

108TH CONGRESS
2D SESSION

S. 2541

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

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”.

6 (b) TABLE OF CONTENTS.—The table of contents for
7 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.

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.

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. Centennial challenge program.
- Sec. 409. Cultural assessment.
- Sec. 410. Sense of the Congress regarding competitive contracting.
- Sec. 411. Employees stationed in foreign countries.
- Sec. 412. Hubble Telescope.
- Sec. 413. Confirmation requirement.
- Sec. 414. National Aeronautics and Space Foundation Study.
- Sec. 415. Near-earth object survey.

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.

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.

18 (3) Basic and applied research in space science,
19 earth science, and aeronautics remain a significant
20 part of the Nation’s goals for the use and develop-
21 ment of space.

22 (4) America’s history is built on a desire to
23 open new frontiers and to seek new discoveries.

24 (5) Exploration, like investments in other Fed-
25 eral science and technology activities, is an invest-
26 ment in our future.

1 (6) Our Nation's investment in space has and
2 will continue to yield returns many fold, through a
3 tremendously promising program of discovery and
4 exploration that historically has provided benefits
5 that improve the quality of life on Earth, as well as
6 inspiring Americans and people throughout the
7 world.

8 (7) Over the next few years after the date of
9 enactment of this Act, NASA will face great cultural
10 and organizational change as it learns from the Co-
11 lumbia tragedy and implements the recommenda-
12 tions of the Columbia Accident Investigation Board,
13 the President's Commission on Moon, Mars, and Be-
14 yond, and ongoing reviews by the National Academy
15 of Sciences, Congress expects that the National Aer-
16 onautics and Space Administration will create and
17 support a robust, independent safety and technical
18 engineering authorities called for by the Columbia
19 Accident Investigation Board while striving to en-
20 sure safety and the protection of human life in all
21 aspects of design, development, test, launch, and op-
22 erations. While human space exploration will always
23 be risky, the management and organization of the
24 National Aeronautics and Space Administration

1 itself cannot be the root cause of space accidents in
2 the future.

3 **TITLE I—AUTHORIZATION OF**
4 **APPROPRIATIONS**

5 **SEC. 101. EXPLORATION CAPABILITIES.**

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

9 (1) Fiscal year 2005:

10 (A) International Space Station,
11 \$1,863,000,000.

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

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

14 (D) Transportation systems,
15 \$689,000,000.

16 (E) Human and robotic technology,
17 \$1,079,000,000, of which \$20,000,000 shall be
18 for the Centennial Challenges Program estab-
19 lished under section 318 of the National Aero-
20 nautics and Space Act of 1958 as added by sec-
21 tion 408 of this Act.

22 (2) Fiscal year 2006:

23 (A) International Space Station,
24 \$1,764,000,000.

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

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

2 (D) Transportation systems,
3 \$1,261,000,000.

4 (E) Human and robotic technology,
5 \$1,302,500,000, of which \$25,000,000 shall be
6 for the Centennial Challenges Program estab-
7 lished under section 318 of the National Aero-
8 nautics and Space Act of 1958 as added by sec-
9 tion 408 of this Act.

10 (3) Fiscal year 2007:

11 (A) International Space Station,
12 \$1,780,000,000.

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

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

15 (D) Transportation systems,
16 \$1,624,000,000.

17 (E) Human and robotic technology,
18 \$1,301,000,000, of which \$25,000,000 shall be
19 for the Centennial Challenges Program estab-
20 lished under section 318 of the National Aero-
21 nautics and Space Act of 1958 as added by sec-
22 tion 408 of this Act.

23 (4) Fiscal year 2008:

24 (A) International Space Station,
25 \$1,779,000,000.

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

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

3 (D) Transportation systems,
4 \$1,423,000,000.

5 (E) Human and robotic technology,
6 \$1,369,600,000, of which \$10,000,000 shall be
7 for the Centennial Challenges Program estab-
8 lished under section 318 of the National Aero-
9 nautics and Space Act of 1958 as added by sec-
10 tion 408 of this Act.

11 (5) Fiscal year 2009:

12 (A) International Space Station,
13 \$2,115,000,000.

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

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

16 (D) Transportation systems,
17 \$1,863,000,000.

18 (E) Human and robotic technology,
19 \$1,433,000,000.

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

21 Subject to the limitation in section 105, the following
22 amounts are authorized to be appropriated to NASA for
23 the following programs and fiscal years:

24 (1) Fiscal year 2005:

1 (A) Space science, \$4,138,000,000, of
2 which \$20,000,000 shall be for activities under
3 section 416 of this Act.

4 (B) Earth science, \$1,485,000,000, of
5 which \$5,000,000 shall be for abrupt climate
6 change research.

7 (C) Biological and physical research,
8 \$1,049,000,000.

9 (D) Aeronautics Technology,
10 \$919,000,000.

11 (E) Education, \$169,000,000, of which
12 \$500,000 shall be for scholarships under sec-
13 tion 504.

14 (2) Fiscal year 2006:

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

18 (B) Earth science, \$1,390,000,000, of
19 which \$5,000,000 shall be for abrupt climate
20 change research.

21 (C) Biological and physical research,
22 \$950,000,000.

23 (D) Aeronautics Technology,
24 \$957,000,000.

1 (E) Education, \$169,000,000, of which
2 \$750,000 shall be for scholarships under sec-
3 tion 504.

4 (3) Fiscal year 2007:

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

6 (B) Earth science, \$1,368,000,000 of
7 which \$5,000,000 shall be for abrupt climate
8 change research.

9 (C) Biological and physical research,
10 \$938,000,000.

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

12 (E) Education, \$171,000,000, of which
13 \$1,000,000 shall be for scholarships under sec-
14 tion 504.

15 (4) Fiscal year 2008:

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

17 (B) Earth science, \$1,343,000,000 of
18 which \$5,000,000 shall be for abrupt climate
19 change research.

20 (C) Biological and physical research,
21 \$941,000,000.

22 (D) Aeronautics Technology,
23 \$926,000,000.

1 (E) Education, \$170,000,000, of which
 2 \$1,000,000 shall be for scholarships under sec-
 3 tion 504.

4 (5) Fiscal year 2009:

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

6 (B) Earth science, \$1,474,000,000 of
 7 which \$5,000,000 shall be for abrupt climate
 8 change research.

9 (C) Biological and physical research,
 10 \$944,000,000.

11 (D) Aeronautics Technology,
 12 \$942,000,000.

13 (E) Education, \$170,000,000, of which
 14 \$1,000,000 shall be for scholarships under sec-
 15 tion 504.

16 **SEC. 103. INSPECTOR GENERAL.**

17 Subject to the limitation in section 105, there are au-
 18 thorized to be appropriated to NASA for the Office of In-
 19 spector General—

20 (1) for fiscal year 2005, \$28,000,000,

21 (2) for fiscal year 2006, \$29,000,000,

22 (3) for fiscal year 2007, \$30,000,000,

23 (4) for fiscal year 2008, \$31,000,000, and

24 (5) for fiscal year 2009, \$32,000,000.

1 **SEC. 104. INDEPENDENT TECHNICAL ENGINEERING AU-**
2 **THORITY AUTHORIZATIONS.**

3 Subject to the limitation in section 105, there are au-
4 thorized to be appropriated to NASA for the technical en-
5 gineering authority established under section 202 of this
6 Act—

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

12 **SEC. 105. TOTAL AUTHORIZATIONS.**

13 Notwithstanding any other provision of this title, the
14 total amount authorized to be appropriated to NASA
15 under this Act, shall not exceed—

- 16 (1) for fiscal year 2005, \$16,245,000,000;
17 (2) for fiscal year 2006, \$17,125,000,000;
18 (3) for fiscal year 2007, \$17,727,584,000;
19 (4) for fiscal year 2008, \$17,581,562,000; and
20 (5) for fiscal year 2009, \$17,676,948,000.

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-
26 sons-learned and best practices program to ensure that

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

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

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

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

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

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

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

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

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

22 (4) is responsible for all technical standards
 23 and all waivers to them for the Space Shuttle pro-
 24 gram and any other program designated by the Ad-
 25 ministrator; and

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

6 (b) FUNCTIONS.—The Authority established under
7 subsection (a) shall—

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

11 (2) be the sole waiver-granting authority for all
12 technical standards;

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

15 (4) own the failure mode, effects analysis and
16 hazard reporting systems;

17 (5) conduct integrated hazard analysis;

18 (6) decide what is and is not an anomalous
19 event;

20 (7) independently verify launch readiness;

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

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

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

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

10 **SEC. 203. SAFETY AND INTEGRATION.**

11 (a) SAFETY AND MISSION ASSURANCE.—The Admin-
12 istrator shall provide the Office of Safety and Mission As-
13 surance—

14 (1) direct line authority over the entire Space
15 Shuttle safety organization; and

16 (2) independent funding.

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

21 (c) SUBMISSION OF IMPLEMENTATION PLANS TO
22 CONGRESS.—Within 180 days after the date of enactment
23 of this Act, the Administrator shall submit to the Senate
24 Committee on Commerce, Science, and Transportation
25 and the House of Representatives Committee on Science

1 a plan for defining, establishing, transitioning, and imple-
2 menting—

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

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

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

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

18 (b) PLAN TO BE SUBMITTED.—If the Administrator
19 determines that it is necessary to operate the Space Shut-
20 tle orbiters after 2010, the Administrator shall submit
21 plans, including costs and scheduling, before 2009 for re-
22 certifying the Space Shuttle orbiters consistent with the
23 requirements of subsection (a), before commencing any
24 such recertification to the Senate Committee on Com-
25 merce, Science, and Transportation and the House of Rep-

1 representatives Committee on Science. The plan shall be ap-
2 proved by the Technical Engineering Authority as estab-
3 lished under section 202 of this Act.

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

8 (1) review of drawings for accuracy;

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

11 (3) incorporation of drawing changes.

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

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

22 **SEC. 206. LAUNCH PLANS FOR INTERNATIONAL SPACE STA-**
23 **TION.**

24 Within 60 days after the date of enactment of this
25 Act, the Administrator shall submit to Senate Committee

1 on Commerce, Science, and Transportation and the House
 2 of Representatives Committee on Science plans for launch-
 3 ing assembly elements, crew, and supplies to the Inter-
 4 national Space Station from the year 2010 through the
 5 year 2014.

6 **TITLE III—NASA’S NEW VISION**

7 **SEC. 301. EXPLORATION INITIATIVE.**

8 The National Aeronautics and Space Act of 1985 (42
 9 U.S.C. 2451 et seq.) is amended by adding at the end
 10 the following:

11 **“TITLE V—SOLAR SYSTEM** 12 **EXPLORATION**

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

14 “(a) IN GENERAL.—The Administrator of the Na-
 15 tional Aeronautics and Space Administration shall estab-
 16 lish a program—

17 “(1) to implement a sustained and affordable
 18 human and robotic exploration of the solar system
 19 and beyond;

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

24 “(3) to develop the innovative technologies,
 25 knowledge, and infrastructures both to explore and

1 to support decisions about the destinations for
 2 human exploration; and

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

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

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

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

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

19 “(4) take the steps necessary to return humans
 20 to Earth’s moon as early as 2015 and no later than
 21 2020, and use the Moon as a stepping-stone for mis-
 22 sions to Mars and other destinations in space.”.

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

24 (a) REPORT ON ACTIVITIES AND FUNDING BUDG-
 25 ETED FOR FISCAL YEAR 2005.—Within 60 days after the

1 date of enactment of this Act, the Administrator shall
 2 transmit a report to the Senate Committee on Commerce,
 3 Science, and Transportation and the House of Represent-
 4 atives Committee on Science that identifies all activities
 5 and funding, using full cost accounting, in the fiscal year
 6 2005 budget request that support human missions to the
 7 Moon and Mars.

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

12 **SEC. 303. SYSTEMS REQUIREMENTS DOCUMENT.**

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

18 (1) the baseline technical requirements for
 19 NASA to conduct a human mission to the Moon by
 20 2014 and the eventual human mission to the planet
 21 Mars; and

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

24 (b) REPORT TO BE COMBINED WITH SECTION 304
 25 REPORT.—The Administrator shall combine the report re-

1 quired under subsection (a) with the life cycle cost esti-
2 mate required by section 304 and submit them as a single
3 document.

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

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

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

24 (c) REVISED ESTIMATES.—After the first life cycle
25 cost estimate under subsection (a) has been submitted to

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

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

10 (a) IN GENERAL.—The Administrator and the Direc-
11 tor of the Office of Space Commercialization of the De-
12 partment of Commerce shall develop a commercialization
13 plan to support the human missions to the Moon and
14 Mars. The plan shall identify opportunities for the private
15 sector to participate in the future missions, including op-
16 portunities for partnership between NASA and the private
17 sector in the development of technologies and services.

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

23 (c) REPORT TO BE COMBINED WITH SECTION 306
24 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 The assessment shall include the ability of private industry
10 to support—

11 (1) the definition of basic program require-
12 ments;

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

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

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

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

24 (a) QUARTERLY LIFE CYCLE COST REPORTS.—

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

20 (2) COST OVERRUN REPORTS.—If at any time
21 during a fiscal year the program manager of a major
22 system referred to in paragraph (1) has reasonable
23 cause to believe that the total life cycle cost has ex-
24 ceeded the applicable percentage increase specified
25 in subsection (b), the manager shall immediately

1 submit to the Administrator a report containing the
2 information, as of the date of such report, required
3 by paragraph (1).

4 (3) SCHEDULE OR SYSTEM CHANGES.—The
5 program manager shall also include in each report
6 submitted pursuant to paragraph (1) or (2) any
7 change from schedule milestones or system perform-
8 ances requirements with respect to such system that
9 are known, expected, or anticipated by such man-
10 ager.

11 (b) STOP-LOSS PROVISIONS FOR 15 PERCENT COST
12 OVERRUNS.—

13 (1) SYSTEMS.—If the Administrator deter-
14 mines, on the basis of any report submitted to him
15 pursuant to subsection (a), that the total life cycle
16 cost (including any increase for expected inflation)
17 for any major system has increased by more than 15
18 percent over the total life cycle cost for such system,
19 then (except as provided in paragraph (2)) no addi-
20 tional funds may be obligated in connection with
21 such system after the end of the 30-day period be-
22 ginning on the day on which the Administrator
23 makes such determination. The Administrator shall
24 notify the Senate Committee on Commerce, Science,
25 and Transportation and the House of Representa-

1 tives Committee on Science promptly in writing of
2 such increase upon making such a determination
3 with respect to any such major system and shall in-
4 clude in such notice the date on which such deter-
5 mination was made.

6 (2) EXCEPTION.—The prohibition contained in
7 paragraph (1) on the obligation of funds shall not
8 apply in the case of any major system to which such
9 prohibition would otherwise apply if the Adminis-
10 trator submits to the Senate Committee on Com-
11 merce, Science, and Transportation and the House
12 of Representatives Committee on Science, before the
13 end of the 30-day period referred to in paragraph
14 (1), a written report which includes—

15 (A) a statement of the reasons for such in-
16 crease in total life cycle cost or procurement
17 cost;

18 (B) the identities of the program officers
19 responsible for program management and cost
20 control of the major system;

21 (C) the action taken and proposed to be
22 taken to control future cost growth of such sys-
23 tem;

24 (D) any changes made in the performance
25 or schedule milestones of such system and the

1 degree to which such changes have contributed
2 to the increase in total life cycle cost or pro-
3 curement cost;

4 (E) the identities of the principal contrac-
5 tors for the major system; and

6 (F) an index of all testimony and docu-
7 ments formally provided to the Congress on the
8 estimated cost of such system.

9 (c) STOP-LOSS PROVISION FOR 25 PERCENT COST
10 OVERRUNS.—

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

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

14 (i) that the total life cycle cost (in-
15 cluding an increase for expected inflation)
16 for a major system has increased by more
17 than 25 percent over the total life cycle
18 cost, or

19 (ii) that the current procurement cost
20 of such system has increased by more than
21 25 percent over the initial procurement
22 cost, in the case of any such system for
23 which procurement funds are authorized to
24 be appropriated by this Act, and

1 (B) has submitted a report to the Senate
2 Committee on Commerce, Science, and Trans-
3 portation and the House of Representatives
4 Committee on Science with respect to such sys-
5 tem pursuant to subsection (b)(3),
6 then (except as provided in paragraph (2)) no addi-
7 tional funds may be obligated in connection with
8 such system after the end of the 60-day period be-
9 ginning on the day on which the Administrator
10 makes such determination.

11 (2) EXCEPTION.—The prohibition contained in
12 paragraph (1) on the obligation of funds shall not
13 apply in the case of a major system to which such
14 prohibition would otherwise apply if the Adminis-
15 trator submits to the Senate Committee on Com-
16 merce, Science, and Transportation and the House
17 of Representatives Committee on Science, before the
18 end of the 60-day period referred to in such para-
19 graph, a written certification stating that—

20 (A) such system is essential to the future
21 of the Exploration Initiative;

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

1 (C) the new estimates of the total program
2 acquisition cost or procurement cost are reason-
3 able; and

4 (D) the management structure for such
5 major system is adequate to manage and con-
6 trol total program acquisition cost or procure-
7 ment cost.

8 **SEC. 308. INTERNATIONAL COOPERATION.**

9 Within 180 days after the date of enactment of this
10 Act, NASA shall provide a report to the Senate Committee
11 on Commerce, Science, and Transportation and the House
12 of Representatives Committee on Science on opportunities
13 for international cooperation from all space faring nations
14 on a human mission to the Moon and Mars. The report
15 shall present a variety of options for the United States
16 to enter into partnership with other nations in pursuit of
17 the program established by section 301 of this Act. The
18 report shall be developed in cooperation with the Depart-
19 ment of State and other appropriate agencies.

20 **SEC. 309. TECHNOLOGY TRANSFER AND LICENSING OF-**
21 **FICE.**

22 (a) ESTABLISHMENT OF THE OFFICE.—The Admin-
23 istrator shall establish a Technology Transfer and Licens-
24 ing Office within the program established under section
25 301. The Office shall—

1 (1) facilitate the transfer of technologies into
2 and out of the agency; and

3 (2) handle the licensing activities of the agency.

4 (b) TECHNOLOGY TRANSFER PLAN.—Not later than
5 180 days after the date of enactment of this Act, the Ad-
6 ministrators shall develop and implement a technology
7 transfer plan for the program. The technology transfer
8 plan shall include—

9 (1) a framework of oversight and administrative
10 requirements for carrying out technology transfer
11 activities;

12 (2) a description of how the program will iden-
13 tify, assess, license, and monitor research and devel-
14 opment projects that the agency and its related fa-
15 cilities determine have a potential for public and
16 commercial application; and

17 (3) procedures for the dissemination of infor-
18 mation on Federally owned or originated products,
19 processes, and services to interested parties.

20 (c) PLAN AND REPORT.—The Administrator shall
21 transmit a copy of the plan, together with recommenda-
22 tions (including legislative recommendations) if any, to the
23 Senate Committee on Commerce, Science, and Transpor-
24 tation and the House of Representatives Committee on

1 Science within 1 year after the date of enactment of this
2 Act.

3 **SEC. 310. ROBOTIC LUNAR MISSIONS.**

4 Within 6 months after the date of enactment of this
5 Act, the Administrator shall submit a plan to the Senate
6 Committee on Commerce, Science, and Transportation
7 and the House of Representatives Committee on Science
8 for the robotic lunar missions to the Earth's moon within
9 3 years. The plan should include the specific science and
10 technical goals to be met, the role of scientific peer review
11 panels in selecting missions, and the use of the private
12 sector to accomplish the goals of the mission.

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

14 The Administrator, in consultation with the Secretary
15 of State, shall submit a legal review and interpretation of
16 laws and treaties governing the exploration of space and
17 the possible ownership of resources on the Moon and
18 Mars. The review should determine if any changes or new
19 agreements are needed to reflect the growing role of the
20 private sector in space exploration. The review shall be
21 submitted to the Senate Committee on Commerce,
22 Science, and Transportation and the House of Represent-
23 atives Committee on Science within 90 days of enactment
24 of this Act.

1 **SEC. 312. NASA ENGINEERING SCHOOL.**

2 (a) ESTABLISHMENT.—The Administrator shall es-
 3 tablish a NASA Engineering School. The school shall be
 4 available to all employees of NASA and its contractors to
 5 facilitate increased knowledge of engineering and scientific
 6 principles to further the missions of NASA.

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

12 (c) SUBMISSION OF PLAN.—Within 180 days after
 13 the date of enactment of this Act, the Administrator shall
 14 submit to the Senate Committee on Commerce, Science,
 15 and Transportation and the House of Representatives
 16 Committee on Science a plan for establishing the school.

17 **TITLE IV—MISCELLANEOUS**

18 **SEC. 401. INTEGRATED FINANCIAL MANAGEMENT PRO-**
 19 **GRAM.**

20 Within 120 days after the date of enactment of this
 21 Act, the Chief Financial officer shall provide a report to
 22 the Senate Committee on Commerce, Science, and Trans-
 23 portation and the House of Representatives Committee on
 24 Science on NASA's ability to improve its financial man-
 25 agement. The report shall include—

1 (1) a statement of the status of the implemen-
2 tation of the integrated financial management pro-
3 gram; and

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

6 **SEC. 402. FUTURE LAUNCH PLAN.**

7 Within 180 days after the date of enactment of this
8 Act, the Administrator shall transmit to the Senate Com-
9 mittee on Commerce, Science, and Transportation and the
10 House of Representatives Committee on Science a plan for
11 future launches of space vehicles that includes an estimate
12 of costs, schedules, and factors relevant to other United
13 States space sectors. The plan should address assessments
14 of reusable components and approaches that can lead to
15 significant cost reductions in United States access to
16 space.

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

18 It is the sense of the Congress that NASA should
19 purchase commercially available space goods and services
20 to the fullest extent feasible in support of the human mis-
21 sions to the Moon and Mars and shall not conduct activi-
22 ties with commercial applications that preclude or deter
23 commercial space activities except for reasons of national
24 security or public safety. For purposes of this section—

1 (1) a space good or service shall be considered
 2 to be commercially available if it is offered by a com-
 3 mercial provider, or if it could be supplied by a com-
 4 mercial provider in response to a Government pro-
 5 curement request; and

6 (2) a purchase shall be considered to be feasible
 7 if it meets mission requirements in a cost-effective
 8 manner while offering the same or a higher level of
 9 safety.

10 **SEC. 404. INDUSTRY ADVISORY BOARD.**

11 The Administrator shall establish an Industry Advi-
 12 sory Board to review and discuss opportunities for the pri-
 13 vate sector to invest in and take advantage of activities
 14 at NASA. The Board shall meet at least twice a year with
 15 the Administrator or his designee.

16 **SEC. 405. REQUIREMENT FOR INDEPENDENT COST ANAL-**
 17 **YSIS.**

18 Section 301 of the National Aeronautics and Space
 19 Administration Authorization Act of 2000 (42 U.S.C.
 20 2459g) is amended—

21 (1) by striking the first sentence of subsection
 22 (a) and inserting “For each project that is projected
 23 to cost more than \$250,000,000 in total project
 24 costs, the Chief Financial Officer for the National
 25 Aeronautics and Space Administration shall conduct

1 and consider an independent life-cycle cost analysis
 2 and report the results of that analysis to the Senate
 3 Committee on Commerce, Science, and Transpor-
 4 tation and the House of Representatives Committee
 5 on Science as soon as practicable after the contract,
 6 or contracts, for the project have been awarded.”;
 7 and

8 (2) by striking subsection (b) and inserting the
 9 following:

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

12 “(1) all activity in the life cycle of a program
 13 or project after preliminary design, independent as-
 14 sessment of the preliminary design, and approval to
 15 proceed into implementation; and

16 “(2) design, development, testing, certification,
 17 launch, operations, and disposal.”.

18 **SEC. 406. ELECTRONIC ACCESS TO BUSINESS OPPORTUNI-**
 19 **TIES.**

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

1 **“SEC. 316. ELECTRONIC ACCESS TO BUSINESS OPPORTUNI-**
2 **TIES.**

3 “(a) IN GENERAL.—The Administrator may imple-
4 ment a pilot program providing for reduction in the wait-
5 ing period between publication of notice of a proposed con-
6 tract action and release of the solicitation for procure-
7 ments conducted by the National Aeronautics and Space
8 Administration.

9 “(b) APPLICABILITY.—The program implemented
10 under subsection (a) shall apply to non-commercial acqui-
11 sitions—

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

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

17 “(3) for which a notice is required by sub-
18 section 8(e) of the Small Business Act (15 U.S.C.
19 637(e)) and subsection 18(a) of the Office of Fed-
20 eral Procurement Policy Act (41 U.S.C. 416(a)).

21 “(c) NOTICE.—

22 “(1) Notice of acquisitions subject to the pro-
23 gram authorized by this section shall be made acces-
24 sible through the single Government-wide point of
25 entry designated in the Federal Acquisition Regula-
26 tion, consistent with paragraph 30(c)(4) of the Of-

1 fice of Federal Procurement Policy Act (41 U.S.C.
2 426(c)(4)).

3 “(2) Providing access to notice in accordance
4 with paragraph (1) satisfies the publication require-
5 ments of subsection 8(e) of the Small Business Act
6 (15 U.S.C. 637(e)) and subsection 18(a) of the Of-
7 fice of Federal Procurement Policy Act (41 U.S.C.
8 416(a)).

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

15 “(e) WAIT PERIODS.—

16 “(1) Whenever a notice required by section
17 8(e)(1)(A) of the Small Business Act (15 U.S.C
18 637(e)(1)(A)) and section 18(a) of the Office of
19 Federal Procurement Policy Act (41 U.S.C. 416(a))
20 is made accessible in accordance with subsection (c)
21 of this section, the wait period set forth in section
22 8(e)(3)(A) of the Small Business Act (15 U.S.C.
23 637(e)(3)(A)) and section 18(a)(3)(A) of the Office
24 of Federal Procurement Policy Act (41 U.S.C.
25 416(a)(3)(A)), shall be reduced by 5 days. If the so-

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

14 “(2) When a notice and solicitation are made
 15 accessible simultaneously and the wait period is
 16 waived pursuant to paragraph (1), the deadline for
 17 the submission of bids or proposals shall be not less
 18 than 5 days greater than the minimum deadline set
 19 forth in section 8(e)(3)(B) of the Small Business
 20 Act (15 U.S.C. 637(e)(3)(B)) and section
 21 18(a)(3)(B) of the Office of Federal Procurement
 22 Policy Act (41 U.S.C. 416(a)(3)(B)).

23 “(f) IMPLEMENTATION.—

24 “(1) Nothing in this section shall be construed
 25 as modifying regulatory requirements set forth in

1 the Federal Acquisition Regulation, except with re-
2 spect to—

3 “(A) the applicable wait period between
4 publication of notice of a proposed contract ac-
5 tion and release of the solicitation; and

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

9 “(2) This section shall not apply to the extent
10 the President determines it is inconsistent with any
11 international agreement to which the United States
12 is a party.

13 “(g) STUDY.—Within 18 months after the effective
14 date of the program, NASA shall evaluate the impact of
15 the pilot program and submit to the Senate Committee
16 on Commerce, Science, and Transportation and the House
17 of Representatives Committee on Science a report that—

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

21 “(2) at the discretion of the President, address-
22 es whether the pilot program should be made perma-
23 nent, continued as a test program, or allowed to ex-
24 pire.

25 “(h) EFFECTIVE DATE.—

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

6 “(2) NASA shall publish proposed revisions to
7 the NASA Federal Acquisition Regulation Supple-
8 ment as may be necessary to implement this section
9 in the Federal Register not later than 120 days
10 after the date of enactment of the National Aero-
11 nautics and Space Administration Authorization Act
12 of 2004. The proposed regulations shall be made
13 available for public comment for a period of not less
14 than 60 days.

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

19 “(i) EXPIRATION OF AUTHORITY.—The authority to
20 conduct this pilot program under subsection (a) and to
21 award contracts under such program shall expire 2 years
22 after the effective date established in the final regulations
23 published in the Federal Register.”.

1 **SEC. 407. RETROCESSION OF JURISDICTION.**

2 Title III of the National Aeronautics and Space Act
3 of 1958 (42 U.S.C. 2451 et seq.), as amended by section
4 406, is amended by adding at the end the following:

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

6 “Notwithstanding any other provision of law, the Ad-
7 ministrator may, whenever the Administrator considers it
8 desirable, relinquish to a State all or part of the jurisdic-
9 tion of the United States over lands or interests under
10 the Administrator’s control in that State. Relinquishment
11 of jurisdiction under this section may be accomplished—

12 “(1) by filing with the Governor of the State
13 concerned a notice of relinquishment to take effect
14 upon acceptance thereof; or

15 “(2) as the laws of the State may otherwise
16 provide.”.

17 **SEC. 408. CENTENNIAL CHALLENGE PROGRAM.**

18 Title III of the National Aeronautics and Space Act
19 of 1958 (42 U.S.C. 2451 et seq.), as amended by section
20 407, is amended by adding at the end the following:

21 **“SEC. 318. AUTHORITY FOR COMPETITIVE PRIZE AWARD**
22 **PROGRAM TO ENCOURAGE DEVELOPMENT**
23 **OF ADVANCED SPACE AND AERONAUTICAL**
24 **TECHNOLOGIES.**

25 “(a) PROGRAM AUTHORIZED.—The Administrator
26 may carry out a program, known as the Centennial Chal-

1 lenge Program, to award prizes to stimulate innovation in
2 basic and applied research, technology development, and
3 prototype demonstration that have the potential for appli-
4 cation to the performance of the space and aeronautical
5 activities of the Administration.

6 “(b) PROGRAM REQUIREMENTS.—

7 “(1) COMPETITIVE PROCESS.—Recipients of
8 prizes under the program under this section shall be
9 selected through one or more competitions conducted
10 by the Administrator.

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

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

15 “(1) REGISTRATION.—Each potential recipient
16 of a prize in a competition under the program under
17 this section shall register for the competition.

18 “(2) ASSUMPTION OF RISK.—In registering for
19 a competition under paragraph (1), a potential re-
20 cipient of a prize shall assume any and all risks, and
21 waive claims against the United States Government
22 and its related entities (including contractors and
23 subcontractors at any tier, suppliers, users, cus-
24 tomers, cooperating parties, grantees, investigators,
25 and detailees), for any injury, death, damage, or loss

1 of property, revenue, or profits, whether direct, indi-
2 rect, or consequential, arising from participation in
3 the competition, whether such injury, death, dam-
4 age, or loss arises through negligence or otherwise,
5 except in the case of willful misconduct.

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

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

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

12 When a prize is offered, the total amount of funding
13 made available for that prize shall be deposited in
14 the Centennial Challenge Trust Fund. If funding ex-
15 pires before a prize is awarded, the Administrator
16 shall deposit additional funds in the account to en-
17 sure the availability of funding for all prizes. If a
18 prize competition expires before its goals are met,
19 the Administrator may redesignate those funds for a
20 new challenge, but any redesignated funds will be
21 considered as newly deposited for the purposes of
22 paragraph (3). All cash awards made under this sec-
23 tion shall be paid from that account.

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

4 “(4) MAXIMUM PRIZE.—No competition under
5 the program may result in the award of more than
6 \$1,000,000 in cash prizes without the approval of
7 the Administrator.

8 “(e) RELATIONSHIP TO OTHER AUTHORITY.—The
9 Administrator may exercise the authority in this section
10 in conjunction with or in addition to any other authority
11 of the Administrator to acquire, support, or stimulate
12 basic and applied research, technology development, or
13 prototype demonstration projects.”.

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

15 (a) IN GENERAL.—The Administrator shall conduct
16 a NASA-wide assessment to identify and define areas of
17 cultural and organizational changes and develop a NASA-
18 wide plan—

19 (1) to create a culture that promotes effective
20 communication and encourages expression of dis-
21 senting views, including—

22 (A) improving the efficiency of information
23 and knowledge structures; and

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

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

4 (A) establishing clear lines of authority,
5 accountability, and responsibility of individual
6 employees, work groups, and leadership; and

7 (B) promoting an understanding of pro-
8 gram interdependencies and implications of
9 management decisions across programs;

10 (3) to develop and implement consistent proce-
11 dures for leadership, management, and employee
12 training and skill development, including hiring, pro-
13 motion, and succession planning; and

14 (4) to create a robust system that institutional-
15 izes checks and balances to ensure the maintenance
16 of NASA’s technical and safety standards.

17 (b) REPORT AND PLAN.—Within 6 months after the
18 date of enactment of this Act, the Administrator shall sub-
19 mit to the Senate Committee on Commerce, Science, and
20 Transportation and the House of Representatives Com-
21 mittee on Science a report on the assessment conducted
22 under subsection (a), including areas identified for cul-
23 tural and organizational changes and strategies and
24 timelines for implementing the requirements of subsection
25 (a).

1 **SEC. 410. SENSE OF THE CONGRESS REGARDING COMPETITIVE CONTRACTING.**
2

3 (a) FINDING.—The Congress finds that competition
4 in contracting improves the efficiency and economy of the
5 Government because it generally results in better products
6 and services at lower prices.

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

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

11 (2) take action to ensure that a structured and
12 systemic due diligence process exists when making
13 strategic decisions to limit competition for contract
14 actions that are of a substantial dollar value or have
15 significant programmatic impacts to the Agency; and

16 (3) take measures to enhance the robustness of
17 its procurement advocacy programs (i.e., Ombuds-
18 man Program and Competition Advocacy Program),
19 which are intended to promote full and open com-
20 petition and improve the efficiency, economy, and in-
21 tegrity of the acquisition process.

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

23 Title III of the National Aeronautics and Space Act
24 of 1958 (42 U.S.C. 2451 et seq.), as amended by section
25 408, 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 “(a) IN GENERAL.—The Administrator, in the Ad-
5 ministrator’s discretion, may provide to civilian and mili-
6 tary personnel, if the duty station of such personnel is out-
7 side the United States, allowances and benefits com-
8 parable to those provided by the Secretary of State to offi-
9 cers and employees of the Foreign Service under chapter
10 9 of title I of the Foreign Service Act of 1980 (22 U.S.C.
11 4081 et seq.).

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

22 “(c) RELATIONSHIP TO OTHER AUTHORITY.—The
23 authority granted to the Administrator by this section is
24 in addition to authority granted to the Administrator by
25 any other provision of law, and nothing in this section
26 shall be construed to impair or otherwise affect the au-

1 thority of the Administrator under any other provision of
2 law.

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

6 “(e) DEFINITIONS.—In this section:

7 “(1) UNITED STATES.—The term ‘United
8 States’ means the 50 States and the District of Co-
9 lumbia.

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

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

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

20 “(f) TAXATION.—Section 912(a) of the Internal Rev-
21 enue Code of 1986 shall apply with respect to amounts
22 received by civilian personnel or military personnel as al-
23 lowances or otherwise under this section in the same man-
24 ner as it applies with respect to amounts received by civil-

1 ian officers or employees as allowances or otherwise under
2 chapter 9 of title I of the Foreign Service Act of 1980.”.

3 **SEC. 412. HUBBLE TELESCOPE.**

4 Within 60 days after the National Academy of
5 Sciences issues its study on the future of the Hubble
6 Space Telescope, the Administrator, shall submit a plan
7 to the Senate Committee on Commerce, Science, and
8 Transportation and the House of Representatives Com-
9 mittee on Science on the future of the Hubble space tele-
10 scope. The plan shall include options for the future serv-
11 icing of the facility along with the associated costs.

12 **SEC. 413. CONFIRMATION REQUIREMENT.**

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

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

22 **SEC. 414. 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 (a) CONGRESSIONAL DECLARATION OF POLICY AND
 16 PURPOSE.—Section 102 of the National Aeronautics and
 17 Space Act of 1958 (42 U.S.C. 2451) is amended—

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

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

22 “(g) The Congress declares that the general welfare
 23 and security of the United States require that the unique
 24 competence of the National Aeronautics and Space Ad-
 25 ministration in science and engineering systems be di-

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

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

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

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

21 (2) a summary of all amounts obligated or ex-
22 pended by the Administration during such fiscal
23 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 **TITLE V—AERONAUTICS**
5 **RESEARCH AND DEVELOPMENT**

6 **SEC. 501. FINDINGS.**

7 The Congress finds the following:

8 (1) It is in the national interest to maintain
9 leadership in aeronautics and aviation. The United
10 States is in danger of losing its leadership in these
11 areas to international competitors.

12 (2) Past Federal investments in aeronautics re-
13 search and development have benefited the economy
14 and national security of the United States and the
15 quality of life of its citizens.

16 (3) Future growth in aviation increasingly will
17 be constrained by concerns related to aircraft noise,
18 emissions, fuel consumption, and air transportation
19 system congestion. International competitors have
20 recognized the importance of solving these problems
21 and have established aggressive agendas for address-
22 ing each of these concerns.

23 (4) An aggressive initiative by the Federal Gov-
24 ernment to develop technologies that would signifi-
25 cantly reduce aircraft noise, harmful emissions, and

1 fuel consumption would benefit the United States
2 by—

3 (A) improving the competitiveness of the
4 United States aviation industry;

5 (B) improving the quality of life for our
6 citizens by drastically reducing the level of noise
7 due to aircraft operations;

8 (C) reducing the rate at which fossil fuels
9 are consumed; and

10 (D) reducing the rate at which greenhouse
11 gases and other harmful gases and particulates
12 are added to the atmosphere by aircraft.

13 (5) Long-term progress in aeronautics and avia-
14 tion will require continued Federal investment in
15 fundamental aeronautical research.

16 (6) It is important for NASA to continue at a
17 healthy level its cooperative research efforts with the
18 Department of Defense regarding military aviation
19 technologies.

20 (7) The report entitled “The NASA Aero-
21 nautics Blueprint—Toward a Bold New Era of
22 Aviation” provides an excellent statement of the
23 problems facing aviation today, and presents an ex-
24 citing vision of what can be achieved by investments
25 in aeronautics research and technology. It does not,

1 however, provide a program plan to actually achieve
 2 the vision, nor does it address the huge mismatch
 3 between current NASA aeronautics funding and
 4 what is required to realize the vision.

5 **SEC. 502. ENVIRONMENTAL AIRCRAFT RESEARCH AND DE-**
 6 **VELOPMENT INITIATIVE.**

7 (a) IN GENERAL.—Not later than 1 year after the
 8 date of enactment of this Act, the Administrator shall sub-
 9 mit to Congress a comprehensive plan for the development
 10 and demonstration, in a relevant environment, tech-
 11 nologies that result in the following commercial aircraft
 12 performance characteristics:

13 (1) NOISE.—Noise levels on takeoff and on air-
 14 port approach and landing that do not exceed ambi-
 15 ent noise levels in the absence of flight operations in
 16 the vicinity of airports from which such commercial
 17 aircraft would normally operate.

18 (2) FUEL EFFICIENCY.—A 10 percent improve-
 19 ment in fuel efficiency, compared to aircraft in com-
 20 mercial service as of the date of enactment of this
 21 Act, in each of the following:

22 (A) Specific fuel consumption.

23 (B) Lift to drag ratio.

24 (C) Structural weight fraction.

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

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

5 (1) Technological roadmaps for achieving each
6 of the performance characteristics specified in sub-
7 section (a).

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

11 (3) A plan for carrying out a formal quantifica-
12 tion of the estimated costs and benefits of each tech-
13 nological option selected for development beyond the
14 initial concept definition phase.

15 (4) A plan for transferring the technologies to
16 industry, including the identification of requirements
17 for prototype demonstrations, as appropriate.

18 **SEC. 503. CIVIL SUPERSONIC TRANSPORT RESEARCH AND**
19 **DEVELOPMENT INITIATIVE.**

20 (a) IN GENERAL.—Not later than 1 year after the
21 date of enactment of this Act, the Administrator shall sub-
22 mit to Congress a feasibility study addressing the need
23 for, and economic viability of, the development and dem-
24 onstration, in a relevant environment, technologies to en-

1 able overland flight of supersonic civil transport aircraft
2 with at least the following performance characteristics:

3 (1) Mach number of at least 1.6.

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

5 (3) Payload of at least 150 passengers.

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

7 (5) Noise levels on takeoff and on airport ap-
8 proach and landing that meet community noise
9 standards in place at airports from which such com-
10 mercial supersonic aircraft would normally operate
11 at the time the aircraft would enter commercial serv-
12 ice.

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

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

17 (8) Water vapor emissions for stratospheric
18 flight of no greater than 1,400 grams per kilogram
19 of fuel burned.

20 (b) STUDY REQUIREMENTS.—The study described in
21 subsection (a) shall include—

22 (1) the feasibility of researching, developing and
23 producing a civil transport with the performance
24 characteristics specified in subsection (a);

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

4 (3) the feasibility of transferring the tech-
5 nologies to industry, including the identification of
6 requirements for prototype demonstrations, as ap-
7 propriate;

8 (4) the feasibility of research to quantify, with-
9 in 3 years after the date of enactment of this Act,
10 the limits on sonic boom parameters, such as over-
11 pressure and rise time, that would be acceptable to
12 the general public; and

13 (5) the feasibility of adjusting the noise reduc-
14 tion research and development activities as needed to
15 accommodate changes in community noise standards
16 that may occur over the lifetime of the initiative.

17 **SEC. 504. NASA AERONAUTICS SCHOLARSHIPS.**

18 (a) IN GENERAL.—The Administrator shall establish
19 a program of scholarships for full-time graduate students
20 who are United States citizens and are enrolled in, or have
21 been accepted by and have indicated their intention to en-
22 roll in, accredited Masters degree programs in aero-
23 nautical engineering at institutions of higher education (as
24 defined in section 101 of the Higher Education Act of
25 1965 (20 U.S.C. 1001)). Each such scholarship shall cover

1 the costs of room, board, tuition, and fees, and may be
2 provided for a maximum of 2 years.

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

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

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