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[Report No. 108-418]

To reauthorize and restructure the National Aeronautics and Space Administration, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JUNE 17, 2004

Mr. McCAIN (for himself, Mr. BROWNBACK, Mrs. HUTCHISON, and Mr. ALLEN) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

NOVEMBER 19, 2004

Reported by Mr. McCAIN, with amendments

[Omit the part struck through and insert the part printed in italics]

A BILL

To reauthorize and restructure 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 “NASA Authorization Act of 2004”.

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

- Sec. 1. Short title; table of contents.
 Sec. 2. Definitions.
 Sec. 3. Findings.

TITLE I—AUTHORIZATION OF APPROPRIATIONS

- Sec. 101. Exploration capabilities.
 Sec. 102. Exploration, science, and aeronautics.
 Sec. 103. Inspector General.
 Sec. 104. Independent technical engineering authority authorizations.
 Sec. 105. Total authorizations.

TITLE II—SPACE SHUTTLE RETURN TO FLIGHT

- Sec. 201. Lessons-learned program.
 Sec. 202. Independent technical engineering authority.
 Sec. 203. Safety and integration.
 Sec. 204. Recertification of space shuttle.
 Sec. 205. Return to flight certification.
 Sec. 206. Launch plans for ISS.
 Sec. 207. *Report on status of upgrades to space shuttle.*
 Sec. 208. *Retention of space launch expertise after retirement of space shuttle.*

TITLE III—NASA'S NEW VISION

- Sec. 301. Exploration of the solar system.
 Sec. 302. Human missions to the Moon and Mars.
 Sec. 303. Systems requirements document.
 Sec. 304. Life cycle cost estimate.
 Sec. 305. Commercialization plan with Office of Space Commercialization.
 Sec. 306. Industrial assessment.
 Sec. 307. Reports on costs of major systems.
 Sec. 308. International cooperation.
 Sec. 309. Technology Transfer and Licensing Office.
 Sec. 310. Robotic lunar missions.
 Sec. 311. Legal aspects of lunar exploration.
 Sec. 312. NASA engineering school.
 Sec. 313. *Continuity of U.S. human space flight.*

TITLE IV—MISCELLANEOUS

- Sec. 401. Integrated financial management program.
 Sec. 402. Future launch plan.
 Sec. 403. Commercial goods and services.
 Sec. 404. Industry Advisory Board.
 Sec. 405. Requirement for independent cost analysis.
 Sec. ~~406~~. ~~Electronic access to business opportunities.~~
 Sec. ~~407~~. ~~Retrocession of jurisdiction.~~
 Sec. ~~408~~. ~~406~~ Centennial challenge program.
 Sec. ~~409~~. ~~407~~. Cultural assessment.
 Sec. ~~410~~. ~~408~~. Sense of the Congress regarding competitive contracting.
 Sec. ~~411~~. ~~409~~. Employees stationed in foreign countries.
 Sec. ~~412~~. ~~410~~. Hubble Telescope.

Sec. ~~413~~. 411. Confirmation requirement.

Sec. ~~414~~. 412. National Aeronautics and Space Foundation Study.

Sec. ~~415~~. 413. Near-earth object survey.

Sec. 414. *Use of unmanned aerial vehicles in wildlife, environmental, and other activities.*

Sec. 415. *Expansion of authority for demonstration on enhanced-use lease of real property.*

Sec. 416. *National Aeronautics and Space Foundation.*

TITLE V—AERONAUTICS RESEARCH AND DEVELOPMENT

Sec. 501. Findings.

Sec. 502. Environmental aircraft research and development initiative.

Sec. 503. Civil supersonic transport research and development initiative.

Sec. 504. NASA aeronautics scholarships.

Sec. 505. *Annual report on funding of research and development and science relating to aeronautics.*

1 **SEC. 2. DEFINITIONS.**

2 In this Act:

3 (1) ADMINISTRATOR.—The term “Adminis-
4 trator” means the Administrator of the National
5 Aeronautics and Space Administration.

6 (2) NASA.—The term “NASA” means the Na-
7 tional Aeronautics and Space Administration.

8 **SEC. 3. FINDINGS.**

9 The Congress finds the following:

10 (1) NASA has a proud heritage of promoting
11 the development of space through the pursuit of am-
12 bitious goals requiring the design and development
13 of new, complex technologies.

14 (2) The President’s new vision for space will re-
15 quire new, affordable, and safe access to space. Such
16 access will have significant implications for national
17 security, civil sector, and commercial uses of space.

1 (3) Basic and applied research in space science,
2 earth science, and aeronautics remain a significant
3 part of the Nation's goals for the use and develop-
4 ment of space.

5 (4) America's history is built on a desire to
6 open new frontiers and to seek new discoveries.

7 (5) Exploration, like investments in other Fed-
8 eral science and technology activities, is an invest-
9 ment in our future.

10 (6) Our Nation's investment in space has and
11 will continue to yield returns many fold, through a
12 tremendously promising program of discovery and
13 exploration that historically has provided benefits
14 that improve the quality of life on Earth, as well as
15 inspiring Americans and people throughout the
16 world.

17 (7) Over the next few years after the date of
18 enactment of this Act, NASA will face great cultural
19 and organizational change as it learns from the Co-
20 lumbia tragedy and implements the recommenda-
21 tions of the Columbia Accident Investigation Board,
22 the President's Commission on Moon, Mars, and Be-
23 yond, and ongoing reviews by the National Academy
24 of Sciences, Congress expects that the National Aer-
25 onautics and Space Administration will create and

1 support a robust, independent safety and technical
2 engineering authorities called for by the Columbia
3 Accident Investigation Board while striving to ensure
4 safety and the protection of human life in all aspects
5 of design, development, test, launch, and operations.
6 While human space exploration will always be risky,
7 the management and organization of the National
8 Aeronautics and Space Administration itself cannot
9 be the root cause of space accidents in the future.

10 **TITLE I—AUTHORIZATION OF** 11 **APPROPRIATIONS**

12 **SEC. 101. EXPLORATION CAPABILITIES.**

13 Subject to the limitation in section 105, the following
14 amounts are authorized to be appropriated to NASA for
15 the following programs and fiscal years:

16 (1) Fiscal year 2005:

17 (A) International Space Station,
18 \$1,863,000,000.

19 (B) Space shuttle, \$4,319,000,000.

20 (C) Space flight support, \$492,000,000.

21 (D) Transportation systems,
22 \$689,000,000.

23 (E) Human and robotic technology,
24 \$1,079,000,000, of which \$20,000,000 shall be
25 for the Centennial Challenges Program estab-

1 lished under section 318 of the National Aero-
2 nautics and Space Act of 1958 as added by sec-
3 tion 408 of this Act.

4 (2) Fiscal year 2006:

5 (A) International Space Station,
6 \$1,764,000,000.

7 (B) Space shuttle, \$4,326,000,000.

8 (C) Space flight support, \$435,000,000.

9 (D) Transportation systems,
10 \$1,261,000,000.

11 (E) Human and robotic technology,
12 \$1,302,500,000, of which \$25,000,000 shall be
13 for the Centennial Challenges Program estab-
14 lished under section 318 of the National Aero-
15 nautics and Space Act of 1958 as added by sec-
16 tion 408 of this Act.

17 (3) Fiscal year 2007:

18 (A) International Space Station,
19 \$1,780,000,000.

20 (B) Space shuttle, \$4,314,000,000.

21 (C) Space flight support, \$430,000,000.

22 (D) Transportation systems,
23 \$1,624,000,000.

24 (E) Human and robotic technology,
25 \$1,301,000,000, of which \$25,000,000 shall be

1 for the Centennial Challenges Program estab-
2 lished under section 318 of the National Aero-
3 nautics and Space Act of 1958 as added by sec-
4 tion 408 of this Act.

5 (4) Fiscal year 2008:

6 (A) International Space Station,
7 \$1,779,000,000.

8 (B) Space shuttle, \$4,027,000,000.

9 (C) Space flight support, \$456,000,000.

10 (D) Transportation systems,
11 \$1,423,000,000.

12 (E) Human and robotic technology,
13 \$1,369,600,000, of which \$10,000,000 shall be
14 for the Centennial Challenges Program estab-
15 lished under section 318 of the National Aero-
16 nautics and Space Act of 1958 as added by sec-
17 tion 408 of this Act.

18 (5) Fiscal year 2009:

19 (A) International Space Station,
20 \$2,115,000,000.

21 (B) Space shuttle, \$3,030,000,000.

22 (C) Space flight support, \$453,000,000.

23 (D) Transportation systems,
24 \$1,863,000,000.

1 (E) Human and robotic technology,
2 \$1,433,000,000.

3 **SEC. 102. EXPLORATION, SCIENCE, AND AERONAUTICS.**

4 Subject to the limitation in section 105, the following
5 amounts are authorized to be appropriated to NASA for
6 the following programs and fiscal years:

7 (1) Fiscal year 2005:

8 (A) Space science, \$4,138,000,000, of
9 which \$20,000,000 shall be for activities under
10 section ~~416~~ *413(b)* of this Act.

11 (B) Earth science, \$1,485,000,000, of
12 which \$5,000,000 shall be for abrupt climate
13 change ~~research~~ *research, of which \$90,800,000*
14 *shall be for earth science applications.*

15 (C) Biological and physical research,
16 \$1,049,000,000.

17 (D) Aeronautics Technology,
18 \$919,000,000.

19 (E) Education, \$169,000,000, of which
20 \$500,000 shall be for scholarships under sec-
21 tion ~~504~~ *504* and \$12,000,000 shall be for the
22 *Experimental Program to Stimulate Competitive*
23 *Research.*

24 (2) Fiscal year 2006:

1 (A) Space science, \$4,404,000,000, of
2 which \$20,000,000 shall be for activities under
3 section 415(b) of this Act.

4 (B) Earth science, \$1,390,000,000, of
5 which \$5,000,000 shall be for abrupt climate
6 change ~~research~~ *research, of which \$90,800,000*
7 *shall be for earth science applications.*

8 (C) Biological and physical research,
9 \$950,000,000.

10 (D) Aeronautics Technology,
11 \$957,000,000.

12 (E) Education, \$169,000,000, of which
13 \$750,000 shall be for scholarships under sec-
14 tion ~~504~~ *504 and \$15,000,000 shall be for the*
15 *Experimental Program to Stimulate Competitive*
16 *Research.*

17 (3) Fiscal year 2007:

18 (A) Space science, \$4,906,000,000.

19 (B) Earth science, \$1,368,000,000 of
20 which \$5,000,000 shall be for abrupt climate
21 change ~~research~~ *research, of which \$90,800,000*
22 *shall be for earth science applications.*

23 (C) Biological and physical research,
24 \$938,000,000.

25 (D) Aeronautics, \$938,000,000.

1 (E) Education, \$171,000,000, of which
2 \$1,000,000 shall be for scholarships under sec-
3 tion ~~504~~. *504 and \$15,000,000 shall be for the*
4 *Experimental Program to Stimulate Competitive*
5 *Research.*

6 (4) Fiscal year 2008:

7 (A) Space science, \$5,520,000,000.

8 (B) Earth science, \$1,343,000,000 of
9 which \$5,000,000 shall be for abrupt climate
10 change ~~research~~. *research, of which \$90,800,000*
11 *shall be for earth science applications.*

12 (C) Biological and physical research,
13 \$941,000,000.

14 (D) Aeronautics Technology,
15 \$926,000,000.

16 (E) Education, \$170,000,000, of which
17 \$1,000,000 shall be for scholarships under sec-
18 tion ~~504~~. *504 and \$20,000,000 shall be for the*
19 *Experimental Program to Stimulate Competitive*
20 *Research.*

21 (5) Fiscal year 2009:

22 (A) Space science, \$5,561,000,000.

23 (B) Earth science, \$1,474,000,000 of
24 which \$5,000,000 shall be for abrupt climate

1 change ~~research~~ *research, of which \$90,800,000*
 2 *shall be for earth science applications.*

3 (C) Biological and physical research,
 4 \$944,000,000.

5 (D) Aeronautics Technology,
 6 \$942,000,000.

7 (E) Education, \$170,000,000, of which
 8 \$1,000,000 shall be for scholarships under sec-
 9 tion ~~504~~ *504 and \$20,000,000 shall be for the*
 10 *Experimental Program to Stimulate Competitive*
 11 *Research.*

12 **SEC. 103. INSPECTOR GENERAL.**

13 Subject to the limitation in section 105, there are au-
 14 thorized to be appropriated to NASA for the Office of In-
 15 spector General—

- 16 (1) for fiscal year 2005, \$28,000,000,
 17 (2) for fiscal year 2006, \$29,000,000,
 18 (3) for fiscal year 2007, \$30,000,000,
 19 (4) for fiscal year 2008, \$31,000,000, and
 20 (5) for fiscal year 2009, \$32,000,000.

21 **SEC. 104. INDEPENDENT TECHNICAL ENGINEERING AU-**
 22 **THORITY AUTHORIZATIONS.**

23 Subject to the limitation in section 105, there are au-
 24 thorized to be appropriated to NASA for the technical en-

1 engineering authority established under section 202 of this
2 Act—

- 3 (1) for fiscal year 2005, \$15,000,000;
- 4 (2) for fiscal year 2006, \$15,500,000;
- 5 (3) for fiscal year 2007, \$16,000,000;
- 6 (4) for fiscal year 2008, \$16,400,000; and
- 7 (5) for fiscal year 2009, \$17,000,000.

8 **SEC. 105. TOTAL AUTHORIZATIONS.**

9 Notwithstanding any other provision of this title, the
10 total amount authorized to be appropriated to NASA
11 under this Act, shall not exceed—

- 12 (1) for fiscal year 2005, \$16,245,000,000;
- 13 (2) for fiscal year 2006, ~~\$17,125,000,000;~~
14 *\$17,003,000,000;*
- 15 (3) for fiscal year 2007, ~~\$17,727,584,000;~~
16 *\$17,816,000,000;*
- 17 (4) for fiscal year 2008, ~~\$17,581,562,000 ;~~
18 *\$18,002,000,000;* and
- 19 (5) for fiscal year 2009, ~~\$17,676,948,000.~~
20 *\$18,034,000,000.*

21 **TITLE II—SPACE SHUTTLE**
22 **RETURN TO FLIGHT**

23 **SEC. 201. LESSONS-LEARNED PROGRAM.**

24 Within 180 days after the date of enactment of this
25 Act, the Administrator shall establish an agency-wide les-

1 sons-learned and best practices program to ensure that
2 lessons learned and best practices at NASA are available
3 to all employees. The Administrator shall determine the
4 process and frequency by which the information is pro-
5 vided to NASA's employees. The program—

6 (1) may include experiences realized outside of
7 NASA;

8 (2) shall include criteria by which entries in the
9 program are determined; and

10 (3) shall use a standardized, user-friendly for-
11 mat for data reports.

12 **SEC. 202. INDEPENDENT TECHNICAL ENGINEERING AU-**
13 **THORITY.**

14 (a) IN GENERAL.—Within 1 year after the date of
15 enactment of this Act, the Administrator shall establish
16 within NASA a Technical Engineering Authority that—

17 (1) has its own budgetary line within NASA's
18 budget;

19 (2) does not have any programmatic connection
20 to, or responsibility for cost and schedule;

21 (3) will serve as a resource for the entire agen-
22 cy;

23 (4) is responsible for all technical standards
24 and all waivers to them for the Space Shuttle pro-

1 gram and any other program designated by the Ad-
2 ministrator; and

3 (5) will develop and build a disciplined systemic
4 approach for identifying, analyzing, and controlling
5 hazards throughout the life cycle of the Space Shut-
6 tle system or any other program designated by the
7 Administrator.

8 (b) FUNCTIONS.—The Authority established under
9 subsection (a) shall—

10 (1) develop and maintain technical standards
11 for all Space Shuttle Program projects and ele-
12 ments;

13 (2) be the sole waiver-granting authority for all
14 technical standards;

15 (3) conduct trend and risk analysis at the sub-
16 system, system, and enterprise level;

17 (4) own the failure mode, effects analysis and
18 hazard reporting systems;

19 (5) conduct integrated hazard analysis;

20 (6) decide what is and is not an anomalous
21 event;

22 (7) independently verify launch readiness;

23 (8) approve the provisions of the recertification
24 program called for in section 205 of this Act; and

1 (9) approve all mission simulated activities, in-
2 cluding testing of abort scenarios, “GO” and “NO-
3 GO” decisions, and other “red-teaming” activities.

4 (c) IMPLEMENTATION PLAN.—Within 180 days after
5 the date of enactment of this Act, the Administrator shall
6 submit to the Senate Committee on Commerce, Science,
7 and Transportation and the House of Representatives
8 Committee on Science, a plan for defining, establishing,
9 transitioning, and implementing the Authority.

10 (d) ANNUAL REPORT.—The Administrator shall in-
11 clude a report on the activities of the Authority as part
12 of NASA’s annual budget request.

13 **SEC. 203. SAFETY AND INTEGRATION.**

14 (a) SAFETY AND MISSION ASSURANCE.—The Admin-
15 istrator shall provide the Office of Safety and Mission As-
16 surance—

17 (1) direct line authority over the entire Space
18 Shuttle safety organization; and

19 (2) independent funding.

20 (b) SPACE SHUTTLE INTEGRATION.—The Adminis-
21 trator shall reorganize the Space Shuttle Integration Of-
22 fice to ensure that it is capable of integrating all elements
23 of the Space Shuttle program, including the orbiters.

24 (c) SUBMISSION OF IMPLEMENTATION PLANS TO
25 CONGRESS.—Within 180 days after the date of enactment

1 of this Act, the Administrator shall submit to the Senate
2 Committee on Commerce, Science, and Transportation
3 and the House of Representatives Committee on Science
4 a plan for defining, establishing, transitioning, and imple-
5 menting—

6 (1) the direct line authority over the entire
7 Space Shuttle safety organization and the inde-
8 pendent funding for the Office of Safety and Mission
9 Assurance required by subsection (a); and

10 (2) the reorganization of the Space Shuttle In-
11 tegration Office required by subsection (b).

12 **SEC. 204. RECERTIFICATION OF SPACE SHUTTLE.**

13 (a) IN GENERAL.—The Administrator, after approval
14 by the Technical Engineering Authority established in sec-
15 tion 202 of this Act, shall recertify the Space Shuttle or-
16 biters for operation prior to any operations beyond 2010.
17 The recertification shall be conducted on the material,
18 component, subsystem, and system levels and shall be in-
19 cluded as part of the Shuttle Service Life Extension pro-
20 gram.

21 (b) PLAN TO BE SUBMITTED.—If the Administrator
22 determines that it is necessary to operate the Space Shut-
23 tle orbiters after 2010, the Administrator shall submit
24 plans, including costs and scheduling, before 2009 for re-
25 certifying the Space Shuttle orbiters consistent with the

1 requirements of subsection (a), before commencing any
2 such recertification to the Senate Committee on Com-
3 merce, Science, and Transportation and the House of Rep-
4 resentatives Committee on Science. The plan shall be ap-
5 proved by the Technical Engineering Authority as estab-
6 lished under section 202 of this Act.

7 (c) UPGRADE OF DRAWING SYSTEM.—The Adminis-
8 trator shall establish a long-term program to upgrade the
9 Space Shuttle and the International Space Station engi-
10 neering drawing systems. The upgrade shall include—

11 (1) review of drawings for accuracy;

12 (2) conversion of all drawing to a computer-
13 aided drafting system; and

14 (3) incorporation of drawing changes.

15 **SEC. 205. RETURN TO FLIGHT CERTIFICATION.**

16 The Administrator may not return the Space Shuttle
17 program to launching orbiters until all safety rec-
18 ommendations of the Columbia Accident Investigation
19 Board report which were identified as “Return To Flight”
20 tasks have been completely satisfied. The Administrator
21 shall certify to the Senate Committee on Commerce,
22 Science, and Transportation and the House of Represent-
23 atives Committee on Science that those recommendations
24 have been satisfied before the first such return to launch.

1 **SEC. 206. LAUNCH PLANS FOR INTERNATIONAL SPACE STA-**
2 **TION.**

3 Within 60 days after the date of enactment of this
4 Act, the Administrator shall submit to Senate Committee
5 on Commerce, Science, and Transportation and the House
6 of Representatives Committee on Science plans for launch-
7 ing assembly elements, crew, and supplies to the Inter-
8 national Space Station from the year 2010 through the
9 year 2014.

10 **SEC. 207. REPORT ON STATUS OF UPGRADES TO SPACE**
11 **SHUTTLE.**

12 *Not later than 180 days after the date of the enactment*
13 *of this Act, the Administrator shall submit to the Committee*
14 *on Commerce, Science, and Transportation of the Senate*
15 *and the Committee on Science of the House of Representa-*
16 *tives a report on the current status of the following:*

17 (1) *The upgrades to the Space Shuttle that were*
18 *recommended for Return to Flight activities of the*
19 *Space Shuttle by the Columbia Accident Investigation*
20 *Board.*

21 (2) *Any other upgrades to the Space Shuttle*
22 *being undertaken to improve the safety or reliability*
23 *of the Space Shuttle fleet.*

1 **SEC. 208. RETENTION OF SPACE LAUNCH EXPERTISE AFTER**
2 **RETIREMENT OF SPACE SHUTTLE.**

3 (a) *COMMENCEMENT OF OPERATIONS OF NEXT GEN-*
4 *ERATION OF LAUNCH VEHICLES.*—*After the retirement of*
5 *the Space Shuttle fleet from active operations, the Adminis-*
6 *trator shall take appropriate actions to bring the next gen-*
7 *eration of United States manned space launch vehicles into*
8 *operation as soon as is safely possible.*

9 (b) *PRESERVATION OF EXPERTISE DURING EXTENDED*
10 *HIATUS.*—*If the Administrator is unable to bring the next*
11 *generation of United States manned space launch vehicles*
12 *into operation within one year of the retirement of the*
13 *Space Shuttle fleet from active operations, the Adminis-*
14 *trator may carry out a personnel program to retain within*
15 *NASA a cadre of personnel having the skills and expertise*
16 *necessary to conduct safe launches and operations of the*
17 *next generation of United States manned space launch vehi-*
18 *cles.*

19 (c) *REPORT ON PERSONNEL PROGRAM.*—*The Admin-*
20 *istrator shall submit to the Committee on Commerce,*
21 *Science, and Transportation of the Senate and the Com-*
22 *mittee on Science of the House of Representatives a report*
23 *setting forth a description of the personnel program author-*
24 *ized by subsection (b). The report shall include an assess-*
25 *ment of the funding required to carry out the program and*

1 *a description of any legislative or administrative actions*
 2 *to be required to carry out the program.*

3 **TITLE III—NASA’S NEW VISION**

4 **SEC. 301. EXPLORATION INITIATIVE.**

5 The National Aeronautics and Space Act of ~~1985~~
 6 ~~1958~~ (42 U.S.C. 2451 et seq.) is amended by adding at
 7 the end the following:

8 **“TITLE V—SOLAR SYSTEM** 9 **EXPLORATION**

10 **“SEC. 501. SOLAR SYSTEM EXPLORATION INITIATIVE.**

11 “(a) IN GENERAL.—The Administrator of the Na-
 12 tional Aeronautics and Space Administration shall estab-
 13 lish a program—

14 “(1) to implement a sustained and affordable
 15 human and robotic exploration of the solar system
 16 and beyond;

17 “(2) to extend human presence across the solar
 18 system, starting with a human return to the Moon
 19 by the year 2020, in preparation for human explo-
 20 ration of Mars and other destinations;

21 “(3) to develop the innovative technologies,
 22 knowledge, and infrastructures both to explore and
 23 to support decisions about the destinations for
 24 human exploration; and

1 “(4) to promote international and commercial
2 participation in exploration to further United States
3 scientific, security, and economic interests.

4 “(b) ACTION REQUIRED.—To accomplish the goals of
5 the program, the Administrator shall—

6 “(1) return the Space Shuttle to flight con-
7 sistent with safety concerns and the recommenda-
8 tions of the Columbia Accident Investigation Board,
9 with the chief purpose to help finish assembly of the
10 International Space Station;

11 “(2) retire the Space Shuttle as soon as assem-
12 bly of International Space Station is completed;

13 “(3) begin developing a new crewed exploration
14 vehicle to explore beyond Earth orbit to be ready for
15 testing by the end of the decade, and to conduct its
16 first human mission no later than 2014; and

17 “(4) take the steps necessary to return humans
18 to Earth’s moon as early as 2015 and no later than
19 2020, and use the Moon as a stepping-stone for mis-
20 sions to Mars and other destinations in space.”.

21 **SEC. 302. HUMAN MISSIONS TO THE MOON AND MARS.**

22 (a) REPORT ON ACTIVITIES AND FUNDING BUDG-
23 ETED FOR FISCAL YEAR 2005.—Within 60 days after the
24 date of enactment of this Act, the Administrator shall
25 transmit a report to the Senate Committee on Commerce,

1 Science, and Transportation and the House of Represent-
2 atives Committee on Science that identifies all activities
3 and funding, using full cost accounting, in the fiscal year
4 2005 budget request that support human missions to the
5 Moon and Mars.

6 (b) INCLUSION IN BUDGET REQUEST.—The Admin-
7 istrator shall include in NASA’s annual budget request all
8 activities and funding, using full cost accounting, that sup-
9 port human missions to the Moon and Mars.

10 **SEC. 303. SYSTEMS REQUIREMENTS DOCUMENT.**

11 (a) IN GENERAL.—Within 180 days after the date
12 of enactment of this Act, the Administrator shall submit
13 a system requirements document to the Senate Committee
14 on Commerce, Science, and Transportation and the House
15 of Representatives Committee on Science that includes—

16 (1) the baseline technical requirements for
17 NASA to conduct a human mission to the Moon by
18 ~~2014~~ 2020 and the eventual human mission to the
19 planet Mars; and

20 (2) a description of the process for making revi-
21 sions to the document.

22 (b) REPORT TO BE COMBINED WITH SECTION 304
23 REPORT.—The Administrator shall combine the report re-
24 quired under subsection (a) with the life cycle cost esti-

1 mate required by section 304 and submit them as a single
2 document.

3 **SEC. 304. LIFE CYCLE COST ESTIMATE.**

4 (a) SUBMISSION OF ESTIMATE TO CONGRESS.—
5 Within 180 days after the date of enactment of this Act,
6 the Administrator shall submit a life cycle cost estimate
7 for a ~~manned mission~~ *manned missions* to the Moon to
8 the Senate Committee on Commerce, Science, and Trans-
9 portation and the House of Representatives Committee on
10 Science. The Administrator shall ensure that the life cycle
11 cost estimate has been approved by the Chief Engineer
12 and reviewed by an independent organization prior to sub-
13 mission. The cost estimate shall also include whether or
14 not the planned budgetary profile for these missions as
15 submitted in NASA's fiscal year 2005 budget request is
16 sufficient to meet the targeted dates of the missions.

17 (b) GAO REVIEW.—Within 90 days after the Admin-
18 istration submits the life cycle cost estimate to the Com-
19 mittees under subsection (a), the Comptroller General
20 shall conduct a review of the estimate and transmit a re-
21 port containing the results of that review to those Commit-
22 tees.

23 (c) REVISED ESTIMATES.—After the first life cycle
24 cost estimate under subsection (a) has been submitted to
25 the Committees, the Administrator shall prepare and sub-

1 mit, in accordance with the requirements of subsection (a)
2 but without regard to the last sentence thereof, a revised
3 life cycle cost estimate for the mission for each fiscal year
4 to the Committees on or before the date on which the
5 President submits the Budget of the United States to the
6 Congress.

7 **SEC. 305. COMMERCIALIZATION PLAN WITH OFFICE OF**
8 **SPACE COMMERCIALIZATION.**

9 (a) IN GENERAL.—The Administrator and the Direc-
10 tor of the Office of Space Commercialization of the De-
11 partment of Commerce shall develop a commercialization
12 plan to support the human missions to the Moon and
13 ~~Mars.~~ *Mars and earth science missions and applications.*
14 The plan shall identify opportunities for the private sector
15 to participate in the future ~~missions~~ *missions and activi-*
16 *ties*, including opportunities for partnership between
17 NASA and the private sector in the development of tech-
18 nologies and services.

19 (b) REPORT.—Within 180 days after the date of en-
20 actment of this Act, the Administrator and the Director
21 jointly shall submit a copy of the plan to the Senate Com-
22 mittee on Commerce, Science, and Transportation and the
23 House of Representatives Committee on Science.

24 (c) REPORT TO BE COMBINED WITH SECTION 306
25 REPORT.—The Administrator shall combine the plan re-

1 quired under subsection (b) with the report required by
2 section 306 and submit them as a single document.

3 **SEC. 306. INDUSTRIAL ASSESSMENT.**

4 (a) IN GENERAL.—The Administrator and the Direc-
5 tor of the Office of Space Commercialization of the De-
6 partment of Commerce shall develop an assessment of the
7 capability of the private sector, including small businesses,
8 to support the manned missions to the Moon and ~~Mars.~~
9 *Mars and earth science missions and applications.* The as-
10 sessment shall include the ability of private ~~industry to~~
11 ~~support—~~ *industry—*

12 (1) *to assist in* the definition of basic program
13 requirements;

14 ~~(2) an assessment of current technologies and~~
15 ~~shortfalls; and~~

16 ~~(3) the production and manufacturing capabili-~~
17 ~~ties necessary to implement the manned missions to~~
18 ~~the Moon and Mars.~~

19 (2) *to evaluate current technologies and identify*
20 *technology gaps;*

21 (3) *to produce and manufacture the systems nec-*
22 *essary to implement the manned missions to the Moon*
23 *and Mars; and*

24 (4) *to support earth science data and applica-*
25 *tions requirements.*

1 (b) REPORT.—Within 180 days after the date of en-
2 actment of this Act, the Administrator and the Director
3 jointly shall submit a copy of the assessment to the Senate
4 Committee on Commerce, Science, and Transportation
5 and the House of Representatives Committee on Science.

6 **SEC. 307. REPORTS ON COSTS OF MAJOR SYSTEMS.**

7 (a) QUARTERLY LIFE CYCLE COST REPORTS.—

8 (1) IN GENERAL.—The program manager for
9 each major system, as determined by the Adminis-
10 trator, of the solar system exploration initiative
11 under section 501 of the National Aeronautics and
12 Space Act of 1958, as added by section 301 of this
13 Act, shall submit to the Administrator, within 7
14 days after the end of each quarter of the fiscal year,
15 a written report on the major system for which such
16 manager has responsibility. The Administrator shall
17 submit a listing of all major systems to the Senate
18 Committee on Commerce, Science, and Transpor-
19 tation and the House of Representatives Committee
20 on Science within 180 days after the date of enact-
21 ment of this Act. The program manager shall in-
22 clude in each such report the total life cycle cost for
23 such major system as of the last day of such quarter
24 and the history of the total life cycle cost of each

1 major system from the date on which funds were first
2 authorized to be appropriated for such system.

3 (2) COST OVERRUN REPORTS.—If at any time
4 during a fiscal year the program manager of a major
5 system referred to in paragraph (1) has reasonable
6 cause to believe that the total life cycle cost has ex-
7 ceeded the applicable percentage increase specified
8 in subsection (b), the manager shall immediately
9 submit to the Administrator a report containing the
10 information, as of the date of such report, required
11 by paragraph (1).

12 (3) SCHEDULE OR SYSTEM CHANGES.—The
13 program manager shall also include in each report
14 submitted pursuant to paragraph (1) or (2) any
15 change from schedule milestones or system perform-
16 ances requirements with respect to such system that
17 are known, expected, or anticipated by such man-
18 ager.

19 (b) STOP-LOSS PROVISIONS FOR 15 PERCENT COST
20 OVERRUNS.—

21 (1) SYSTEMS.—If the Administrator deter-
22 mines, on the basis of any report submitted to him
23 pursuant to subsection (a), that the total life cycle
24 cost (including any increase for expected inflation)
25 for any major system has increased by more than 15

1 percent over the total life cycle cost for such system,
2 then (except as provided in paragraph (2)) no addi-
3 tional funds may be obligated in connection with
4 such system after the end of the 30-day period be-
5 ginning on the day on which the Administrator
6 makes such determination. The Administrator shall
7 notify the Senate Committee on Commerce, Science,
8 and Transportation and the House of Representa-
9 tives Committee on Science promptly in writing of
10 such increase upon making such a determination
11 with respect to any such major system and shall in-
12 clude in such notice the date on which such deter-
13 mination was made.

14 (2) EXCEPTION.—The prohibition contained in
15 paragraph (1) on the obligation of funds shall not
16 apply in the case of any major system to which such
17 prohibition would otherwise apply if the Adminis-
18 trator submits to the Senate Committee on Com-
19 merce, Science, and Transportation and the House
20 of Representatives Committee on Science, before the
21 end of the 30-day period referred to in paragraph
22 (1), a written report which includes—

23 (A) a statement of the reasons for such in-
24 crease in total life cycle cost or procurement
25 cost;

1 (B) the identities of the program officers
2 responsible for program management and cost
3 control of the major system;

4 (C) the action taken and proposed to be
5 taken to control future cost growth of such sys-
6 tem;

7 (D) any changes made in the performance
8 or schedule milestones of such system and the
9 degree to which such changes have contributed
10 to the increase in total life cycle cost or pro-
11 curement cost;

12 (E) the identities of the principal contrac-
13 tors for the major system; and

14 (F) an index of all testimony and docu-
15 ments formally provided to the Congress on the
16 estimated cost of such system.

17 (c) STOP-LOSS PROVISION FOR 25 PERCENT COST
18 OVERRUNS.—

19 (1) IN GENERAL.—If the Administrator—

20 (A) determines, on the basis of a report
21 submitted to him pursuant to subsection (a)—

22 (i) that the total life cycle cost (in-
23 cluding an increase for expected inflation)
24 for a major system has increased by more

1 than 25 percent over the total life cycle
2 cost, or

3 (ii) that the current procurement cost
4 of such system has increased by more than
5 25 percent over the initial procurement
6 cost, in the case of any such system for
7 which procurement funds are authorized to
8 be appropriated by this Act, and

9 (B) has submitted a report to the Senate
10 Committee on Commerce, Science, and Trans-
11 portation and the House of Representatives
12 Committee on Science with respect to such sys-
13 tem pursuant to subsection (b)(3),

14 then (except as provided in paragraph (2)) no addi-
15 tional funds may be obligated in connection with
16 such system after the end of the 60-day period be-
17 ginning on the day on which the Administrator
18 makes such determination.

19 (2) EXCEPTION.—The prohibition contained in
20 paragraph (1) on the obligation of funds shall not
21 apply in the case of a major system to which such
22 prohibition would otherwise apply if the Adminis-
23 trator submits to the Senate Committee on Com-
24 merce, Science, and Transportation and the House
25 of Representatives Committee on Science, before the

1 end of the 60-day period referred to in such para-
2 graph, a written certification stating that—

3 (A) such system is essential to the future
4 of the Exploration Initiative;

5 (B) there are no alternatives to such sys-
6 tem which will provide equal or greater capa-
7 bility at less cost;

8 (C) the new estimates of the total program
9 acquisition cost or procurement cost are reason-
10 able; and

11 (D) the management structure for such
12 major system is adequate to manage and con-
13 trol total program acquisition cost or procure-
14 ment cost.

15 **SEC. 308. INTERNATIONAL COOPERATION.**

16 (a) *REPORT ON OPPORTUNITIES FOR INTERNATIONAL*
17 *COOPERATIONS.*—Within 180 days after the date of enact-
18 ment of this Act, NASA shall provide a report to the Sen-
19 ate Committee on Commerce, Science, and Transportation
20 and the House of Representatives Committee on Science
21 on opportunities for international cooperation from all
22 space faring nations on a human mission to the Moon and
23 Mars. The report shall present a variety of options for the
24 United States to enter into partnership with other nations
25 in pursuit of the program established by section 301 of

1 this Act. The report shall be developed in cooperation with
2 the Department of State and other appropriate agencies.

3 (b) *COOPERATION ON INTERNATIONAL SPACE STA-*
4 *TION.*—

5 (1) *FINDING.*—*Congress finds that international*
6 *cooperation on a robust International Space Station*
7 *(ISS) program is an essential step in building rela-*
8 *tions and commitments for the joint international*
9 *pursuit of human exploration of the solar system.*

10 (2) *INTERNATIONAL COOPERATION.*—*The Admin-*
11 *istrator shall ensure that NASA fully complies with*
12 *all its commitments with its international partners*
13 *on the construction, operation, and maintenance of*
14 *the International Space Station.*

15 (3) *REPORT ON INCREASE IN CREW SIZE AND*
16 *SCIENCE CAPABILITIES.*—*Not later than 120 days*
17 *after the date of the enactment of this Act, the Admin-*
18 *istrator shall submit to the committees referred to in*
19 *subsection (a) a report setting forth various options*
20 *for increasing the crew size of the International Space*
21 *Station to as many as six crew members, with a com-*
22 *mensurate expansion of the science capabilities of the*
23 *International Space Station. The report shall assess*
24 *for each such option the cost, potential schedule, and*
25 *logistics requirements of such option.*

1 (4) *a description of the role of dual-use partner-*
2 *ships to facilitate transfer of technology to the private*
3 *sector.*

4 (c) **PLAN AND REPORT.**—The Administrator shall
5 transmit a copy of the plan, together with recommenda-
6 tions (including legislative recommendations) if any, to the
7 Senate Committee on Commerce, Science, and Transpor-
8 tation and the House of Representatives Committee on
9 Science within 1 year after the date of enactment of this
10 Act.

11 **SEC. 310. ROBOTIC LUNAR MISSIONS.**

12 Within 6 months after the date of enactment of this
13 Act, the Administrator shall submit a plan to the Senate
14 Committee on Commerce, Science, and Transportation
15 and the House of Representatives Committee on Science
16 for the robotic lunar missions to the Earth’s moon within
17 3 years. The plan should include the specific science and
18 technical goals to be met, the role of scientific peer review
19 panels in selecting missions, and the use of the private
20 sector to accomplish the goals of the mission.

21 **SEC. 311. LEGAL ASPECTS OF LUNAR EXPLORATION.**

22 The Administrator, in consultation with the Secretary
23 of State, shall submit a legal review and interpretation of
24 laws and treaties governing the exploration of space and
25 the possible ownership of resources on the Moon and

1 Mars. The review should determine if any changes or new
2 agreements are needed to reflect the growing role of the
3 private sector in space exploration. The review shall be
4 submitted to the Senate Committee on Commerce,
5 Science, and Transportation and the House of Represent-
6 atives Committee on Science within 90 days of enactment
7 of this Act.

8 **SEC. 312. NASA ENGINEERING SCHOOL.**

9 (a) ESTABLISHMENT.—The Administrator shall es-
10 tablish a NASA Engineering School. The school shall be
11 available to all employees of NASA and its contractors to
12 facilitate increased knowledge of engineering and scientific
13 principles to further the missions of NASA.

14 (b) PURPOSE.—The purpose of the school is to pro-
15 vide a unique training program to bridge the gap between
16 the broad-based training provided by universities, and the
17 specific training needed to understand the different tech-
18 nologies which form the basis for work at NASA.

19 (c) SUBMISSION OF PLAN.—Within 180 days after
20 the date of enactment of this Act, the Administrator shall
21 submit to the Senate Committee on Commerce, Science,
22 and Transportation and the House of Representatives
23 Committee on Science a plan for establishing the school.

1 **SEC. 313. CONTINUITY OF U.S. HUMAN SPACE FLIGHT.**

2 (a) *FINDING.*—*The Congress finds that a prolonged*
3 *gap of 1 or more years in the United States' capability*
4 *to transport astronauts to and from space is inconsistent*
5 *with policy objectives of the United States human space*
6 *flight program.*

7 (b) *SPACE SHUTTLE OPERATIONS AND MAINTENANCE*
8 *REPORTING REQUIREMENT.*—*No later than 1 year after the*
9 *date of enactment of this Act, the Administrator shall trans-*
10 *mit to the Senate Committee on Commerce, Science, and*
11 *Transportation and the House of Representatives Com-*
12 *mittee on Science, a report, including estimates of costs and*
13 *scheduling, on requirements for enabling the extension of*
14 *Shuttle operations and maintenance until project Constella-*
15 *tion Exploration Transportation System has been tested*
16 *with humans.*

17 (c) *SENSE OF THE SENATE.*—*It is the sense of the Sen-*
18 *ate that NASA shall take all necessary steps to have a*
19 *human rated vehicle to provide access to space operational*
20 *before ceasing Space Shuttle operations, but that taking*
21 *such steps should not impede the development of the Crew*
22 *Exploration Vehicle.*

1 **TITLE IV—MISCELLANEOUS**

2 **SEC. 401. INTEGRATED FINANCIAL MANAGEMENT PRO-**
 3 **GRAM.**

4 Within 120 days after the date of enactment of this
 5 Act, the Chief Financial officer shall provide a report to
 6 the Senate Committee on Commerce, Science, and Trans-
 7 portation and the House of Representatives Committee on
 8 Science on NASA’s ability to improve its financial man-
 9 agement. The report shall include—

10 (1) a statement of the status of the implemen-
 11 tation of the integrated financial management pro-
 12 gram; and

13 (2) a description of plans and architecture for
 14 the full implementation of the management system.

15 **SEC. 402. FUTURE LAUNCH PLAN.**

16 Within 180 days after the date of enactment of this
 17 Act, the Administrator shall transmit to the Senate Com-
 18 mittee on Commerce, Science, and Transportation and the
 19 House of Representatives Committee on Science a plan for
 20 future launches of space vehicles that includes an estimate
 21 of costs, schedules, and factors relevant to other United
 22 States space sectors. The plan should address assessments
 23 of reusable components and approaches that can lead to
 24 significant cost reductions in United States access to
 25 ~~space.~~ *space, the impact of development schedule options*

1 *on the United States aerospace industry workforce, produc-*
 2 *tion lines, and research and development capabilities, and*
 3 *on NASA propulsion testing utilization.*

4 **SEC. 403. COMMERCIAL GOODS AND SERVICES.**

5 It is the sense of the Congress that NASA should
 6 purchase commercially available space goods and services
 7 to the fullest extent feasible ~~in support of the human mis-~~
 8 ~~sions to the Moon and Mars and shall and should~~ not con-
 9 duct activities with commercial applications that preclude
 10 or deter commercial space activities except for reasons of
 11 national security or public safety. For purposes of this sec-
 12 tion—

13 (1) a space good or service shall be considered
 14 to be commercially available if it is offered by a com-
 15 mercial provider, or if it could be supplied by a com-
 16 mercial provider in response to a Government pro-
 17 curement request; and

18 (2) a purchase shall be considered to be feasible
 19 if it meets mission requirements in a cost-effective
 20 manner while offering the same or a higher level of
 21 safety.

22 **SEC. 404. INDUSTRY ADVISORY BOARD.**

23 The Administrator shall establish an Industry Advi-
 24 sory Board to review and discuss opportunities for the pri-
 25 vate sector to invest in and take advantage of activities

1 at NASA. The Board shall meet at least twice a year with
2 the Administrator or his designee.

3 **SEC. 405. REQUIREMENT FOR INDEPENDENT COST ANAL-**
4 **YSIS.**

5 Section 301 of the National Aeronautics and Space
6 Administration Authorization Act of 2000 (42 U.S.C.
7 2459g) is amended—

8 (1) by striking the first sentence of subsection
9 (a) and inserting “For each project that is projected
10 to cost more than \$250,000,000 in total project
11 costs, the Chief Financial Officer for the National
12 Aeronautics and Space Administration shall conduct
13 and consider an independent life-cycle cost analysis
14 and report the results of that analysis to the Senate
15 Committee on Commerce, Science, and Transpor-
16 tation and the House of Representatives Committee
17 on Science as soon as practicable after the contract,
18 or contracts, for the project have been awarded.”;
19 and

20 (2) by striking subsection (b) and inserting the
21 following:

22 “(b) TOTAL PROJECT COSTS.—In this section, the
23 term ‘total project costs’ includes—

24 “(1) all activity in the life cycle of a program
25 or project after preliminary design, independent as-

1 assessment of the preliminary design, and approval to
2 proceed into implementation; and

3 “(2) design, development, testing, certification,
4 launch, operations, and disposal.”.

5 **SEC. 406. ELECTRONIC ACCESS TO BUSINESS OPPORTUNI-**
6 **TIES.**

7 Title III of the National Aeronautics and Space Act
8 of 1958 (42 U.S.C. 2451, et seq.), is amended by adding
9 at the end the following:

10 **“SEC. 316. ELECTRONIC ACCESS TO BUSINESS OPPORTUNI-**
11 **TIES.**

12 “(a) **IN GENERAL.**—The Administrator may imple-
13 ment a pilot program providing for reduction in the wait-
14 ing period between publication of notice of a proposed con-
15 tract action and release of the solicitation for procure-
16 ments conducted by the National Aeronautics and Space
17 Administration.

18 “(b) **APPLICABILITY.**—The program implemented
19 under subsection (a) shall apply to non-commercial acqui-
20 sitions—

21 “(1) with a total value in excess of \$100,000
22 but not more than \$5,000,000 including options;

23 “(2) that do not involve bundling of contract re-
24 quirements as defined in section 3(o) of the Small
25 Business Act (15 U.S.C. 632(o)); and

1 “(3) for which a notice is required by sub-
2 section 8(e) of the Small Business Act (15 U.S.C.
3 637(e)) and subsection 18(a) of the Office of Fed-
4 eral Procurement Policy Act (41 U.S.C. 416(a)).

5 “(e) NOTICE.—

6 “(1) Notice of acquisitions subject to the pro-
7 gram authorized by this section shall be made acces-
8 sible through the single Government-wide point of
9 entry designated in the Federal Acquisition Regula-
10 tion, consistent with paragraph 30(e)(4) of the Of-
11 fice of Federal Procurement Policy Act (41 U.S.C.
12 426(e)(4)).

13 “(2) Providing access to notice in accordance
14 with paragraph (1) satisfies the publication require-
15 ments of subsection 8(e) of the Small Business Act
16 (15 U.S.C. 637(e)) and subsection 18(a) of the Of-
17 fice of Federal Procurement Policy Act (41 U.S.C.
18 416(a)).

19 “(d) SOLICITATION.—Solicitations subject to the pro-
20 gram authorized by this section shall be made accessible
21 through the single Government-wide point of entry, con-
22 sistent with requirements set forth in the Federal Acquisi-
23 tion Regulation, except for adjustments to the wait periods
24 as provided in subsection (e).

25 “(e) WAIT PERIODS.—

1 “(1) Whenever a notice required by section
2 8(e)(1)(A) of the Small Business Act (15 U.S.C.
3 637(e)(1)(A)) and section 18(a) of the Office of
4 Federal Procurement Policy Act (41 U.S.C. 416(a))
5 is made accessible in accordance with subsection (e)
6 of this section, the wait period set forth in section
7 8(e)(3)(A) of the Small Business Act (15 U.S.C.
8 637(e)(3)(A)) and section 18(a)(3)(A) of the Office
9 of Federal Procurement Policy Act (41 U.S.C.
10 416(a)(3)(A)), shall be reduced by 5 days. If the so-
11 licitation applying to that notice is accessible elec-
12 tronically in accordance with subsection (d) simulta-
13 neously with issuance of the notice, the wait period
14 set forth in section 8(e)(3)(A) of the Small Business
15 Act (15 U.S.C. 637(e)(3)(A)) and section
16 18(a)(3)(A) of the Office of Federal Procurement
17 Policy Act (41 U.S.C. 416(a)(3)(A)) shall not apply
18 and the period specified in section 8(e)(3)(B) of the
19 Small Business Act and section 18(a)(3)(B) of the
20 Office of Federal Procurement Policy Act (41 U.S.C.
21 416(a)(3)(B)) for submission of bids or proposals
22 shall begin to run from the date the solicitation is
23 electronically accessible.

24 “(2) When a notice and solicitation are made
25 accessible simultaneously and the wait period is

1 waived pursuant to paragraph (1), the deadline for
2 the submission of bids or proposals shall be not less
3 than 5 days greater than the minimum deadline set
4 forth in section 8(e)(3)(B) of the Small Business
5 Act (15 U.S.C. 637(e)(3)(B)) and section
6 18(a)(3)(B) of the Office of Federal Procurement
7 Policy Act (41 U.S.C. 416(a)(3)(B)).

8 “(f) IMPLEMENTATION.—

9 “(1) Nothing in this section shall be construed
10 as modifying regulatory requirements set forth in
11 the Federal Acquisition Regulation, except with re-
12 spect to—

13 “(A) the applicable wait period between
14 publication of notice of a proposed contract ac-
15 tion and release of the solicitation; and

16 “(B) the deadline for submission of bids or
17 proposals for procurements conducted in ac-
18 cordance with the terms of this pilot program.

19 “(2) This section shall not apply to the extent
20 the President determines it is inconsistent with any
21 international agreement to which the United States
22 is a party.

23 “(g) STUDY.—Within 18 months after the effective
24 date of the program, NASA shall evaluate the impact of
25 the pilot program and submit to the Senate Committee

1 on Commerce, Science, and Transportation and the House
2 of Representatives Committee on Science a report that—

3 “(1) sets forth in detail the results of the test,
4 including the impact on competition and small busi-
5 ness participation; and

6 “(2) at the discretion of the President, address-
7 es whether the pilot program should be made perma-
8 nent, continued as a test program, or allowed to ex-
9 pire.

10 “(h) EFFECTIVE DATE.—

11 “(1) The authority set forth in this section shall
12 take effect on the date specified in the final regula-
13 tions promulgated pursuant to paragraph 3. The
14 date so specified shall be no less than 30 days after
15 the date on which the final regulation is published.

16 “(2) NASA shall publish proposed revisions to
17 the NASA Federal Acquisition Regulation Supple-
18 ment as may be necessary to implement this section
19 in the Federal Register not later than 120 days
20 after the date of enactment of the National Aero-
21 nautics and Space Administration Authorization Act
22 of 2004. The proposed regulations shall be made
23 available for public comment for a period of not less
24 than 60 days.

1 “(3) Final regulations shall be published in the
2 Federal Register not later than 240 days after the
3 date of enactment of the National Aeronautics and
4 Space Administration Authorization Act of 2004.

5 “(i) EXPIRATION OF AUTHORITY.—The authority to
6 conduct this pilot program under subsection (a) and to
7 award contracts under such program shall expire 2 years
8 after the effective date established in the final regulations
9 published in the Federal Register.”.

10 **SEC. 407. RETROCESSION OF JURISDICTION.**

11 Title III of the National Aeronautics and Space Act
12 of 1958 (42 U.S.C. 2451 et seq.), as amended by section
13 406, is amended by adding at the end the following:

14 **“SEC. 317. RETROCESSION OF JURISDICTION.**

15 “Notwithstanding any other provision of law, the Ad-
16 ministrator may, whenever the Administrator considers it
17 desirable, relinquish to a State all or part of the jurisdic-
18 tion of the United States over lands or interests under
19 the Administrator’s control in that State. Relinquishment
20 of jurisdiction under this section may be accomplished—

21 “(1) by filing with the Governor of the State
22 concerned a notice of relinquishment to take effect
23 upon acceptance thereof; or

24 “(2) as the laws of the State may otherwise
25 provide.”.

1 **SEC. 408. CENTENNIAL CHALLENGE PROGRAM.**

2 **SEC. 406. CENTENNIAL CHALLENGE PROGRAM.**

3 Title III of the National Aeronautics and Space Act
4 of 1958 (42 U.S.C. 2451 et seq.), as amended by section
5 ~~407~~, *seq.*) is amended by adding at the end the following:

6 **“SEC. 318. AUTHORITY FOR COMPETITIVE PRIZE AWARD**
7 **PROGRAM TO ENCOURAGE DEVELOPMENT**
8 **OF ADVANCED SPACE AND AERONAUTICAL**
9 **TECHNOLOGIES.**

10 **“SEC. 316. AUTHORITY FOR COMPETITIVE PRIZE AWARD**
11 **PROGRAM TO ENCOURAGE DEVELOPMENT OF**
12 **ADVANCED SPACE AND AERONAUTICAL TECH-**
13 **NOLOGIES.**

14 “(a) PROGRAM AUTHORIZED.—The Administrator
15 may carry out a program, known as the Centennial Chal-
16 lenge Program, to award prizes to stimulate innovation in
17 basic and applied research, technology development, and
18 prototype demonstration that have the potential for appli-
19 cation to the performance of the space and aeronautical
20 activities of the Administration.

21 “(b) PROGRAM REQUIREMENTS.—

22 “(1) COMPETITIVE PROCESS.—Recipients of
23 prizes under the program under this section shall be
24 selected through one or more competitions conducted
25 by the Administrator.

1 “(2) ADVERTISEMENT OF COMPETITIONS.—The
2 Administrator shall widely advertise any competi-
3 tions conducted under the program.

4 “(c) REGISTRATION; ASSUMPTION OF RISK.—

5 “(1) REGISTRATION.—Each potential recipient
6 of a prize in a competition under the program under
7 this section shall register for the competition.

8 “(2) ASSUMPTION OF RISK.—In registering for
9 a competition under paragraph (1), a potential re-
10 cipient of a prize shall assume any and all risks, and
11 waive claims against the United States Government
12 and its related entities (including contractors and
13 subcontractors at any tier, suppliers, users, cus-
14 tomers, cooperating parties, grantees, investigators,
15 and detailees), for any injury, death, damage, or loss
16 of property, revenue, or profits, whether direct, indi-
17 rect, or consequential, arising from participation in
18 the competition, whether such injury, death, dam-
19 age, or loss arises through negligence or otherwise,
20 except in the case of willful misconduct.

21 “(d) BUDGETING AND AWARDING OF FUNDS.—

22 “(1) AVAILABILITY OF FUNDS.—Any funds ap-
23 propriated to carry out this section shall remain
24 available until expended, but for not more than 4
25 fiscal years.

1 “(2) DEPOSIT AND WITHDRAWAL OF FUNDS.—

2 When a prize is offered, the total amount of funding
3 made available for that prize shall be deposited in
4 the Centennial Challenge Trust Fund. If funding ex-
5 pires before a prize is awarded, the Administrator
6 shall deposit additional funds in the account to en-
7 sure the availability of funding for all prizes. If a
8 prize competition expires before its goals are met,
9 the Administrator may redesignate those funds for a
10 new challenge, but any redesignated funds will be
11 considered as newly deposited for the purposes of
12 paragraph (3). All cash awards made under this sec-
13 tion shall be paid from that account.

14 “(3) OVERALL LIMIT.—The Administrator may
15 not deposit more than \$25,000,000 annually in the
16 Centennial Challenge Trust Fund.

17 “(4) MAXIMUM PRIZE.—No competition under
18 the program may result in the award of more than
19 \$1,000,000 in cash prizes without the approval of
20 the Administrator.

21 “(e) RELATIONSHIP TO OTHER AUTHORITY.—The
22 Administrator may exercise the authority in this section
23 in conjunction with or in addition to any other authority
24 of the Administrator to acquire, support, or stimulate

1 basic and applied research, technology development, or
2 prototype demonstration projects.”.

3 **SEC. 409. CULTURAL AND ORGANIZATIONAL ASSESSMENT.**

4 **SEC. 407. CULTURAL AND ORGANIZATIONAL ASSESSMENT.**

5 (a) IN GENERAL.—The Administrator shall conduct
6 a NASA-wide assessment to identify and define areas of
7 cultural and organizational changes and develop a NASA-
8 wide plan—

9 (1) to create a culture that promotes effective
10 communication and encourages expression of dis-
11 senting views, including—

12 (A) improving the efficiency of information
13 and knowledge structures; and

14 (B) developing procedures to enhance shar-
15 ing of knowledge and data and decision-making;

16 (2) to increase NASA’s focus on the human ele-
17 ments management and organizational development,
18 including—

19 (A) establishing clear lines of authority,
20 accountability, and responsibility of individual
21 employees, work groups, and leadership; and

22 (B) promoting an understanding of pro-
23 gram interdependencies and implications of
24 management decisions across programs;

1 (b) SENSE OF THE CONGRESS.—It is the sense of
2 the Congress that NASA should—

3 (1) strengthen its procurement process by in-
4 creasing its emphasis on competitive contracting;

5 (2) take action to ensure that a structured and
6 systemic due diligence process exists when making
7 strategic decisions to limit competition for contract
8 actions that are of a substantial dollar value or have
9 significant programmatic impacts to the Agency; and

10 (3) take measures to enhance the robustness of
11 its procurement advocacy programs (i.e., Ombuds-
12 man Program and Competition Advocacy Program),
13 which are intended to promote full and open com-
14 petition and improve the efficiency, economy, and in-
15 tegrity of the acquisition process.

16 **SEC. 411. EMPLOYEES STATIONED IN FOREIGN COUNTRIES.**

17 **SEC. 409. EMPLOYEES STATIONED IN FOREIGN COUNTRIES.**

18 Title III of the National Aeronautics and Space Act
19 of 1958 (42 U.S.C. 2451 et seq.), as amended by section
20 ~~408~~, 406, is amended by adding at the end the following:

1 **“SEC. 319. AUTHORITY TO PAY ALLOWANCES AND BENE-**
2 **FITS TO EMPLOYEES STATIONED IN FOREIGN**
3 **COUNTRIES.**

4 **“SEC. 317. AUTHORITY TO PAY ALLOWANCES AND BENEFITS**
5 **TO EMPLOYEES STATIONED IN FOREIGN**
6 **COUNTRIES.**

7 “(a) IN GENERAL.—The Administrator, in the Ad-
8 ministrator’s discretion, may provide to civilian and mili-
9 tary personnel, if the duty station of such personnel is out-
10 side the United States, allowances and benefits com-
11 parable to those provided by the Secretary of State to offi-
12 cers and employees of the Foreign Service under chapter
13 9 of title I of the Foreign Service Act of 1980 (22 U.S.C.
14 4081 et seq.).

15 “(b) REGULATIONS.—The Administrator shall issue
16 such regulations as may be necessary to implement this
17 section. Such regulations shall take effect with respect to
18 members of a uniformed service only to the extent that
19 the head of the executive department of which that uni-
20 formed service is a part has concurred in the application
21 of the regulations to members of that uniform service. The
22 regulations shall ensure that no person receives allowances
23 or benefits under both this section and any other provision
24 of law for the same purpose.

25 “(c) RELATIONSHIP TO OTHER AUTHORITY.—The
26 authority granted to the Administrator by this section is

1 in addition to authority granted to the Administrator by
2 any other provision of law, and nothing in this section
3 shall be construed to impair or otherwise affect the au-
4 thority of the Administrator under any other provision of
5 law.

6 “(d) FUNDING.—Funds appropriated to the Adminis-
7 tration shall be available for obligation and expenditure
8 to carry out this section.

9 “(e) DEFINITIONS.—In this section:

10 “(1) UNITED STATES.—The term ‘United
11 States’ means the 50 States and the District of Co-
12 lumbia.

13 “(2) CIVILIAN PERSONNEL.—The term ‘civilian
14 personnel’ means civilian officers and employees of
15 the United States Government employed by, or as-
16 signed or detailed to, the Administration.

17 “(3) MILITARY PERSONNEL.—The term ‘mili-
18 tary personnel’ means members of the uniformed
19 services assigned or detailed to the Administration.

20 “(4) UNIFORMED SERVICES.—The term ‘uni-
21 formed services’ has the meaning given that term in
22 section 101 of title 10, United States Code.

23 “(f) TAXATION.—Section 912(a) of the Internal Rev-
24 enue Code of 1986 shall apply with respect to amounts
25 received by civilian personnel or military personnel as al-

1 lowances or otherwise under this section in the same man-
 2 ner as it applies with respect to amounts received by civil-
 3 ian officers or employees as allowances or otherwise under
 4 chapter 9 of title I of the Foreign Service Act of 1980.”.

5 **SEC. 412. HUBBLE TELESCOPE.**

6 **SEC. 410. HUBBLE TELESCOPE.**

7 (a) *PLAN FOR FUTURE OF HUBBLE SPACE TELE-*
 8 *SCOPE.*—Within 60 days after the National Academy of
 9 Sciences issues its study on the future of the Hubble
 10 Space Telescope, the Administrator, shall submit a plan
 11 to the Senate Committee on Commerce, Science, and
 12 Transportation and the House of Representatives Com-
 13 mittee on Science on the future of the Hubble space tele-
 14 scope. The plan shall include options for the future serv-
 15 icing of the facility along with the associated costs.

16 (b) *OPTIONS FOR REPAIR AND UPGRADE OF HUBBLE*
 17 *SPACE TELESCOPE.*—

18 (1) *EVALUATION OF OPTIONS.*—*The Adminis-*
 19 *trator shall evaluate all options for the repair and*
 20 *upgrade of the Hubble Space Telescope that will ac-*
 21 *complish the objectives previously planned for the*
 22 *SM-4 servicing mission, including installation of the*
 23 *Wide Field Camera-3 (WFC3) and the Cosmic Ori-*
 24 *gins Spectrograph.*

1 (2) *REPORT.*—*In the event of any changes to the*
 2 *plan for the SM-4 servicing mission of the Hubble*
 3 *Space Telescope that will detract from performance*
 4 *enhancements of the Hubble Space Telescope that are*
 5 *otherwise anticipated as a result of the servicing mis-*
 6 *sion, the Administrator shall submit to the commit-*
 7 *tees of Congress referred to in subsection (b) a report*
 8 *on such changes to the plan.*

9 **SEC. 413. CONFIRMATION REQUIREMENT.**

10 **SEC. 411. CONFIRMATION REQUIREMENT.**

11 Section 202 of the National Aeronautics and Space
 12 Act of 1958 (42 U.S.C. 2472) is amended by adding at
 13 the end the following:

14 “(d) ASSISTANT ADMINISTRATOR FOR LEGISLATIVE
 15 AFFAIRS.—There shall be in the Administration an Assist-
 16 ant Administrator for Legislative Affairs, who shall be ap-
 17 pointed by the President, by and with the advice and con-
 18 sent of the Senate, and who shall perform such duties as
 19 the Administrator may prescribe.”.

20 **SEC. 414. NATIONAL AERONAUTICS AND SPACE FOUNDA-**
 21 **TION STUDY.**

22 **SEC. 412. NATIONAL AERONAUTICS AND SPACE FOUNDA-**
 23 **TION STUDY.**

24 Within 90 days after the date of enactment of this
 25 Act, the Administrator shall transmit to the Senate Com-

1 mittee on Commerce, Science, and Transportation and the
2 House of Representatives Committee on Science a report
3 on the advisability of establishing a charitable and non-
4 profit corporation—

5 (1) to encourage private gifts of real and per-
6 sonal property or any income therefrom or other in-
7 terest therein for the benefit of, or in connection
8 with, the National Aeronautics and Space Adminis-
9 tration, its activities, or its services; and

10 (2) to further the public’s knowledge of and in-
11 spiration by the Earth, the Earth’s atmosphere,
12 space, and celestial bodies in space, for current and
13 future generations of Americans.

14 **SEC. 415. NEAR-EARTH OBJECT SURVEY.**

15 **SEC. 413. NEAR-EARTH OBJECT SURVEY.**

16 (a) CONGRESSIONAL DECLARATION OF POLICY AND
17 PURPOSE.—Section 102 of the National Aeronautics and
18 Space Act of 1958 (42 U.S.C. 2451) is amended—

19 (1) by redesignating subsection (g) as sub-
20 section (h); and

21 (2) by inserting after subsection (f) the fol-
22 lowing:

23 “(g) The Congress declares that the general welfare
24 and security of the United States require that the unique
25 competence of the National Aeronautics and Space Ad-

1 ministration in science and engineering systems be di-
2 rected to detecting, tracking, cataloging, and character-
3 izing near-Earth asteroids and comets in order to provide
4 warning and mitigation of the potential hazard of those
5 asteroids and comets striking the Earth.”.

6 (b) PROGRAM.—The Administrator shall plan, de-
7 velop, and implement a near-Earth object survey program
8 to detect, track, catalog, and characterize the physical
9 characteristics of near-Earth asteroids and comets that
10 are 100 meters or more in diameter in order to assess
11 the threat of such objects striking the Earth.

12 (c) ANNUAL REPORT.—The Administrator shall
13 transmit to the Senate Committee on Commerce, Science,
14 and Transportation and the House of Representatives
15 Committee on Science a report, no later than the first
16 February 28th occurring after the date of enactment of
17 this Act and on each of the 5 succeeding anniversaries
18 of such transmittal, a report containing—

19 (1) a summary of all activities of the Adminis-
20 tration under subsection (b) during the preceding
21 fiscal year;

22 (2) a summary of all amounts obligated or ex-
23 pended by the Administration during such fiscal
24 year for such activities; and

1 (3) a detailed plan and budget request for each
2 of the 5 fiscal years following the date on which the
3 report is transmitted.

4 **SEC. 414. USE OF UNMANNED AERIAL VEHICLES IN WILD-**
5 **LIFE, ENVIRONMENTAL, AND OTHER ACTIVI-**
6 **TIES.**

7 (a) *PROGRAM AUTHORIZED.*—*The Administrator may*
8 *carry out a program to evaluate the feasibility and advis-*
9 *ability of the use of unmanned aerial vehicles in wildlife,*
10 *environmental, and other appropriate activities.*

11 (b) *PROGRAM ACTIVITIES.*—*Activities in which un-*
12 *manned aerial vehicles are used in the program under sub-*
13 *section (a) may include—*

14 (1) *the assessment and mitigation of natural*
15 *conditions and hazards, including ocean debris and*
16 *wildfires;*

17 (2) *the monitoring and tracking of wildlife;*

18 (3) *the provision of ocean and coastal security;*

19 *and*

20 (4) *such other activities as the Administrator*
21 *considers appropriate for purposes of the program.*

22 (c) *PARTICIPATION OF OTHER FEDERAL AGENCIES.*—
23 *The Administrator shall carry out the program under sub-*
24 *section (a) with the participation of such other departments*
25 *and agencies of the Federal Government, including the Na-*

1 *tional Oceanic and Atmospheric Administration and the*
 2 *Coast Guard, as the Administrator and the heads of the*
 3 *departments and agencies concerned jointly consider appro-*
 4 *priate.*

5 (d) *FUNDING.*—*Of the amounts authorized to be ap-*
 6 *propriated by this Act, \$10,000,000 may be available to*
 7 *carry out this section.*

8 **SEC. 415. EXPANSION OF AUTHORITY FOR DEMONSTRA-**
 9 **TION ON ENHANCED-USE LEASE OF REAL**
 10 **PROPERTY.**

11 *Section 315(a) of the National Aeronautics and Space*
 12 *Act of 1958 (42 U.S.C. 2459j(a)) is amended by striking*
 13 *“two (2)” and inserting “6”.*

14 **SEC. 416. NATIONAL AERONAUTICS AND SPACE FOUNDA-**
 15 **TION.**

16 *Title III of the National Aeronautics and Space Act*
 17 *of 1958 (42 U.S.C. 2451 et seq.), as amended by section*
 18 *409, is amended by adding at the end the following:*

19 **“SEC. 318. NATIONAL AERONAUTICS AND SPACE FOUNDA-**
 20 **TION.**

21 *“(a) IN GENERAL.—There is established a charitable*
 22 *and nonprofit corporation to be known as the National Aer-*
 23 *onautics and Space Foundation.*

24 *“(b) PURPOSES.—The purposes of the foundation*
 25 *are—*

1 “(1) to encourage private gifts of real and per-
2 sonal property or any income therefrom or other in-
3 terest therein for the benefit of, or in connection with,
4 NASA, its activities, or its services; and

5 “(2) to further the public’s knowledge of and in-
6 spiration by the Earth, the Earth’s atmosphere, space,
7 and celestial bodies in space, for current and future
8 generations of Americans.

9 “(c) BOARD OF DIRECTORS.—

10 “(1) IN GENERAL.—The Foundation shall be gov-
11 erned by a board of directors of 6 individuals ap-
12 pointed by the Administrator, in consultation with
13 the chairman and ranking member of the Senate
14 Committee on Commerce, Science, and Transpor-
15 tation and of the House of Representatives Committee
16 on Science. The Administrator shall designate 1 mem-
17 ber to serve as chair.

18 “(2) TERM OF OFFICE.—Each member shall
19 serve for a term of 6 years, except that of the members
20 first appointed to the board—

21 “(A) 1 member shall be appointed for a
22 term of 1 year;

23 “(B) 1 member shall be appointed for a
24 term of 2 years;

1 “(C) 1 member shall be appointed for a
2 term of 3 years;

3 “(D) 1 member shall be appointed for a
4 term of 4 years;

5 “(E) 1 member shall be appointed for a
6 term of 5 years; and

7 “(F) 1 member shall be appointed for a
8 term of 6 years.

9 “(3) VACANCIES.—An individual appointed to
10 fill a vacancy occurring other than by the expiration
11 of a term shall be appointed for the remainder of the
12 term of the former member the individual succeeds.

13 “(4) STATUS.—Membership on the Board shall
14 not be deemed to be an office within the meaning of
15 the statutes of the United States.

16 “(5) ADMINISTRATOR TO SERVE EX OFFICIO.—
17 The Administrator shall be a member of the board ex
18 officio but without the right to vote.

19 “(6) BY-LAWS.—Upon the appointment and
20 qualification of all members of the board, the board
21 may by majority vote adopt by-laws, adopt an official
22 seal (which shall be judicially recognized), and estab-
23 lish a schedule for meetings and a mechanism for
24 calling non-scheduled meetings. Except as provided in

1 *the preceding sentence and unless modified by the*
2 *Board—*

3 “(A) a majority of the members serving
4 shall constitute a quorum; and

5 “(B) the board shall meet at least once each
6 year and at the call of the chair.

7 “(7) *COMPENSATION AND EXPENSES.*—No com-
8 pensation shall be paid to the members of the Board
9 for their services as members, but they shall be reim-
10 bursed for actual and necessary traveling and subsist-
11 ence expenses incurred by them in the performance of
12 their duties as such members out of Foundation funds
13 available to the Board for such purposes.

14 “(d) *POWERS AND DUTIES.*—

15 “(1) *IN GENERAL.*—Except as otherwise provided
16 in this section, the Foundation shall have the powers
17 of, and be subject to the limitations of, a charitable
18 and nonprofit corporation provided under the laws of
19 the State (or the District of Columbia) in which it is
20 incorporated.

21 “(2) *PERPETUAL SUCCESSION; MEMBER LIABIL-*
22 *ITY.*—The Foundation shall have perpetual succes-
23 sion, with all the usual powers and obligations of a
24 corporation acting as a trustee, including the power
25 to sue and to be sued in its own name, but the mem-

1 *bers of the Board shall not be personally liable, except*
2 *for malfeasance.*

3 “(3) *CONTRACTS; GRANTS; OTHER INSTRU-*
4 *MENTS.—The Foundation shall have the power to*
5 *enter into contracts or grants, to execute instruments,*
6 *and generally to do any and all lawful acts necessary*
7 *or appropriate to its purposes as approved by the*
8 *board.*

9 “(4) *GIFTS; DEVISES; BEQUESTS.—*

10 “(A) *IN GENERAL.—Except as provided in*
11 *subparagraph (B), the Foundation may accept,*
12 *receive, solicit, hold, administer, and use any*
13 *gifts, devises, or bequests, either absolutely or in*
14 *trust, of real or personal property or any income*
15 *therefrom or other interest therein for the benefit*
16 *of or in connection with, NASA, its activities, or*
17 *its services, including a gift, devise, or bequest*
18 *that is encumbered, restricted, or subject to bene-*
19 *ficial interests of private persons if any current*
20 *or future interest therein is for the benefit of*
21 *NASA, its activities, or its services. For purposes*
22 *of this paragraph, an interest in real property*
23 *includes easements or other rights for preserva-*
24 *tion, conservation, protection, or enhancement by*
25 *and for the public of natural, scenic, historic,*

1 *scientific, educational, inspirational, or rec-*
2 *reational resources.*

3 “(B) *LIMITATION.—The Foundation may*
4 *not accept a gift, devise, or bequest which entails*
5 *any expenditure other than from the resources of*
6 *the Foundation.*

7 “(e) *TAX STATUS AND FUNCTIONS.—*

8 “(1) *TAX-EXEMPT STATUS OF FOUNDATION.—The*
9 *Foundation and any income or property received or*
10 *owned by it, and all transactions relating to such in-*
11 *come or property, shall be exempt from all Federal,*
12 *State, and local taxation with respect thereto.*

13 “(2) *IN-LIEU-OF PAYMENTS.—The Foundation*
14 *may, in the discretion of the board—*

15 “(A) *contribute toward the costs of local*
16 *government in amounts not in excess of those*
17 *which it would be obligated to pay such govern-*
18 *ment if it were not exempt from taxation under*
19 *paragraph (A) or by virtue of its being a chari-*
20 *table and nonprofit corporation; and*

21 “(B) *may contribute with respect to prop-*
22 *erty transferred to it and the income derived*
23 *therefrom if such agreement is a condition of the*
24 *transfer.*

1 “(3) *DEDUCTIBILITY OF CONTRIBUTIONS TO*
2 *FOUNDATION.—Gifts and other transfers made to or*
3 *for the use of the Foundation shall be regarded as con-*
4 *tributions, gifts, or transfers to or for the use of the*
5 *United States.*

6 “(f) *COOPERATIVE WORK WITH NASA.—*

7 “(1) *NASA SUPPORT CONTRACTS.—The Admin-*
8 *istrator may contract with the Foundation for the*
9 *performance of its duties and activities in support of*
10 *the Administration.*

11 “(2) *NASA MAY NOT ACCEPT FUNDS FROM FOUN-*
12 *DATION.—Neither NASA nor any employee thereof*
13 *may authorized to accept funds from the Foundation.*

14 “(3) *FOUNDATION FUNDING MAY NOT SUPPLE-*
15 *MENT APPROPRIATED FUNDS ACTIVITIES.—Except as*
16 *otherwise specifically provided by statute, the Foun-*
17 *ation may not obligate or expend funds to directly*
18 *supplement any program or activity of NASA, or any*
19 *other Federal agency, for which appropriated funds*
20 *may be obligated or expended.*

21 “(g) *DEFINITIONS.—In this section:*

22 “(1) *ADMINISTRATOR.—The term ‘Adminis-*
23 *trator’ means the Administrator of the National Aero-*
24 *navics and Space Administration.*

1 “(2) *BOARD.*—*The term ‘board’ means the board*
2 *of directors of the Foundation.*”

3 “(3) *FOUNDATION.*—*The term ‘Foundation’*
4 *means the National Aeronautics and Space Founda-*
5 *tion established by subsection (a).*”

6 “(4) *NASA.*—*The term ‘NASA’ means the Na-*
7 *tional Aeronautics and Space Administration.’.*”

8 **TITLE V—AERONAUTICS**
9 **RESEARCH AND DEVELOPMENT**

10 **SEC. 501. FINDINGS.**

11 The Congress finds the following:

12 (1) It is in the national interest to maintain
13 leadership in aeronautics and aviation. The United
14 States is in danger of losing its leadership in these
15 areas to international competitors.

16 (2) Past Federal investments in aeronautics re-
17 search and development have benefited the economy
18 and national security of the United States and the
19 quality of life of its citizens.

20 (3) Future growth in aviation increasingly will
21 be constrained by concerns related to aircraft noise,
22 emissions, fuel consumption, and air transportation
23 system congestion. International competitors have
24 recognized the importance of solving these problems

1 and have established aggressive agendas for address-
2 ing each of these concerns.

3 (4) An aggressive initiative by the Federal Gov-
4 ernment to develop technologies that would signifi-
5 cantly reduce aircraft noise, harmful emissions, and
6 fuel consumption would benefit the United States
7 by—

8 (A) improving the competitiveness of the
9 United States aviation industry;

10 (B) improving the quality of life for our
11 citizens by drastically reducing the level of noise
12 due to aircraft operations;

13 (C) reducing the rate at which fossil fuels
14 are consumed; and

15 (D) reducing the rate at which greenhouse
16 gases and other harmful gases and particulates
17 are added to the atmosphere by aircraft.

18 (5) Long-term progress in aeronautics and avia-
19 tion will require continued Federal investment in
20 fundamental aeronautical research.

21 (6) It is important for NASA to continue at a
22 healthy level its cooperative research efforts with the
23 Department of Defense regarding military aviation
24 technologies.

1 (7) The report entitled “The NASA Aero-
2 nautics Blueprint—Toward a Bold New Era of
3 Aviation” provides an excellent statement of the
4 problems facing aviation today, and presents an ex-
5 citing vision of what can be achieved by investments
6 in aeronautics research and technology. It does not,
7 however, provide a program plan to actually achieve
8 the vision, nor does it address the huge mismatch
9 between current NASA aeronautics funding and
10 what is required to realize the vision.

11 **SEC. 502. ENVIRONMENTAL AIRCRAFT RESEARCH AND DE-**
12 **VELOPMENT INITIATIVE.**

13 (a) IN GENERAL.—Not later than 1 year after the
14 date of enactment of this Act, the Administrator shall sub-
15 mit to Congress a comprehensive plan for the development
16 and demonstration, in a relevant environment, tech-
17 nologies that result in the following commercial aircraft
18 performance characteristics:

19 (1) NOISE.—Noise levels on takeoff and on air-
20 port approach and landing that do not exceed ambi-
21 ent noise levels in the absence of flight operations in
22 the vicinity of airports from which such commercial
23 aircraft would normally operate.

24 (2) FUEL EFFICIENCY.—A 10 percent improve-
25 ment in fuel efficiency, compared to aircraft in com-

1 mercial service as of the date of enactment of this
2 Act, in each of the following:

3 (A) Specific fuel consumption.

4 (B) Lift to drag ratio.

5 (C) Structural weight fraction.

6 (3) EMISSIONS.—Nitrogen oxides at less than 5
7 grams per kilogram of fuel burned.

8 (b) PLAN REQUIREMENTS.—The plan described in
9 subsection (a) shall include each of the following:

10 (1) Technological roadmaps for achieving each
11 of the performance characteristics specified in sub-
12 section (a).

13 (2) An estimate of the 10-year funding profile
14 required to achieve the objective specified in sub-
15 section (a).

16 (3) A plan for carrying out a formal quantifica-
17 tion of the estimated costs and benefits of each tech-
18 nological option selected for development beyond the
19 initial concept definition phase.

20 (4) A plan for transferring the technologies to
21 industry, including the identification of requirements
22 for prototype demonstrations, as appropriate.

1 **SEC. 503. CIVIL SUPERSONIC TRANSPORT RESEARCH AND**
2 **DEVELOPMENT INITIATIVE.**

3 (a) IN GENERAL.—Not later than 1 year after the
4 date of enactment of this Act, the Administrator shall sub-
5 mit to Congress a feasibility study addressing the need
6 for, and economic viability of, the development and dem-
7 onstration, in a relevant environment, technologies to en-
8 able overland flight of supersonic civil transport aircraft
9 with at least the following performance characteristics:

10 (1) Mach number of at least 1.6.

11 (2) Range of at least 4,000 nautical miles.

12 (3) Payload of at least 150 passengers.

13 (4) Lift to drag ratio of at least 9.0.

14 (5) Noise levels on takeoff and on airport ap-
15 proach and landing that meet community noise
16 standards in place at airports from which such com-
17 mercial supersonic aircraft would normally operate
18 at the time the aircraft would enter commercial serv-
19 ice.

20 (6) Shaped signature sonic boom overpressure
21 of less than 1.0 pounds per square foot.

22 (7) Nitrogen oxide emissions of less than 15
23 grams per kilogram of fuel burned.

24 (8) Water vapor emissions for stratospheric
25 flight of no greater than 1,400 grams per kilogram
26 of fuel burned.

1 (b) STUDY REQUIREMENTS.—The study described in
2 subsection (a) shall include—

3 (1) the feasibility of researching, developing and
4 producing a civil transport with the performance
5 characteristics specified in subsection (a);

6 (2) an estimate of the 10-year funding profile
7 required to achieve the objective specified in sub-
8 section (a);

9 (3) the feasibility of transferring the tech-
10 nologies to industry, including the identification of
11 requirements for prototype demonstrations, as ap-
12 propriate;

13 (4) the feasibility of research to quantify, with-
14 in 3 years after the date of enactment of this Act,
15 the limits on sonic boom parameters, such as over-
16 pressure and rise time, that would be acceptable to
17 the general public; and

18 (5) the feasibility of adjusting the noise reduc-
19 tion research and development activities as needed to
20 accommodate changes in community noise standards
21 that may occur over the lifetime of the initiative.

22 **SEC. 504. NASA AERONAUTICS SCHOLARSHIPS.**

23 (a) IN GENERAL.—The Administrator shall establish
24 a program of scholarships for full-time graduate students
25 who are United States citizens and are enrolled in, or have

1 been accepted by and have indicated their intention to en-
2 roll in, accredited Masters degree programs in aero-
3 nautical engineering at institutions of higher education (as
4 defined in section 101 of the Higher Education Act of
5 1965 (20 U.S.C. 1001)). Each such scholarship shall cover
6 the costs of room, board, tuition, and fees, and may be
7 provided for a maximum of 2 years.

8 (b) IMPLEMENTATION.—Not later than 1 year after
9 the date of enactment of this Act, the Administrator shall
10 publish regulations governing the scholarship program.

11 (c) COOPERATIVE TRAINING OPPORTUNITIES.—Stu-
12 dents who have been awarded a scholarship under this sec-
13 tion shall have the opportunity for paid employment at
14 one of the NASA Centers engaged in aeronautics research
15 and development during the summer prior to the first year
16 of the student's masters degree program, and between the
17 first and second year, if applicable.

18 **SEC. 505. ANNUAL REPORT ON FUNDING OF RESEARCH AND**
19 **DEVELOPMENT AND SCIENCE RELATING TO**
20 **AERONAUTICS.**

21 *Not later than November 30 each year, the Adminis-*
22 *trator shall submit to Congress a report setting forth the*
23 *following:*

1 (1) *The aggregate amount obligated and ex-*
2 *pended on research and development on aeronautics*
3 *during the preceding fiscal year.*

4 (2) *The aggregate amount obligated and ex-*
5 *pended on science and science-related activities on*
6 *aeronautics during such fiscal year.*

Calendar No. 814

108TH CONGRESS
2D SESSION

S. 2541

[Report No. 108-418]

A BILL

To reauthorize and restructure the National Aeronautics and Space Administration, and for other purposes.

NOVEMBER 19, 2004

Reported with amendments