully integrated with  
20 the Orion crew capsule through 2030.

21 (2) CONTINGENCY FUNDING ESTIMATES.—If  
22 the Administrator determines that the uncrewed test  
23 flight of the 70-ton core element of the Space  
24 Launch System fully integrated with the Orion crew  
25 capsule will not occur on or before December 31,

1        2017, or that the crewed test flight of the 70-ton  
2        core element of the Space Launch System fully inte-  
3        grated with the Orion crew capsule will not occur on  
4        or before December 31, 2021, the report transmitted  
5        under paragraph (1) shall include an estimate of ad-  
6        ditional funds required through annual appropria-  
7        tions for fiscal years 2015 through 2021 which may  
8        be necessary to meet such goals in those years.

9        (d) UTILIZATION REPORT.—The Administrator, in  
10       consultation with the Secretary of Defense and the Direc-  
11       tor of National Intelligence, shall prepare a report that  
12       addresses the effort and budget required to enable and  
13       utilize a cargo variant of the 130-ton Space Launch Sys-  
14       tem configuration described in section 302(c) of the Na-  
15       tional Aeronautics and Space Administration Authoriza-  
16       tion Act of 2010 (42 U.S.C. 18322(c)). This report shall  
17       also include consideration of the technical requirements of  
18       the scientific and national security communities related to  
19       such Space Launch System and shall directly assess the  
20       utility and estimated cost savings obtained by using such  
21       Space Launch System for national security and space  
22       science missions. The Administrator shall transmit such  
23       report to the Committee on Science, Space, and Tech-  
24       nology of the House of Representatives and the Committee  
25       on Commerce, Science, and Transportation of the Senate

1 not later than 180 days after the date of enactment of  
2 this Act.

3 (e) NAMING COMPETITION.—Beginning not later  
4 than 180 days after the date of enactment of this Act and  
5 concluding not later than 1 year after such date of enact-  
6 ment, the Administrator shall conduct a well-publicized  
7 competition among students in elementary and secondary  
8 schools to name the elements of the Administration’s ex-  
9 ploration program, including—

10 (1) a name for the deep space human explo-  
11 ration program as a whole, which includes the Space  
12 Launch System, the Orion crew capsule, lunar  
13 landers, and future missions; and

14 (2) a name for the Space Launch System.

15 **SEC. 204. ORION CREW CAPSULE.**

16 (a) IN GENERAL.—The Orion crew capsule shall meet  
17 the practical needs and the minimum capability require-  
18 ments described in section 303 of the National Aero-  
19 nautics and Space Administration Authorization Act of  
20 2010 (42 U.S.C. 18323).

21 (b) REPORT.—Not later than 60 days after the date  
22 of enactment of this Act, the Administrator shall transmit  
23 a report to the Committee on Science, Space, and Tech-  
24 nology of the House of Representatives and the Committee

1 on Commerce, Science, and Transportation of the Sen-  
2 ate—

3 (1) detailing those components and systems of  
4 the Orion crew capsule that ensure it is in compli-  
5 ance with section 303(b) of such Act (42 U.S.C.  
6 18323(b));

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

10 (3) certifying that the requirements of section  
11 303(b)(3) of such Act (42 U.S.C. 18323(b)(3)) will  
12 be met by the Administration in time for the first  
13 crewed test flight in 2021.

14 **SEC. 205. ADVANCED BOOSTER COMPETITION.**

15 (a) REPORT.—Not later than 90 days after the date  
16 of enactment of this Act, the Associate Administrator of  
17 the National Aeronautics and Space Administration shall  
18 transmit to the Committee on Science, Space, and Tech-  
19 nology of the House of Representatives and the Committee  
20 on Commerce, Science, and Transportation of the Senate  
21 a report that—

22 (1) describes the estimated total development  
23 cost of an advanced booster for the Space Launch  
24 System;

1           (2) details any reductions or increases to the  
 2           development cost of the Space Launch System which  
 3           may result from conducting a competition for an ad-  
 4           vanced booster; and

5           (3) outlines any potential schedule delay to the  
 6           Space Launch System 2017 EM–1 launch as a re-  
 7           sult of increased costs associated with conducting a  
 8           competition for an advanced booster.

9           (b) COMPETITION.—If the Associate Administrator  
 10          reports reductions pursuant to paragraph (2) of sub-  
 11          section (a), and no adverse schedule impact pursuant to  
 12          paragraph (3), then the Administration shall conduct a  
 13          full and open competition for an advanced booster for the  
 14          Space Launch System to meet the requirements described  
 15          in section 302(c) of the National Aeronautics and Space  
 16          Administration Authorization Act of 2010 (42 U.S.C.  
 17          18322(c)), to begin not later than 1 year after the Asso-  
 18          ciate Administrator transmits the report required under  
 19          subsection (a).

## 20           **Subtitle B—Space Operations**

### 21          **SEC. 211. FINDINGS.**

22          Congress finds the following:

23               (1) The International Space Station is the ideal  
 24               short-term testbed for future exploration systems de-  
 25               velopment, including long-duration space travel.

1           (2) The use of the private market to provide  
2           cargo and crew transportation services is currently  
3           the most expeditious process to restore domestic ac-  
4           cess to the International Space Station and low-  
5           Earth orbit.

6           (3) Government-assured access to low-Earth  
7           orbit is paramount to the continued success of the  
8           International Space Station and National Labora-  
9           tory.

10          (4) Acquiring and maintaining an operational  
11          domestic commercial crew transportation service by  
12          the year 2017 is of the utmost importance for the  
13          future viability of the International Space Station  
14          and National Laboratory.

15 **SEC. 212. INTERNATIONAL SPACE STATION.**

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

18               (1) The International Space Station shall be  
19               utilized to the maximum extent practicable for the  
20               development of capabilities and technologies needed  
21               for the future of human exploration beyond low-  
22               Earth orbit.

23               (2) The Administrator shall, in consultation  
24               with the International Space Station partners—



1 (A) take all necessary measures to support  
2 the operation and full utilization of the Inter-  
3 national Space Station; and

4 (B) seek to minimize, to the extent prac-  
5 ticable, the operating costs of the International  
6 Space Station.

7 (3) Reliance on foreign carriers for crew trans-  
8 fer is unacceptable, and the Nation's human space  
9 flight program must acquire the capability to launch  
10 United States astronauts on United States rockets  
11 from United States soil as soon as is safe and prac-  
12 tically possible, whether on Government-owned and  
13 operated space transportation systems or privately  
14 owned systems that have been certified for flight by  
15 the appropriate Federal agencies.

16 (b) REAFFIRMATION OF POLICY.—Congress reaf-  
17 firms—

18 (1) its commitment to the development of a  
19 commercially developed launch and delivery system  
20 to the International Space Station for crew missions  
21 as expressed in the National Aeronautics and Space  
22 Administration Authorization Act of 2005 (Public  
23 Law 109–155), the National Aeronautics and Space  
24 Administration Authorization Act of 2008 (Public  
25 Law 110–422), and the National Aeronautics and

1 Space Administration Authorization Act of 2010  
2 (Public Law 111–267);

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

7 (3) the policy stated in section 501(b) of the  
8 National Aeronautics and Space Administration Au-  
9 thorization Act of 2010 (42 U.S.C. 18351(b)) that  
10 the Administration shall pursue international, com-  
11 mercial, and intragovernmental means to maximize  
12 International Space Station logistics supply, mainte-  
13 nance, and operational capabilities, reduce risks to  
14 International Space Station systems sustainability,  
15 and offset and minimize United States operations  
16 costs relating to the International Space Station.

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

20 “(a) POLICY STATEMENT.—It is the policy of the  
21 United States to maintain an uninterrupted capability for  
22 human space flight and operations in low-Earth orbit, and  
23 beyond, as an essential instrument of national security  
24 and the capability to ensure continued United States par-

1 participation and leadership in the exploration and utilization  
2 of space.”.

3 (d) REPEALS.—

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

8 (2) SHUTTLE PRICING POLICY FOR COMMER-  
9 CIAL AND FOREIGN USERS.—Chapter 703 of title  
10 51, United States Code, and the item relating to  
11 such chapter in the table of chapters for such title,  
12 are repealed.

13 (3) SHUTTLE PRIVATIZATION.—Section 50133  
14 of title 51, United States Code, and the item relat-  
15 ing to such section in the table of sections for chap-  
16 ter 501 of such title, are repealed.

17 (e) EXTENSION CRITERIA REPORT.—Not later than  
18 1 year after the date of enactment of this Act, the Admin-  
19 istrator shall submit to the Committee on Science, Space,  
20 and Technology of the House of Representatives and the  
21 Committee on Commerce, Science, and Transportation of  
22 the Senate a report on the feasibility of extending the op-  
23 eration of the International Space Station that includes—

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

1           (2) cost estimates for operating the Inter-  
2       national Space Station to achieve the criteria in  
3       paragraph (1);

4           (3) cost estimates for extending operations to  
5       2020, 2025, and 2030; and

6           (4) an assessment of how the defined criteria  
7       under paragraph (1) respond to the National Acad-  
8       emies Decadal Survey on Biological and Physical  
9       Sciences in Space.

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

12           (1) IN GENERAL.—The Director of the Office of  
13       Science and Technology Policy, in consultation with  
14       the Administrator, academia, other Federal agencies,  
15       the International Space Station National Laboratory  
16       Advisory Committee, and other potential stake-  
17       holders, shall develop and transmit to the Committee  
18       on Science, Space, and Technology of the House of  
19       Representatives and the Committee on Commerce,  
20       Science, and Transportation of the Senate a stra-  
21       tegic plan for conducting competitive, peer-reviewed  
22       research in physical and life sciences and related  
23       technologies on the International Space Station  
24       through at least 2020.

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

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

7           (B) provide a research timeline and iden-  
8 tify resource requirements for its implementa-  
9 tion, including the facilities and instrumenta-  
10 tion necessary for the conduct of such research;  
11 and

12           (C) identify—

13           (i) criteria for the proposed research,  
14 including—

15           (I) a justification for the research  
16 to be carried out in the space micro-  
17 gravity environment;

18           (II) the use of model systems;

19           (III) the testing of flight hard-  
20 ware to understand and ensure its  
21 functioning in the microgravity envi-  
22 ronment;

23           (IV) the use of controls to help  
24 distinguish among the direct and indi-  
25 rect effects of microgravity, among

1 other effects of the flight or space en-  
2 vironment;

3 (V) approaches for facilitating  
4 data collection, analysis, and interpre-  
5 tation;

6 (VI) procedures to ensure repeti-  
7 tion of experiments, as needed;

8 (VII) support for timely presen-  
9 tation of the peer-reviewed results of  
10 the research; and

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

13 (ii) instrumentation required to sup-  
14 port the measurements and analysis of the  
15 research to be carried out under the stra-  
16 tegic plan;

17 (iii) the capabilities needed to support  
18 direct, real-time communications between  
19 astronauts working on research experi-  
20 ments onboard the International Space  
21 Station and the principal investigator on  
22 the ground;

23 (iv) a process for involving the exter-  
24 nal user community in research planning,  
25 including planning for relevant flight hard-

ware 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

1 the progress of the organization chosen for the  
2 management of the International Space Station  
3 National Laboratory as directed in section 504  
4 of the National Aeronautics and Space Admin-  
5 istration Authorization Act of 2010 (42 U.S.C.  
6 18354).

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

13 **SEC. 213. COMMERCIAL CREW REPORT.**

14 (a) IN GENERAL.—The Administration shall consider  
15 the ramifications of and create contingencies as the se-  
16 questration adopted in the Budget Control Act of 2011  
17 (Public Law 112–25) continues to reduce the Administra-  
18 tion’s overall budget.

19 (b) REPORT.—

20 (1) IN GENERAL.—Not later than 60 days after  
21 the date of enactment of this Act, the Administrator  
22 shall transmit to the Committee on Science, Space,  
23 and Technology of the House of Representatives and  
24 the Committee on Commerce, Science, and Trans-  
25 portation of the Senate a report containing 5 dis-



1        tinct options for the final stages of the commercial  
2        crew program.

3            (2) REQUIREMENTS.—These options shall in-  
4        clude—

5            (A) a strategy that assumes an appropria-  
6        tion of \$500,000,000 over the next 3 fiscal  
7        years;

8            (B) a strategy that assumes an appropria-  
9        tion of \$600,000,000 over the next 3 fiscal  
10       years;

11           (C) a strategy that assumes an appropria-  
12       tion of \$700,000,000 over the next 3 fiscal  
13       years;

14           (D) a strategy that assumes an appropria-  
15       tion of \$800,000,000 over the next 3 fiscal  
16       years; and

17           (E) a strategy that has yet to be consid-  
18       ered previously in any budget submission but  
19       that the Administration believes could ensure  
20       the flight readiness date of 2017 for at least  
21       one provider or significantly decreases the over-  
22       all program lifecycle cost.

23           (3) INCLUSIONS.—Each strategy shall include  
24       the contracting instruments the Administration will  
25       employ to acquire the services in each phase of de-

1        velopment or acquisition, the number of commercial  
2        providers the Administration will include in the pro-  
3        gram, and the estimated flight readiness date in  
4        each scenario.

5    **SEC. 214. FLIGHT READINESS DEMONSTRATION.**

6        (a) IN GENERAL.—The Administration shall carry  
7        out its flight readiness demonstration, in which one or  
8        more commercial crew partner companies safely trans-  
9        ports United States astronauts to the International Space  
10       Station, by December 31, 2017.

11       (b) REPORT.—Not later than 180 days after the date  
12       of enactment of this Act and every 90 days thereafter until  
13       the Administration carries out its flight readiness dem-  
14       onstration, the Administrator shall transmit to the Com-  
15       mittee on Science, Space, and Technology of the House  
16       of Representatives and the Committee on Commerce,  
17       Science, and Transportation of the Senate a report—

18                (1) describing the current status of the Com-  
19        mercial Crew program, including all funding paid to  
20        any partner company throughout the life of the pro-  
21        gram detailed by specific dollar amounts provided  
22        for each milestone completed for each partner com-  
23        pany;

24                (2) specifying the accomplishments and mile-  
25        stones completed in the 90 days prior to the date of

1 transmission of the report under any phase of the  
2 program and all dollar amounts provided for each of  
3 those milestones;

4 (3) identifying those accomplishments and mile-  
5 stones that were expected to be completed in the 90  
6 days prior to the date of transmission of such report  
7 under any phase of the program but that were not  
8 completed in that timeframe;

9 (4) setting forth the accomplishments and mile-  
10 stones that are expected to be completed in the 90-  
11 day period following the transmission of such report  
12 under any phase of the program; and

13 (5) containing a statement of flight readiness  
14 under subsection (c).

15 (c) STATEMENT OF FLIGHT READINESS.—The state-  
16 ment of flight readiness required by subsection (b)(5) shall  
17 include—

18 (1) either—

19 (A) a certification by the Administrator  
20 that the Administration is on schedule to com-  
21 ply with subsection (a); or

22 (B) an explanation as to why the Adminis-  
23 tration is not on schedule to comply with sub-  
24 section (a) and why the Administration did not

1           develop an acquisition strategy based on exist-  
2           ing budget authority; and

3           (2) a certification by the Administrator that all  
4           deviations from the Aerospace Safety Advisory Panel  
5           recommendations have been reported in accordance  
6           with section 215.

7           (d) AUTHORIZATION OF FUNDS.—Not later than 60  
8           days after the issuance of the explanation described in  
9           subsection (c)(2), the Administrator shall provide, and  
10          begin implementation of, a new acquisition strategy that  
11          ensures that at least 1 company will be prepared to pro-  
12          vide crew transport services by December 31, 2017.

13   **SEC. 215. AEROSPACE SAFETY ADVISORY PANEL ADVICE.**

14          (a) IMPORTANCE.—Congress reaffirms the impor-  
15          tance of the Aerospace Safety Advisory Panel in providing  
16          advice to the Administrator and Congress in accordance  
17          with the duties prescribed in section 31101 of title 51,  
18          United States Code.

19          (b) INITIAL REPORT.—Not later than 30 days after  
20          the date of enactment of this Act, the Administrator shall  
21          report to the Committee on Science, Space, and Tech-  
22          nology of the House of Representatives and the Committee  
23          on Commerce, Science, and Transportation of the Senate  
24          on the extent to which the Administration has followed,  
25          intends to follow, or does not intend to follow the advice

1 in the 2012 Annual Report of the Aerospace Safety Advi-  
2 sory Panel.

3 (c) ANNUAL REPORTS.—Section 31101 of title 51,  
4 United States Code, is amended by striking subsection (e)  
5 and inserting the following:

6 “(e) PANEL ANNUAL REPORT.—The Panel shall sub-  
7 mit an annual report to the Administrator and to Con-  
8 gress. The Panel shall include in such report an evaluation  
9 of the Administration’s management and culture related  
10 to safety. Each annual report shall include an evaluation  
11 of the extent to which the Administration follows the Pan-  
12 el’s advice.

13 “(f) ADMINISTRATOR ANNUAL REPORT.—Not later  
14 than 30 days after each annual report by the Panel under  
15 subsection (e), the Administrator shall report to the Com-  
16 mittee on Science, Space, and Technology of the House  
17 of Representatives and the Committee on Commerce,  
18 Science, and Transportation of the Senate on the extent  
19 to which the Administration has followed, intends to fol-  
20 low, or does not intend to follow the Panel’s advice.”.

21 **SEC. 216. SPACE COMMUNICATIONS.**

22 (a) PLAN.—The Administrator shall develop a plan,  
23 in consultation with relevant Federal agencies, for updat-  
24 ing the Administration’s space communications architec-  
25 ture for both low-Earth orbital operations and deep space

1 exploration so that it is capable of meeting the Adminis-  
2 tration's needs over the next 20 years. The plan shall in-  
3 clude lifecycle cost estimates, milestones, estimated per-  
4 formance capabilities, and 5-year funding profiles. The  
5 plan shall also include an estimate of the amounts of any  
6 reimbursements the Administration is likely to receive  
7 from other Federal agencies during the expected life of  
8 the upgrades described in the plan. At a minimum, the  
9 plan shall include a description of the following:

10           (1) Projected Deep Space Network require-  
11           ments for the next 20 years, including those in sup-  
12           port of human space exploration missions.

13           (2) Upgrades needed to support Deep Space  
14           Network requirements, including cost estimates and  
15           schedules.

16           (3) Cost estimates for the maintenance of exist-  
17           ing Deep Space Network capabilities.

18           (4) Projected Tracking and Data Relay Sat-  
19           ellite System requirements for the next 20 years, in-  
20           cluding those in support of other relevant Federal  
21           agencies.

22           (5) Cost and schedule estimates to maintain  
23           and upgrade the Tracking and Data Relay Satellite  
24           System to meet projected requirements.

1           (6) Steps the Administration is taking to miti-  
2           gate threats to electromagnetic spectrum use.

3           (b) SCHEDULE.—The Administrator shall transmit  
4 the plan developed under this section to the Committee  
5 on Science, Space, and Technology of the House of Rep-  
6 resentatives and the Committee on Commerce, Science,  
7 and Transportation of the Senate not later than 1 year  
8 after the date of enactment of this Act.

## 9                   **TITLE III—SCIENCE**

### 10                   **Subtitle A—General**

#### 11   **SEC. 301. SCIENCE PORTFOLIO.**

12           (a) BALANCED AND ADEQUATELY FUNDED ACTIVI-  
13 TIES.—Section 803 of the National Aeronautics and Space  
14 Administration Authorization Act of 2010 (124 Stat.  
15 2832) is amended to read as follows:

16   **“SEC. 803. OVERALL SCIENCE PORTFOLIO; SENSE OF CON-**  
17                   **GRESS.**

18           “Congress reaffirms its sense, expressed in the Na-  
19 tional Aeronautics and Space Administration Authoriza-  
20 tion Act of 2010, that a balanced and adequately funded  
21 set of activities, consisting of research and analysis grants  
22 programs, technology development, small, medium, and  
23 large space missions, and suborbital research activities,  
24 contributes to a robust and productive science program  
25 and serves as a catalyst for innovation and discovery.”.

1 (b) DECADAL SURVEYS.—In proposing the funding  
2 of programs and activities for the National Aeronautics  
3 and Space Administration for each fiscal year, the Admin-  
4 istrator shall, to the greatest extent practicable, follow  
5 guidance provided in the current decadal surveys from the  
6 National Academies’ Space Studies Board.

7 **SEC. 302. ASSESSMENT OF SCIENCE MISSION EXTENSIONS.**

8 Section 30504 of title 51, United States Code, is  
9 amended to read as follows:

10 **“§ 30504. Assessment of science mission extensions**

11 “(a) ASSESSMENT.—The Administrator shall carry  
12 out biennial reviews within each of the Science divisions  
13 to assess the cost and benefits of extending the date of  
14 the termination of data collection for those missions that  
15 exceed their planned mission lifetime. The assessment  
16 shall take into consideration how extending existing mis-  
17 sions impacts the start of future missions.

18 “(b) CONSULTATION AND CONSIDERATION OF PO-  
19 TENTIAL BENEFITS OF INSTRUMENTS ON MISSIONS.—  
20 When deciding whether to extend a mission that has an  
21 operational component, the Administrator shall consult  
22 with any affected Federal agency and shall take into ac-  
23 count the potential benefits of instruments on missions  
24 that are beyond their planned mission lifetime.



1       “(c) COSTS.—If a mission is extended based on con-  
 2 sultation required under subsection (b), the full costs of  
 3 the extension shall be paid for by the operational agency  
 4 or agencies.

5       “(d) REPORT.—The Administrator shall transmit to  
 6 the Committee on Science, Space, and Technology of the  
 7 House of Representatives and the Committee on Com-  
 8 merce, Science, and Transportation of the Senate, at the  
 9 same time as the submission to Congress of the Presi-  
 10 dent’s annual budget request, a report detailing any as-  
 11 sessment required by subsection (a) that was carried out  
 12 during the previous year.”.

13 **SEC. 303. RADIOISOTOPE THERMOELECTRIC GENERATORS.**

14       (a) ANALYSIS OF REQUIREMENTS AND RISKS.—The  
 15 Administrator, in consultation with other Federal agen-  
 16 cies, shall conduct an analysis of—

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

22           (2) the risks to missions of the Administration  
 23 in meeting those requirements, or any additional re-  
 24 quirements, due to a lack of adequate radioisotope  
 25 power system material.

1 (b) CONTENTS OF ANALYSIS.—The analysis con-  
2 ducted under subsection (a) shall—

3 (1) detail the Administration’s current pro-  
4 jected mission requirements and associated time-  
5 frames for radioisotope power system material;

6 (2) explain the assumptions used to determine  
7 the Administration’s requirements for the material,  
8 including—

9 (A) the planned use of Advanced Stirling  
10 Radioisotope Generator technology;

11 (B) the status of and timeline for com-  
12 pleting development and demonstration of the  
13 Advanced Stirling Radioisotope Generator tech-  
14 nology, including the development of flight  
15 readiness requirements; and

16 (C) the risks and implications of, and con-  
17 tingencies for, any delays or unanticipated tech-  
18 nical challenges affecting or related to the Ad-  
19 ministration’s mission plans for the anticipated  
20 use of Advanced Stirling Radioisotope Gener-  
21 ator technology;

22 (3) assess the risk to the Administration’s pro-  
23 grams of any potential delays in achieving the sched-  
24 ule and milestones for planned domestic production  
25 of radioisotope power system material;

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

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

7           (6) detail how the Administration and other  
8       Federal agencies will manage, operate, and fund  
9       production facilities and the design and development  
10      of all radioisotope power systems used by the Ad-  
11      ministration and other Federal agencies as nec-  
12      essary;

13          (7) specify the steps the Administration will  
14      take, in consultation with the Department of En-  
15      ergy, to preserve the infrastructure and workforce  
16      necessary for production of radioisotope power sys-  
17      tems; and

18          (8) detail how the Administration has imple-  
19      mented or rejected the recommendations from the  
20      National Research Council's 2009 report titled "Ra-  
21      dioisotope Power Systems: An Imperative for Main-  
22      taining U.S. Leadership in Space Exploration".

23      (c) TRANSMITTAL.—Not later than 180 days after  
24      the date of enactment of this Act, the Administrator shall  
25      transmit the results of the analysis to the Committee on

1 Science, Space, and Technology of the House of Rep-  
2 resentatives and the Committee on Commerce, Science,  
3 and Transportation of the Senate.

4 **SEC. 304. CONGRESSIONAL DECLARATION OF POLICY AND**  
5 **PURPOSE.**

6 Section 20102(d) of title 51, United States Code, is  
7 amended by adding at the end the following new para-  
8 graph:

9 “(10) The direction of the unique competence  
10 of the Administration to the search for life’s origin,  
11 evolution, distribution, and future in the Universe.  
12 In carrying out this objective, the Administration  
13 may use any practicable ground-based, airborne, or  
14 space-based technical means and spectra of electro-  
15 magnetic radiation.”.

16 **SEC. 305. UTILIZATION OF INTERNATIONAL SPACE STA-**  
17 **TION FOR SCIENCE MISSIONS.**

18 The Administrator shall utilize the International  
19 Space Station and commercial services for Science Mission  
20 Directorate missions in low-Earth orbit wherever it is  
21 practical and cost effective to do so.

## 1                   **Subtitle B—Astrophysics**

### 2   **SEC. 311. DECADAL CADENCE.**

3           In carrying out section 301(b), the Administrator  
4 shall ensure a steady cadence of large, medium, and small  
5 astrophysics missions.

### 6   **SEC. 312. EXTRASOLAR PLANET EXPLORATION STRATEGY.**

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

14               (1) outline key scientific questions;

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

17               (3) indicate the extent to which the mission pri-  
18 orities in existing decadal surveys address key  
19 extrasolar planet research goals; and

20               (4) make recommendations with respect to opti-  
21 mal coordination with international partners, com-  
22 mercial partners, and other not-for-profit partners.

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

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

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

6           (c) REPORT TO CONGRESS.—Not later than 18  
7           months after the date of enactment of this Act, the Na-  
8           tional Academies shall transmit a report to the Adminis-  
9           trator, and to the Committee on Science, Space, and Tech-  
10          nology of the House of Representatives and the Committee  
11          on Commerce, Science, and Transportation of the Senate,  
12          containing the strategy developed under subsection (a).

13   **SEC. 313. JAMES WEBB SPACE TELESCOPE.**

14          It is the sense of Congress that the James Webb  
15          Space Telescope program is significant to our under-  
16          standing of the history of the universe, including galaxies,  
17          stars, and planetary systems, and should continue to re-  
18          ceive priority of funding in accord with the recommenda-  
19          tion of the most recent decadal survey for Astronomy and  
20          Astrophysics of the National Academies' Space Studies  
21          Board.

22   **SEC. 314. WIDE-FIELD INFRARED SURVEY TELESCOPE.**

23          The Administrator shall ensure that the development  
24          of the Wide-Field Infrared Survey Telescope continues  
25          while the James Webb Space Telescope is completed.

1 **SEC. 315. NATIONAL RECONNAISSANCE OFFICE TELESCOPE**  
2 **DONATION.**

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

13 (1) an assessment of affordable approaches to  
14 develop the Wide-Field Infrared Survey Telescope;

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

18 (3) an assessment of how the Administration's  
19 existing science missions will be affected by the utilization of the donated asset described in this section;  
20 and  
21

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

3           **Subtitle C—Planetary Science**

4   **SEC. 321. DECADAL CADENCE.**

5           In carrying out section 301(b), the Administrator  
6   shall ensure, to the greatest extent practicable, that the  
7   Administration carries out a balanced set of planetary  
8   science programs in accordance with the priorities estab-  
9   lished in the most recent decadal survey for planetary  
10   science. Such programs shall include, at a minimum—

11           (1) a Discovery-class mission at least once every  
12           24 months;

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

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

18   **SEC. 322. NEAR-EARTH OBJECTS.**

19           (a) FINDINGS.—Congress makes the following find-  
20   ings:

21           (1) Near-Earth objects pose a serious and cred-  
22           ible threat to humankind, as many scientists believe  
23           that a major asteroid or comet was responsible for  
24           the mass extinction of the majority of the Earth’s



1 species, including the dinosaurs, nearly 65,000,000  
2 years ago.

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

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

12 (4) The efforts taken to date by the Adminis-  
13 tration for detecting and characterizing the hazards  
14 of near-Earth objects must continue to fully deter-  
15 mine the threat posed by such objects to cause wide-  
16 spread destruction and loss of life.

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

21 (c) NEAR-EARTH OBJECT SURVEY.—The Adminis-  
22 trator shall continue to discover, track, catalogue, and  
23 characterize the physical characteristics of near-Earth ob-  
24 jects equal to or greater than 140 meters in diameter in  
25 order to assess the threat of such near-Earth objects to

1 the Earth, pursuant to the George E. Brown, Jr. Near-  
2 Earth Object Survey Act (42 U.S.C. 16691). It shall be  
3 the goal of the Survey program to achieve 90 percent com-  
4 pletion of its near-Earth object catalogue (based on statis-  
5 tically predicted populations of near-Earth objects) by  
6 2020.

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

12 (e) PROGRAM REPORT.—The Director of the Office  
13 of Science and Technology Policy and the Administrator  
14 shall transmit to the Committee on Science, Space, and  
15 Technology of the House of Representatives and the Com-  
16 mittee on Commerce, Science, and Transportation of the  
17 Senate, not later than 1 year after the date of enactment  
18 of this Act, an initial report that provides—

19 (1) recommendations for carrying out the Sur-  
20 vey program and an associated proposed budget;

21 (2) analysis of possible options that the Admin-  
22 istration could employ to divert an object on a likely  
23 collision course with Earth; and

24 (3) a description of the status of efforts to co-  
25 ordinate and cooperate with other countries to dis-

1 cover hazardous asteroids and comets, plan a mitiga-  
2 tion strategy, and implement that strategy in the  
3 event of the discovery of an object on a likely colli-  
4 sion course with Earth.

5 (f) ANNUAL REPORTS.—The Administrator shall an-  
6 nually transmit to the Committee on Science, Space, and  
7 Technology of the House of Representatives and the Com-  
8 mittee on Commerce, Science, and Transportation of the  
9 Senate a report that provides—

10 (1) a summary of all activities carried out pur-  
11 suant to subsection (c) since the date of enactment  
12 of this Act; and

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

16 **SEC. 323. ASTROBIOLOGY STRATEGY.**

17 (a) STRATEGY.—The Administrator shall enter into  
18 an arrangement with the National Academies to develop  
19 a science strategy for astrobiology that would outline key  
20 scientific questions, identify the most promising research  
21 in the field, and indicate the extent to which the mission  
22 priorities in existing decadal surveys address the search  
23 for life’s origin, evolution, distribution, and future in the  
24 Universe.

1       (b) USE OF STRATEGY.—The Administrator shall use  
2 the strategy developed under subsection (a) in planning  
3 and funding research and other activities and initiatives  
4 in the field of astrobiology. The strategy shall include rec-  
5 ommendations for coordination with international part-  
6 ners.

7       (c) REPORT TO CONGRESS.—Not later than 18  
8 months after the date of enactment of this Act, the Na-  
9 tional Academies shall transmit a report to the Adminis-  
10 trator, and to the Committee on Science, Space, and Tech-  
11 nology of the House of Representatives and the Committee  
12 on Commerce, Science, and Transportation of the Senate,  
13 containing the strategy developed under subsection (a).

14 **SEC. 324. PUBLIC-PRIVATE PARTNERSHIPS.**

15       Not later than 180 days after the date of enactment  
16 of this Act, the Administrator shall transmit to the Com-  
17 mittee on Science, Space, and Technology of the House  
18 of Representatives and the Committee on Commerce,  
19 Science, and Transportation of the Senate a report de-  
20 scribing how the Administration can expand collaborative  
21 public-private partnerships to study life’s origin, evolution,  
22 distribution, and future in the Universe.

## 1                   **Subtitle D—Heliophysics**

### 2   **SEC. 331. DECADAL CADENCE.**

3           In carrying out section 301(b), the Administrator  
4 shall ensure a steady cadence of large, medium, and small  
5 heliophysics missions.

### 6   **SEC. 332. REVIEW OF SPACE WEATHER.**

7           (a) REVIEW.—The Director of the Office of Science  
8 and Technology Policy, in consultation with the Adminis-  
9 trator, the Administrator of the National Oceanic and At-  
10 mospheric Administration, the Director of the National  
11 Science Foundation, the Secretary of Defense, the Sec-  
12 retary of Energy, and the Secretary of Homeland Secu-  
13 rity, shall enter into an arrangement with the National  
14 Academies to provide a comprehensive study that reviews  
15 current and planned space weather monitoring require-  
16 ments and capabilities. The study shall inform the process  
17 of identifying national needs for future space weather  
18 monitoring and mitigation. The National Academies shall  
19 give consideration to international and private sector ef-  
20 forts and collaboration. The study shall also review the  
21 current state of research capabilities in observing, mod-  
22 eling, and prediction and provide recommendations to en-  
23 sure future advancement of predictive capability.

24           (b) REPORT TO CONGRESS.—Not later than 1 year  
25 after the date of enactment of this Act, the National Acad-

emies 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 results of the study provided under subsection (a).

**SEC. 333. DEEP SPACE CLIMATE OBSERVATORY.**

(a) **INTEGRATING SENSORS.**—The Administrator may not integrate or fund the development of any sensor on the Deep Space Climate Observatory (DSCOVR) that is not aligned with the spacecraft’s original space weather mission requirements.

(b) **ALGORITHMS.**—The Administration may not develop or implement algorithms, or any other applications or products, that—

(1) are not aligned with the Deep Space Climate Observatory mission’s intended space weather requirements; or

(2) enable “Earth at noon” images from the spacecraft.

**Subtitle E—Earth Science**

**SEC. 341. GOAL.**

(a) **IN GENERAL.**—Recognizing the contributions that Earth science and remote sensing have made to society over the last 50 years, the Administration shall con-

1 tinue to develop first-of-a-kind instruments that, once  
2 proved, can be transitioned to other agencies for oper-  
3 ations.

4 (b) AMENDMENT.—Section 60501 of title 51, United  
5 States Code, is amended by inserting “In order to accom-  
6 plish this goal, the Administrator shall conduct research  
7 and development on new sensors and instruments that will  
8 mitigate the risks associated with the development of oper-  
9 ational systems and long-term data continuity require-  
10 ments by other agencies. The Administration shall not be  
11 responsible for the development of operational Earth  
12 science systems, including satellite, sensor, or instrument  
13 development, acquisition, and operations, as well as prod-  
14 uct development and data analysis, unless such work is  
15 conducted on a reimbursable basis that accounts for the  
16 full cost of the work. The Administrator shall use the  
17 Joint Agency Satellite Division structure, or a direct suc-  
18 cessor thereto, to manage this process on a fully reimburs-  
19 able basis.” after “Earth observations-based research pro-  
20 gram.”.

21 **SEC. 342. DECADEAL CADENCE.**

22 In carrying out section 301(b), the Administrator  
23 shall ensure a steady cadence of large, medium, and small  
24 Earth science missions.

1 **SEC. 343. RESEARCH TO OPERATIONS.**

2 Section 60502(a) of title 51, United States Code, is  
 3 amended by inserting “Operational responsibility for  
 4 Earth science or space weather missions or sensors may  
 5 not be transferred from any other Federal agency to the  
 6 Administration, except as specifically authorized by law.”  
 7 after “execute the transitions.”.

8 **SEC. 344. INTERAGENCY COORDINATION.**

9 (a) AMENDMENTS.—Section 60505 of title 51,  
 10 United States Code, is amended—

11 (1) in the section heading, by inserting “**and**  
 12 **other Federal agencies**” after “**Atmos-**  
 13 **pheric Administration**”;

14 (2) in subsection (a)—

15 (A) by striking “and the Administrator of  
 16 the National Oceanic and Atmospheric Admin-  
 17 istration” and inserting “, the Administrator of  
 18 the National Oceanic and Atmospheric Admin-  
 19 istration, and the heads of other relevant Fed-  
 20 eral agencies”; and

21 (B) by striking “the two agencies” and in-  
 22 serting “each of those agencies”;

23 (3) in subsection (b)—

24 (A) by striking “and the Administrator of  
 25 the National Oceanic and Atmospheric Admin-  
 26 istration” and inserting “, the Administrator of



1 the National Oceanic and Atmospheric Admin-  
2 istration, and the heads of other relevant Fed-  
3 eral agencies”;

4 (B) by striking “Committee on Science and  
5 Technology” and inserting “Committee on  
6 Science, Space, and Technology”; and

7 (C) by striking “and the National Oceanic  
8 and Atmospheric Administration” and inserting  
9 “, the National Oceanic and Atmospheric Ad-  
10 ministration, and other relevant Federal agen-  
11 cies”; and

12 (4) in subsection (d), by striking “Administra-  
13 tion Earth science mission” and all that follows  
14 through the period and inserting “Earth science  
15 mission or Earth observing system to or from the  
16 National Oceanic and Atmospheric Administration,  
17 any other Federal agency, or the Administration, or  
18 to or from other stakeholders, until the plans re-  
19 quired under subsection (c) have been approved by  
20 the Administrator, the Administrator of the National  
21 Oceanic and Atmospheric Administration, and the  
22 heads of other relevant Federal agencies, and until  
23 financial resources have been identified to support  
24 the transition or transfer in the President’s annual  
25 budget request for the National Oceanic and Atmos-

1        pheric Administration, the Administration, or other  
 2        relevant agencies. Operational responsibility for  
 3        Earth science programs may not be transferred from  
 4        any other Federal agency to the Administration, ex-  
 5        cept as specifically authorized by law.”.

6        (b) CONFORMING AMENDMENT.—The item relating  
 7        to section 60505 in the table of sections for chapter 605  
 8        of title 51, United States Code, is amended to read as  
 9        follows:

“60505. Coordination with the National Oceanic and Atmospheric Administra-  
 tion and other Federal agencies.”.

10    **SEC. 345. JOINT POLAR SATELLITE SYSTEM CLIMATE SEN-**  
 11                                    **SORS.**

12        The Administration shall not be responsible for the  
 13        development of Joint Polar Satellite System climate sen-  
 14        sors, including the Total Solar Irradiance Sensor (TSIS-  
 15        2), the Ozone Mapping and Profiler Suite–Limb (OMPS-  
 16        L), or the Clouds and Earth Radiant Energy System  
 17        (CERES–C). Any effort by the Administration related to  
 18        this work shall be conducted on a fully reimbursable basis  
 19        and executed by the Administration’s Joint Agency Sat-  
 20        ellite Division or a direct successor thereto.

21    **SEC. 346. LAND IMAGING.**

22        (a) REAFFIRMATION OF POLICY.—Congress reaf-  
 23        firms the finding in section 2(1) of the Land Remote Sens-  
 24        ing Policy Act of 1992 (15 U.S.C. 5601(1)), which states

1 that “The continuous collection and utilization of land re-  
 2 mote sensing data from space are of major benefit in  
 3 studying and understanding human impacts on the global  
 4 environment, in managing the Earth’s natural resources,  
 5 in carrying out national security functions, and in plan-  
 6 ning and conducting many other activities of scientific,  
 7 economic, and social importance.”.

8 (b) CONTINUOUS LAND REMOTE SENSING DATA  
 9 COLLECTION.—The Director of the Office of Science and  
 10 Technology Policy shall take steps in consultation with  
 11 other relevant Federal agencies to ensure, to the maximum  
 12 extent practicable, the continuous collection of space-  
 13 based, medium-resolution observations of the Earth’s land  
 14 cover, and to ensure that the data are made available in  
 15 such ways as to facilitate the widest possible use.

16 (c) DEFINITION OF LAND IMAGING CAPABILITIES.—  
 17 The Administrator may not initiate the definition of re-  
 18 quirements for land imaging capabilities unless such work  
 19 is conducted on a fully reimbursable basis and executed  
 20 by the Administration’s Joint Agency Satellite Division or  
 21 a direct successor thereto.

22 **SEC. 347. SOURCES OF EARTH SCIENCE DATA.**

23 (a) ACQUISITION.—The Administrator shall, to the  
 24 extent possible and while satisfying the scientific or edu-  
 25 cational requirements of the Administration and, where

1 appropriate, of other Federal agencies and scientific re-  
2 searchers, acquire, where cost effective, space-based and  
3 airborne Earth remote sensing data, services, distribution,  
4 and applications from non-Federal providers.

5 (b) TREATMENT AS COMMERCIAL ITEM UNDER AC-  
6 QUISSION LAWS.—Acquisitions by the Administrator of  
7 the data, services, distribution, and applications referred  
8 to in subsection (a) shall be carried out in accordance with  
9 applicable acquisition laws and regulations (including  
10 chapters 137 and 140 of title 10, United States Code).  
11 For purposes of such laws and regulations, such data,  
12 services, distribution, and applications shall be considered  
13 to be commercial items. Nothing in this subsection shall  
14 be construed to preclude the United States from acquiring,  
15 through contracts with commercial providers, sufficient  
16 rights in data to meet the needs of the scientific and edu-  
17 cational community or the needs of other government ac-  
18 tivities.

19 (c) SAFETY STANDARDS.—Nothing in this section  
20 shall be construed to prohibit the Federal Government  
21 from requiring compliance with applicable safety stand-  
22 ards.

23 (d) REPORT.—Not later than 180 days after the date  
24 of enactment of the Act, the Administrator shall submit  
25 a report to the Committee on Science, Space, and Tech-

1 nology of the House of Representatives and the Committee  
2 on Commerce, Science, and Transportation of the Senate  
3 on the Administration's efforts to carry out this section.

## 4 **TITLE IV—AERONAUTICS**

### 5 **SEC. 401. SENSE OF CONGRESS.**

6 It is the sense of Congress that—

7 (1) a robust aeronautics research portfolio will  
8 help maintain the United States status as a leader  
9 in aviation;

10 (2) aeronautics research is essential to the Ad-  
11 ministration's mission; and

12 (3) the Administrator should coordinate and  
13 consult with relevant Federal agencies and the pri-  
14 vate sector to minimize duplication and leverage re-  
15 sources.

### 16 **SEC. 402. UNMANNED AERIAL SYSTEMS RESEARCH AND DE-** 17 **VELOPMENT.**

18 (a) IN GENERAL.—The Administrator, in consulta-  
19 tion with the Administrator of the Federal Aviation Ad-  
20 ministration and other Federal agencies, shall direct re-  
21 search and technological development to facilitate the safe  
22 integration of unmanned aerial systems into the National  
23 Airspace System, including—

24 (1) positioning and navigation systems;

25 (2) sense and avoid capabilities;

- 1 (3) secure data and communication links;
- 2 (4) flight recovery systems; and
- 3 (5) human systems integration.

4 (b) ROADMAP.—The Administrator shall update a  
5 roadmap for unmanned aerial systems research and devel-  
6 opment and transmit this roadmap to the Committee on  
7 Science, Space, and Technology of the House of Rep-  
8 resentatives and the Committee on Commerce, Science,  
9 and Transportation of the Senate not later than 90 days  
10 after the date of enactment of this Act.

11 (c) COOPERATIVE UNMANNED AERIAL VEHICLE AC-  
12 TIVITIES.—Section 31504 of title 51, United States Code,  
13 is amended by inserting “Operational flight data derived  
14 from these cooperative agreements shall be made available,  
15 in appropriate and usable formats, to the Administration  
16 and the Federal Aviation Administration for the develop-  
17 ment of regulatory standards.” after “in remote areas.”.

18 **SEC. 403. RESEARCH PROGRAM ON COMPOSITE MATERIALS**

19 **USED IN AERONAUTICS.**

20 (a) CONSULTATION.—The Administrator, in over-  
21 seeing the Administration’s Integrated Systems Research  
22 Program’s work on composite materials, shall consult with  
23 relevant Federal agencies and partners in industry to ac-  
24 celerate safe development and certification processes for

1 new composite materials and design methods while main-  
2 taining rigorous inspection of new composite materials.

3 (b) REPORT.—Not later than 1 year after the date  
4 of enactment of this Act, the Administrator shall transmit  
5 a report to the Committee on Science, Space, and Tech-  
6 nology of the House of Representatives and the Committee  
7 on Commerce, Science, and Transportation of the Senate  
8 detailing the Administration’s work on new composite ma-  
9 terials and the coordination efforts among Federal agen-  
10 cies.

11 **SEC. 404. HYPERSONIC RESEARCH.**

12 Not later than 1 year after the date of enactment  
13 of this Act, the Administrator, in consultation with other  
14 Federal agencies, shall develop and transmit to the Com-  
15 mittee on Science, Space, and Technology of the House  
16 of Representatives and the Committee on Commerce,  
17 Science, and Transportation of the Senate a research and  
18 development roadmap for hypersonic aircraft research  
19 with the objective of exploring hypersonic science and  
20 technology using air-breathing propulsion concepts,  
21 through a mix of theoretical work, basic and applied re-  
22 search, and development of flight research demonstration  
23 vehicles. The roadmap shall prescribe appropriate agency  
24 contributions, coordination efforts, and technology mile-  
25 stones.

1 **SEC. 405. SUPERSONIC RESEARCH.**

2 Not later than 1 year after the date of enactment  
3 of this Act, the Administrator shall develop and transmit  
4 to the Committee on Science, Space, and Technology of  
5 the House of Representatives and the Committee on Commerce,  
6 Science, and Transportation of the Senate a roadmap  
7 that allows for flexible funding profiles, for supersonic  
8 aeronautics research and development with the objective  
9 of developing and demonstrating, in a relevant environment,  
10 airframe and propulsion technologies to minimize the  
11 environmental impact, including noise, of supersonic  
12 overland flight in an efficient and economical manner.  
13 The roadmap shall include—

14 (1) a status report on the Administration’s existing  
15 research on supersonic flight;

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

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

23 (4) a plan for coordination with stakeholders,  
24 including relevant government agencies and industry.  
25



1 **SEC. 406. RESEARCH ON NEXTGEN AIRSPACE MANAGE-**  
2 **MENT CONCEPTS AND TOOLS.**

3 (a) IN GENERAL.—The Administrator shall, in con-  
4 sultation with other Federal agencies, review at least an-  
5 nually the alignment and timing of the Administration’s  
6 research and development activities in support of the  
7 NextGen airspace management modernization initiative,  
8 and shall make any necessary adjustments by  
9 reprioritizing or retargeting the Administration’s research  
10 and development activities in support of the NextGen ini-  
11 tiative.

12 (b) ANNUAL REPORTS.—The Administrator shall re-  
13 port to the Committee on Science, Space, and Technology  
14 of the House of Representatives and the Committee on  
15 Commerce, Science, and Transportation of the Senate an-  
16 nually regarding the progress of the Administration’s re-  
17 search and development activities in support of the  
18 NextGen airspace management modernization initiative,  
19 including details of consultation with the Federal Aviation  
20 Administration and any adjustments made to research ac-  
21 tivities.

22 **SEC. 407. ROTORCRAFT RESEARCH.**

23 Not later than 1 year after the date of enactment  
24 of this Act, the Administrator, in consultation with other  
25 Federal agencies, shall prepare and transmit to the Com-  
26 mittee on Science, Space, and Technology of the House

1 of Representatives and the Committee on Commerce,  
2 Science, and Transportation of the Senate a plan for re-  
3 search relating to rotorcraft and other runway-inde-  
4 pendent air vehicles, with the objective of developing and  
5 demonstrating improved safety, noise, and environmental  
6 impact in a relevant environment. The plan shall include  
7 specific goals for the research, a timeline for implementa-  
8 tion, metrics for success, and guidelines for collaboration  
9 and coordination with industry and other Federal agen-  
10 cies.

## 11 **TITLE V—SPACE TECHNOLOGY**

### 12 **SEC. 501. SPACE TECHNOLOGY.**

13 (a) FINDINGS.—Congress finds the following:

14 (1) The Space Technology Mission Directorate  
15 created by the Administration is lacking an organic  
16 statutory authorization and in need of congressional  
17 direction.

18 (2) In order to appropriately prioritize the Ad-  
19 ministration's resources to accomplish its goals and  
20 purposes, the Space Technology Mission Directorate  
21 needs to be reorganized as provided in the amend-  
22 ments made by this section.

23 (3) Projects, programs, and activities currently  
24 within the Exploration Research and Development  
25 program should continue as planned as part of the

1 Human Exploration and Operations Mission Direc-  
2 torate.

3 (b) SPACE TECHNOLOGY PROGRAM.—

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

6 **“§ 70507. Space Technology Program authorized**

7 “(a) PROGRAM AUTHORIZED.—The Administrator  
8 shall establish, within the office of the Administrator, a  
9 Space Technology Program to pursue the development of  
10 technologies that enable exploration of the solar system  
11 or advanced space science throughout the various elements  
12 of the Administration.

13 “(b) SMALL BUSINESS PROGRAMS.—The Adminis-  
14 trator shall organize and manage the Administration’s  
15 Small Business Innovation Research program and Small  
16 Business Technology Transfer program within the Space  
17 Technology Program.

18 “(c) NONDUPLICATION CERTIFICATION.—The Ad-  
19 ministrator shall include in the budget for each fiscal year,  
20 as transmitted to Congress under section 1105(a) of title  
21 31, a certification that no project, program, or mission  
22 undertaken by the Space Technology Program is inde-  
23 pendently under development by any other office or direc-  
24 torate of the Administration.”.

1           (2) TABLE OF SECTIONS AMENDMENT.—The  
 2           item relating to section 70507 in the table of sec-  
 3           tions for chapter 705 of title 51, United States  
 4           Code, is amended to read as follows:

“70507. Space Technology Program authorized.”.

5 **SEC. 502. UTILIZATION OF THE INTERNATIONAL SPACE**  
 6                           **STATION FOR TECHNOLOGY DEMONSTRA-**  
 7                           **TIONS.**

8           The Administrator shall utilize the International  
 9           Space Station and commercial services for Space Tech-  
 10          nology Demonstration missions in low-Earth orbit wher-  
 11          ever it is practical and cost effective to do so.

12                   **TITLE VI—EDUCATION**

13 **SEC. 601. EDUCATION.**

14          (a) IN GENERAL.—The Administration shall continue  
 15          its education and outreach efforts to—

16                   (1) increase student interest and participation  
 17                   in Science, Technology, Engineering, and Mathe-  
 18                   matics (“STEM”) education;

19                   (2) improve public literacy in STEM;

20                   (3) employ proven strategies for improving stu-  
 21                   dent learning and teaching;

22                   (4) provide curriculum support materials; and

23                   (5) create and support opportunities for profes-  
 24                   sional development for STEM teachers.

1       (b) ORGANIZATION.—In order to ensure the inspira-  
2   tion and engagement of children and the general public,  
3   the Administration shall continue its STEM education and  
4   outreach activities within the Science, Aeronautics Re-  
5   search, Space Operations, and Exploration Mission Direc-  
6   torates. Funds devoted to education and public outreach  
7   shall be maintained in the Directorates, and the consolida-  
8   tion of these activities into the Education Directorate is  
9   prohibited.

10       (c) PROHIBITION.—The Administration may not im-  
11   plement any proposed STEM education and outreach-re-  
12   lated changes proposed in the budget for fiscal year 2014  
13   transmitted to Congress under section 1105(a) of title 31,  
14   United States Code.

15       (d) CONTINUATION OF SPACE GRANT PROGRAM.—  
16   The Administrator shall continue to operate the National  
17   Space Grant College and Fellowship program through a  
18   national network consisting of a State-based consortium  
19   in each State that provides flexibility to the States, with  
20   the objective of providing hands-on research, training, and  
21   education programs, with measurable outcomes, to en-  
22   hance America’s STEM education and workforce.

23       (e) REAFFIRMATION OF POLICY.—Congress reaf-  
24   firms its commitment to informal science education at  
25   science centers and planetariums as set forth in section

1 616 of the National Aeronautics and Space Administra-  
2 tion Authorization Act of 2005 (51 U.S.C. 40907).

3 **SEC. 602. INDEPENDENT REVIEW OF THE NATIONAL SPACE**  
4 **GRANT COLLEGE AND FELLOWSHIP PRO-**  
5 **GRAM.**

6 (a) SENSE OF CONGRESS.—It is the sense of Con-  
7 gress that the National Space Grant College and Fellow-  
8 ship Program, which was established in the National Aero-  
9 nautics and Space Administration Authorization Act of  
10 1988 (42 U.S.C. 2486 et seq.), has been an important  
11 program by which the Federal Government has partnered  
12 with State and local governments, universities, private in-  
13 dustry, and other organizations to enhance the under-  
14 standing and use of space and aeronautics activities and  
15 their benefits through education, fostering of interdiscipli-  
16 nary and multidisciplinary space research and training,  
17 and supporting Federal funding for graduate fellowships  
18 in space-related fields, among other purposes.

19 (b) REVIEW.—The Administrator shall enter into an  
20 arrangement with the National Academies for—

21 (1) a review of the National Space Grant Col-  
22 lege and Fellowship Program, including its structure  
23 and capabilities for supporting science, technology,  
24 engineering, and mathematics education and train-  
25 ing consistent with the National Science and Tech-

1 nology Council’s Federal Science, Technology, Engi-  
2 neering, and Mathematics (STEM) Education 5-  
3 Year Strategic Plan; and

4 (2) recommendations on measures, if needed, to  
5 enhance the Program’s effectiveness and mecha-  
6 nisms by which any increases in funding appro-  
7 priated by Congress can be applied.

8 (c) NATIONAL SPACE GRANT COLLEGE AND FEL-  
9 LOWSHIP PROGRAM AMENDMENTS.—

10 (1) PURPOSES.—Section 40301 of title 51,  
11 United States Code, is amended—

12 (A) by striking “and” at the end of para-  
13 graph (5);

14 (B) by striking the period at the end of  
15 paragraph (6) and inserting “; and”; and

16 (C) by adding at the end the following new  
17 paragraph:

18 “(7) support outreach to primary and sec-  
19 ondary schools to help support STEM engagement  
20 and learning at the K–12 level and to encourage K–  
21 12 students to pursue postsecondary degrees in  
22 fields related to space.”.

23 (2) REGIONAL CONSORTIUM.—Section 40306(a)  
24 of title 51, United States Code, is amended—

1 (A) by redesignating paragraphs (2) and  
 2 (3) as paragraphs (3) and (4), respectively; and

3 (B) by inserting after paragraph (1) the  
 4 following new paragraph:

5 “(2) INCLUSION OF 2-YEAR INSTITUTIONS.—A  
 6 space grant regional consortium designated in para-  
 7 graph (1)(B) may include one or more 2-year insti-  
 8 tutions of higher education.”.

## 9 **TITLE VII—POLICY PROVISIONS**

### 10 **SEC. 701. ASTEROID RETRIEVAL MISSION.**

11 (a) IN GENERAL.—Consistent with the policy stated  
 12 in section 201(b), the Administrator may not fund the de-  
 13 velopment of an asteroid retrieval mission to send a  
 14 robotic spacecraft to a near-Earth asteroid for rendezvous,  
 15 retrieval, and redirection of that asteroid to lunar orbit  
 16 for exploration by astronauts.

17 (b) ASTEROID SURVEY.—The Administration may  
 18 not pursue a program to search for asteroids of 20 meters  
 19 or less in diameter unless the survey program described  
 20 in section 322(c) is at least 90 percent complete.

21 (c) REPORT.—Not later than 180 days after the date  
 22 of enactment of this Act, the Administrator shall provide  
 23 to the Committee on Science, Space, and Technology of  
 24 the House of Representatives and the Committee on Com-  
 25 merce, Science, and Transportation of the Senate a report



1 on the proposed Asteroid Retrieval Mission. Such report  
2 shall include—

3 (1) a detailed budget profile, including cost esti-  
4 mates for the development of all necessary tech-  
5 nologies and spacecraft required for the mission;

6 (2) a detailed technical plan that includes mile-  
7 stones and a specific schedule;

8 (3) a description of the technologies and capa-  
9 bilities anticipated to be gained from the proposed  
10 mission that will enable future human missions to  
11 Mars which could not be gained by lunar missions;

12 (4) a description of the technologies and capa-  
13 bilities anticipated to be gained from the proposed  
14 mission that will enable future planetary defense  
15 missions, against impact threats from near-Earth  
16 objects equal to or greater than 140 meters in di-  
17 ameter, which could not be gained by current or  
18 planned missions; and

19 (5) a complete review by the Small Bodies As-  
20 sessment Group and the NASA Advisory Council  
21 that includes a recommendation to Congress on the  
22 feasibility of the mission as proposed by the Admin-  
23 istration.

1 **SEC. 702. TERMINATION LIABILITY.**

2 (a) FINDINGS.—Congress makes the following find-  
3 ings:

4 (1) The International Space Station, the Space  
5 Launch System, and the Orion crew capsule will en-  
6 able the Nation to continue operations in low-Earth  
7 orbit and to send its astronauts to deep space. The  
8 James Webb Space Telescope will revolutionize our  
9 understanding of star and planet formation and how  
10 galaxies evolved and advance the search for the ori-  
11 gins of our universe. As a result of their unique ca-  
12 pabilities and their critical contribution to the future  
13 of space exploration, these systems have been des-  
14 ignated by Congress and the Administration as pri-  
15 ority investments.

16 (2) While the Space Launch System and the  
17 Orion programs, currently under development, have  
18 made significant progress, they have not been fund-  
19 ed at levels authorized, and as a result congression-  
20 ally authorized milestones will be delayed by several  
21 years.

22 (3) Although the James Webb Space Telescope  
23 is making steady progress towards its scheduled  
24 2018 launch, it confronts a number of challenging  
25 integration tests that will stress a congressionally  
26 imposed development cost cap.

1           (4) In addition, contractors are currently hold-  
2           ing program funding, estimated to be in the hun-  
3           dreds of millions of dollars, to cover the potential  
4           termination liability should the Government choose  
5           to terminate a program for convenience. As a result,  
6           hundreds of millions of taxpayer dollars are unavail-  
7           able for meaningful work on these programs.

8           (5) According to the Government Accountability  
9           Office, the Administration procures most of its  
10          goods and services through contracts, and it termi-  
11          nates very few of them. In fiscal year 2010, the Ad-  
12          ministration terminated 28 of 16,343 active con-  
13          tracts and orders—a termination rate of about 0.17  
14          percent.

15          (6) Providing processes requiring congressional  
16          action on termination of these high-priority pro-  
17          grams would enable contractors to apply taxpayer  
18          dollars to making maximum progress in meeting the  
19          established technical goals and schedule milestones  
20          of these programs.

21          (b) NASA TERMINATION LIABILITY.—

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

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

7           (3) INTENT OF CONGRESS.—It is the intent of  
8 Congress that funds authorized to be appropriated  
9 for covered programs be applied in meeting estab-  
10 lished technical goals and schedule milestones.

11          (4) APPLICATION OF PRIOR RESERVED  
12 FUNDS.—Funds that have been reserved before the  
13 date of enactment of this Act for potential termi-  
14 nation liability shall be promptly used to make max-  
15 imum progress in meeting the established goals and  
16 milestones of the covered program.

17          (5) NOTIFICATION.—The Administrator shall  
18 notify the Committee on Science, Space, and Tech-  
19 nology of the House of Representatives and the  
20 Committee on Commerce, Science, and Transpor-  
21 tation of the Senate not later than 120 days in ad-  
22 vance of initiating termination for convenience or  
23 termination for cause of a prime contract on a cov-  
24 ered program.

1           (6)   SUPPLEMENTAL    APPROPRIATION    RE-  
2   QUEST.—

3           (A) REQUEST.—If the Administrator initi-  
4   ates termination of a prime contract on a cov-  
5   ered program pursuant to paragraph (5), and  
6   sufficient unobligated appropriations are not  
7   available to cover termination liability costs in  
8   the appropriations account that is funding the  
9   prime contract being terminated, the Adminis-  
10   trator shall provide to Congress a notification  
11   that an authorization of appropriations is nec-  
12   essary not later than 120 days in advance of  
13   the proposed contract termination settlement  
14   for the covered program.

15          (B) INTENT OF CONGRESS.—It is the in-  
16   tent of Congress to provide additional author-  
17   ization for appropriations as may be necessary  
18   to pay termination liability costs on prime con-  
19   tracts for covered programs if Congress deems  
20   it appropriate that the Administration termi-  
21   nate such prime contracts. The Administration  
22   shall be responsible for applying these addi-  
23   tional funds for payment of all allowable and  
24   reasonable negotiated termination liability costs  
25   if the Administration terminates a prime con-

1           tract for a covered program. If the Administra-  
2           tion terminates a prime contract for a covered  
3           program for the convenience of the Federal  
4           Government, then the Federal Government is  
5           responsible for payment of all allowable and  
6           reasonable negotiated termination liability costs  
7           on the prime contract.

8           (c) REPORTING.—Not later than 6 months after the  
9           date of enactment of this Act, and every 6 months there-  
10          after for the duration of the prime contracts on covered  
11          programs, the Administrator shall transmit to the Com-  
12          mittee on Science, Space, and Technology of the House  
13          of Representatives and the Committee on Commerce,  
14          Science, and Transportation of the Senate a report that  
15          provides—

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

18               (2) the basis for how such estimate was deter-  
19               mined.

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

21               (1) COVERED PROGRAM.—The term “covered  
22               program” means the International Space Station,  
23               the Space Launch System, the Orion crew capsule,  
24               and the James Webb Space Telescope.

1           (2) PRIME CONTRACT.—The term “prime con-  
 2       tract” means a contract entered directly between a  
 3       person or entity and the Federal Government for the  
 4       performance of all or the majority of the responsibil-  
 5       ities for developing, integrating, fielding, operating,  
 6       or sustaining a covered program.

7           (3) PRIME CONTRACTOR.—The term “prime  
 8       contractor” means a person or entity contracting di-  
 9       rectly with the Federal Government on a covered  
 10      program.

11          (4) TERMINATION LIABILITY COSTS.—The term  
 12      “termination liability costs” means any costs in-  
 13      curred by a prime contractor, or by any subcon-  
 14      tractor of a prime contractor, for which the Federal  
 15      Government is liable as a result of termination of a  
 16      prime contract by the Administrator.

17 **SEC. 703. BASELINE AND COST CONTROLS.**

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

20           (1) in subsection (a)(1), by striking “Proce-  
 21      dural Requirements 7120.5c, dated March 22,  
 22      2005” and inserting “Procedural Requirements  
 23      7120.5E, dated August 14, 2012”; and

24           (2) in subsection (f), by striking “beginning 18  
 25      months after the date the Administrator transmits a

1 report under subsection (e)(1)(A)” and inserting  
2 “beginning 18 months after the Administrator  
3 makes such determination”.

4 **SEC. 704. PROJECT AND PROGRAM RESERVES.**

5 To ensure that the establishment, maintenance, and  
6 allotment of project and program reserves contribute to  
7 prudent management, not later than 180 days after the  
8 date of enactment of this Act, the Administrator shall  
9 transmit to the Committee on Science, Space, and Tech-  
10 nology of the House of Representatives and the Committee  
11 on Commerce, Science, and Transportation of the Senate  
12 a report describing the Administration’s criteria for estab-  
13 lishing the amount of reserves at the project and program  
14 levels and how such criteria complement the Administra-  
15 tion’s policy of budgeting at a 70-percent confidence level.

16 **SEC. 705. INDEPENDENT REVIEWS.**

17 Not later than 270 days after the date of enactment  
18 of this Act, the Administrator shall transmit to the Com-  
19 mittee on Science, Space, and Technology of the House  
20 of Representatives and the Committee on Commerce,  
21 Science, and Transportation of the Senate a report de-  
22 scribing the Administration’s procedures for conducting  
23 independent reviews of projects and programs at lifecycle  
24 milestones and how the Administration ensures the inde-



1 pence of the individuals who conduct those reviews  
2 prior to their assignment.

3 **SEC. 706. SPACE ACT AGREEMENTS.**

4 (a) COST SHARING.—To the extent that the Adminis-  
5 trator determines practicable, the funds provided by the  
6 Government under a funded Space Act Agreement shall  
7 not exceed the total amount provided by other parties to  
8 the Space Act Agreement.

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

14 (c) PUBLIC NOTICE AND COMMENT.—The Adminis-  
15 trator shall make available for public notice and comment  
16 each proposed Space Act Agreement at least 30 days be-  
17 fore entering into such agreement, with appropriate  
18 redactions for proprietary, sensitive, or classified informa-  
19 tion.

20 (d) TRANSPARENCY.—The Administrator shall pub-  
21 licly disclose on the Administration’s website and make  
22 available in a searchable format all Space Act Agreements,  
23 with appropriate redactions for proprietary, sensitive, or  
24 classified information, not later than 60 days after such  
25 agreement is signed.

1       (e) AUTHORIZATION.—The Administrator may not  
2 enter into a funded Space Act Agreement for an amount  
3 in excess of \$50,000,000 unless such agreement has been  
4 specifically authorized by law.

5       (f) ANNUAL REPORT.—

6           (1) REQUIREMENT.—Not later than 90 days  
7 after the end of each fiscal year, the Administrator  
8 shall submit to the Committee on Science, Space,  
9 and Technology of the House of Representatives and  
10 the Committee on Commerce, Science, and Trans-  
11 portation of the Senate a report on the use of Space  
12 Act Agreement authority by the Administration dur-  
13 ing the previous fiscal year.

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

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

20           (B) a description of—

21               (i) the subject and terms;

22               (ii) the parties;

23               (iii) the responsible—

24                   (I) mission directorate;

25                   (II) center; or

- 1 (III) headquarters element;  
2 (iv) the value;  
3 (v) the extent of the cost sharing  
4 among Federal Government and non-Fed-  
5 eral sources;  
6 (vi) the time period or schedule; and  
7 (vii) all milestones; and  
8 (C) an indication of whether the agreement  
9 was renewed during the previous fiscal year.

10 (3) ANTICIPATED AGREEMENTS.—The report  
11 shall also include a list of all anticipated reimburs-  
12 able, nonreimbursable, and funded Space Act Agree-  
13 ments for the upcoming fiscal year.

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

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

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

22 (i) has contributed to a broadening of  
23 the technology and industrial base avail-  
24 able for meeting Administration needs; and

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

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

8 **SEC. 707. HUMAN SPACEFLIGHT ACCIDENT INVESTIGA-**  
9 **TIONS.**

10 Section 70702(a) of title 51, United States Code, is  
11 amended by striking paragraph (3) and inserting the fol-  
12 lowing:

13 “(3) any other space vehicle carrying humans  
14 that is owned by the Federal Government or that is  
15 being used pursuant to a contract or Space Act  
16 Agreement, as defined in section 2 of the National  
17 Aeronautics and Space Administration Authorization  
18 Act of 2014 with the Federal Government; or”.

19 **SEC. 708. COMMERCIAL TECHNOLOGY TRANSFER PRO-**  
20 **GRAM.**

21 Section 50116(a) of title 51, United States Code, is  
22 amended by inserting “, while protecting national secu-  
23 rity” after “research community”.

1 **SEC. 709. ORBITAL DEBRIS.**

2 (a) FINDING.—Congress finds that orbital debris  
3 poses serious risks to the operational space capabilities of  
4 the United States and that an international consensus and  
5 strategic plan is needed to mitigate the growth of orbital  
6 debris wherever possible, as well as the status of any or-  
7 bital debris mitigation concepts and technological options  
8 that have been developed or funded by any Federal agency  
9 in the past 5 years, or that otherwise show significant  
10 promise, in the near-term, to mitigate orbital debris.

11 (b) REPORTS.—

12 (1) COORDINATION.—Not later than 90 days  
13 after the date of enactment of this Act, the Adminis-  
14 trator shall provide the Committee on Science,  
15 Space, and Technology of the House of Representa-  
16 tives and the Committee on Commerce, Science, and  
17 Transportation of the Senate with a report on the  
18 status of efforts to coordinate with countries within  
19 the Inter-Agency Space Debris Coordination Com-  
20 mittee to mitigate the effects and growth of orbital  
21 debris as required by section 1202(b)(1) of the Na-  
22 tional Aeronautics and Space Administration Au-  
23 thorization Act of 2010 (42 U.S.C. 18441(b)(1)).

24 (2) MITIGATION STRATEGY.—Not later than 90  
25 days after the date of enactment of this Act, the Di-  
26 rector of the Office of Science and Technology Policy

1 shall provide the Committee on Science, Space, and  
2 Technology of the House of Representatives and the  
3 Committee on Commerce, Science, and Transpor-  
4 tation of the Senate with a report on the status of  
5 the orbital debris mitigation strategy required under  
6 section 1202(b)(2) of the National Aeronautics and  
7 Space Administration Authorization Act of 2010 (42  
8 U.S.C. 18441(b)(2)).

9 **SEC. 710. NASA ADVISORY COUNCIL.**

10 (a) ESTABLISHMENT.—Subchapter II of chapter 201  
11 of title 51, United States Code, is amended by adding at  
12 the end the following new section:

13 **“§ 20118. NASA Advisory Council**

14 “(a) ESTABLISHMENT.—There shall be established a  
15 NASA Advisory Council (in this section referred to as ‘the  
16 Council’) for the Administration in accordance with this  
17 section, not later than 9 months after the date of enact-  
18 ment of this section.

19 “(b) MEMBERSHIP AND APPOINTMENT.—The Coun-  
20 cil shall consist of 11 members to be appointed as follows:

21 “(1) 5 members shall be appointed by the  
22 President.

23 “(2) 2 members shall be appointed by the  
24 President pro tempore of the Senate.

1           “(3) 1 member shall be appointed by the minor-  
2       ity leader of the Senate.

3           “(4) 2 members shall be appointed by the  
4       Speaker of the House of Representatives.

5           “(5) 1 member shall be appointed by the minor-  
6       ity leader of the House of Representatives.

7       In addition to the members appointed under paragraphs  
8       (1) through (5), the Administrator shall be an ex officio,  
9       nonvoting member of the Council. Members of the Council  
10      shall comply with the Federal Advisory Committee Act (5  
11      U.S.C. App.) and the Ethics in Government Act of 1978  
12      (5 U.S.C. App.).

13       “(c) QUALIFICATIONS.—The persons appointed as  
14      members of the Council shall be—

15           “(1) former astronauts or scientists or engi-  
16       neers eminent in the fields of human spaceflight,  
17       planetary science, space science, Earth science, aero-  
18       nautics, or disciplines related to space exploration  
19       and aeronautics, including other scientific, engineer-  
20       ing, or business disciplines;

21           “(2) selected on the basis of established records  
22       of distinguished service; and

23           “(3) so selected as to provide representation of  
24       the views of engineering, science, and aerospace  
25       leaders in all areas of the Nation.

1       “(d) TERMS.—The term of office of each member of  
2 the Council shall be 6 years.

3       “(e) MEETINGS.—The Council shall meet two times  
4 annually at minimum and at such other times as the  
5 Chairman may determine, but the Chairman shall also call  
6 a meeting whenever one-third of the members so request  
7 in writing. The Council shall adopt procedures governing  
8 the conduct of its meetings, including delivery of notice  
9 and a definition of a quorum, which in no case shall be  
10 less than one-half plus one of the members of the Council.

11       “(f) CHAIRMAN AND VICE CHAIRMAN.—The Chair-  
12 man and Vice Chairman of the Council shall be elected  
13 by a majority vote of the Council for a two-year term. A  
14 member may serve as Chairman and Vice Chairman for  
15 up to three terms. The Vice Chairman shall perform the  
16 duties of the Chairman in his absence. If a vacancy occurs  
17 in the chairmanship or vice chairmanship, the Council  
18 shall elect a member to fill such vacancy.

19       “(g) STAFF.—The Administrator shall support the  
20 Council with professional staff to provide for the perform-  
21 ance of such duties as may be prescribed by the Council.

22       “(h) COMMITTEES.—The Council is authorized to ap-  
23 point from among its members such committees as it  
24 deems necessary and to assign to committees so appointed  
25 such survey and advisory functions as the Council deems



1 appropriate to assist it in exercising its powers and func-  
2 tions.

3 “(i) FUNCTIONS.—

4 “(1) BUDGET PROPOSAL.—

5 “(A) REVIEW OF PROPOSAL.—Not later  
6 than October 15 of each year, the Council shall  
7 have reviewed the Administration’s proposed  
8 budget for the next fiscal year and shall provide  
9 to the President their advice based on the best  
10 professional judgment of a majority of mem-  
11 bers. Portions of Council meetings in which the  
12 Council considers the budget proposal for the  
13 next fiscal year may be closed to the public  
14 until the Council submits the proposal to the  
15 President and Congress.

16 “(B) ADVICE TO CONGRESSIONAL COMMIT-  
17 TEES.—Not later than 14 days following the  
18 President’s budget submittal to Congress for  
19 the next fiscal year, the Council shall provide to  
20 the Committee on Science, Space, and Tech-  
21 nology of the House of Representatives and the  
22 Committee on Commerce, Science, and Trans-  
23 portation of the Senate their advice based on  
24 the best professional judgment of a majority of  
25 members.

1           “(2) ADVICE TO THE PRESIDENT AND CON-  
2       GRESS.—The Council shall report their findings, ad-  
3       vice, and recommendations to the President and  
4       Congress on matters of particular policy interest on  
5       space exploration and aeronautics based on the best  
6       professional judgment of a majority of members.”.

7       (b) TABLE OF SECTIONS.—The table of sections for  
8       chapter 201 of title 51, United States Code, is amended  
9       by adding at the end of the items for subchapter II the  
10      following new item:

          “20118. NASA Advisory Council.”.

11      (c) CONSULTATION AND ADVICE.—Section 20113(g)  
12      of title 51, United States Code, is amended by inserting  
13      “and Congress” after “advice to the Administration”.

14      **SEC. 711. COST ESTIMATION.**

15      (a) REPORT.—Not later than 90 days after the date  
16      of enactment of this Act, the Administrator shall transmit  
17      to the Committee on Science, Space, and Technology of  
18      the House of Representatives and the Committee on Com-  
19      merce, Science, and Transportation of the Senate a report  
20      on current and continuing efforts to implement more effec-  
21      tive cost-estimation practices.

22      (b) ELEMENTS.—The report required under sub-  
23      section (a) shall include—

1           (1) a list of steps the Administration is under-  
2           taking to advance consistent implementation of the  
3           joint cost and schedule level (JCL) process; and

4           (2) a description of mechanisms the Adminis-  
5           tration is using and will continue to use to ensure  
6           that adequate resources are dedicated to cost esti-  
7           mation.

8   **SEC. 712. DETECTION AND AVOIDANCE OF COUNTERFEIT**  
9           **ELECTRONIC PARTS.**

10          (a) REGULATIONS.—

11           (1) IN GENERAL.—Not later than 270 days  
12           after the date of the enactment of this Act, the Ad-  
13           ministrator shall revise the NASA Supplement to  
14           the Federal Acquisition Regulation to address the  
15           detection and avoidance of counterfeit electronic  
16           parts.

17           (2) CONTRACTOR RESPONSIBILITIES.—The re-  
18           vised regulations issued pursuant to paragraph (1)  
19           shall provide that—

20           (A) Administration contractors who supply  
21           electronic parts or products that include elec-  
22           tronic parts are responsible for detecting and  
23           avoiding the use or inclusion of counterfeit elec-  
24           tronic parts or suspect counterfeit electronic  
25           parts in such products and for any rework or

1           corrective action that may be required to rem-  
2           edy the use or inclusion of such parts; and

3           (B) the cost of counterfeit electronic parts  
4           and suspect counterfeit electronic parts and the  
5           cost of rework or corrective action that may be  
6           required to remedy the use or inclusion of such  
7           parts are not allowable costs under Agency con-  
8           tracts, unless

9           (i) the covered contractor has an oper-  
10          ational system to detect and avoid counter-  
11          feit parts and suspect counterfeit electronic  
12          parts that has been reviewed and approved  
13          by the Administration or the Department  
14          of Defense;

15          (ii) the covered contractor provides  
16          timely notice to the Administration pursu-  
17          ant to paragraph (4); or

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

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

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

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

11 (ii) obtain electronic parts that are  
12 not in production or currently available in  
13 stock from suppliers that meet qualifica-  
14 tion requirements established pursuant to  
15 subparagraph (C);

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

19 (i) notification of the Administration;  
20 and

21 (ii) inspection, testing, and authen-  
22 tication of electronic parts that the Admin-  
23 istration or an Administration contractor  
24 or subcontractor obtains from any source

1           other than a source described in subpara-  
2           graph (A);

3           (C) establish qualification requirements,  
4           consistent with the requirements of section  
5           2319 of title 10, United States Code, pursuant  
6           to which the Administration may identify sup-  
7           pliers that have appropriate policies and proce-  
8           dures in place to detect and avoid counterfeit  
9           electronic parts and suspect counterfeit elec-  
10          tronic parts; and

11          (D) authorize Administration contractors  
12          and subcontractors to identify and use addi-  
13          tional suppliers beyond those identified pursu-  
14          ant to subparagraph (C), provided that—

15               (i) the standards and processes for  
16               identifying such suppliers comply with es-  
17               tablished industry standards;

18               (ii) the contractor or subcontractor  
19               assumes responsibility for the authenticity  
20               of parts provided by such suppliers as pro-  
21               vided in paragraph (2); and

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

1           (4) **TIMELY NOTIFICATION.**—The revised regu-  
2       lations issued pursuant to paragraph (1) shall re-  
3       quire that any Administration contractor or subcon-  
4       tractor who becomes aware, or has reason to sus-  
5       pect, that any end item, component, part, or mate-  
6       rial contained in supplies purchased by the Adminis-  
7       tration, or purchased by a contractor or subcon-  
8       tractor for delivery to, or on behalf of, the Adminis-  
9       tration, contains counterfeit electronic parts or sus-  
10      pect counterfeit electronic parts, shall provide notifi-  
11      cation to the applicable Administration contracting  
12      officer within 30 calendar days.

13       (b) **DEFINITIONS.**—In this section, the term “elec-  
14      tronic part” means a discrete electronic component, in-  
15      cluding a microcircuit, transistor, capacitor, resistor, or  
16      diode that is intended for use in a safety or mission critical  
17      application.

18      **SEC. 713. PROHIBITION ON USE OF FUNDS FOR CONTRAC-**  
19                                   **TORS THAT HAVE COMMITTED FRAUD OR**  
20                                   **OTHER CRIMES.**

21       None of the funds authorized to be appropriated or  
22      otherwise made available for fiscal year 2014 or any fiscal  
23      year thereafter for the Administration may be used to  
24      enter into a contract with any offeror or any of its prin-  
25      cipals if the offeror certifies, pursuant to the Federal Ac-

1   quisition Regulation, that the offeror or any of its prin-  
2   cipals—

3           (1) within a three-year period preceding this  
4   offer has been convicted of or had a civil judgment  
5   rendered against it for—

6           (A) commission of fraud or a criminal of-  
7   fense in connection with obtaining, attempting  
8   to obtain, or performing a public (Federal,  
9   State, or local) contract or subcontract;

10          (B) violation of Federal or State antitrust  
11   statutes relating to the submission of offers; or

12          (C) commission of embezzlement, theft,  
13   forgery, bribery, falsification or destruction of  
14   records, making false statements, tax evasion,  
15   violating Federal criminal tax laws, or receiving  
16   stolen property;

17          (2) are presently indicted for, or otherwise  
18   criminally or civilly charged by a governmental enti-  
19   ty with, commission of any of the offenses enumer-  
20   ated in paragraph (1); or

21          (3) within a three-year period preceding this  
22   offer, has been notified of any delinquent Federal  
23   taxes in an amount that exceeds \$3,000 for which  
24   the liability remains unsatisfied.

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