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109TH CONGRESS
1ST SESSION

H. R. 3070

[Report No. 109-173]

To reauthorize the human space flight, aeronautics, and science programs of the National Aeronautics and Space Administration, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JUNE 27, 2005

Mr. CALVERT (for himself and Mr. BOEHLERT) introduced the following bill; which was referred to the Committee on Science

JULY 18, 2005

Reported with an amendment, committed to the Committee of the Whole House on the State of the Union, and ordered to be printed

[Strike out all after the enacting clause and insert the part printed in *italic*]

[For text of introduced bill, see copy of bill as introduced on June 27, 2005]

A BILL

To reauthorize the human space flight, aeronautics, and science programs of the National Aeronautics and Space Administration, and for other purposes.

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

1 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

2 (a) *SHORT TITLE.*—*This Act may be cited as the “Na-*
 3 *tional Aeronautics and Space Administration Authoriza-*
 4 *tion Act of 2005”.*

5 (b) *TABLE OF CONTENTS.*—*The table of contents for*
 6 *this Act is as follows:*

Sec. 1. Short title; table of contents.

Sec. 2. Findings.

Sec. 3. Definitions.

TITLE I—GENERAL PRINCIPLES AND REPORTS

Sec. 101. Responsibilities, policies, and plans.

Sec. 102. Reports.

Sec. 103. Baselines and cost controls.

Sec. 104. Prize authority.

Sec. 105. Foreign launch vehicles.

Sec. 106. Safety management.

Sec. 107. Lessons learned and best practices.

Sec. 108. Commercialization plan.

Sec. 109. Study on the feasibility of use of ground source heat pumps.

TITLE II—AUTHORIZATION OF APPROPRIATIONS

Sec. 201. Structure of budgetary accounts.

Sec. 202. Fiscal year 2006.

Sec. 203. Fiscal year 2007.

Sec. 204. ISS research.

Sec. 205. Test facilities.

Sec. 206. Proportionality.

Sec. 207. Limitations on authority.

Sec. 208. Notice of reprogramming.

Sec. 209. Cost overruns.

Sec. 210. Official representational fund.

Sec. 211. International Space Station cost cap.

TITLE III—SCIENCE

Subtitle A—General Provisions

Sec. 301. Performance assessments.

Sec. 302. Status report on Hubble Space Telescope servicing mission.

Sec. 303. Independent assessment of Landsat-NPOESS integrated mission.

Sec. 304. Assessment of science mission extensions.

Sec. 305. Microgravity research.

Sec. 306. Coordination with the National Oceanic and Atmospheric Administra-
tion.

Subtitle B—Remote Sensing

- Sec. 311. Definitions.*
Sec. 312. Pilot projects to encourage public sector applications.
Sec. 313. Program evaluation.
Sec. 314. Data availability.
Sec. 315. Education.

Subtitle C—George E. Brown, Jr. Near-Earth Object Survey

- Sec. 321. George E. Brown, Jr. Near-Earth Object Survey.*

TITLE IV—AERONAUTICS

- Sec. 401. Definition.*

Subtitle A—National Policy for Aeronautics Research and Development

- Sec. 411. Policy.*

Subtitle B—NASA Aeronautics Breakthrough Research Initiatives

- Sec. 421. Environmental aircraft research and development initiative.*
Sec. 422. Civil supersonic transport research and development initiative.
Sec. 423. Rotorcraft and other runway-independent air vehicles research and development initiative.

Subtitle C—Other NASA Aeronautics Research and Development Activities

- Sec. 431. Fundamental research and technology base program.*
Sec. 432. Airspace systems research.
Sec. 433. Aviation safety and security research.
Sec. 434. Zero-emissions aircraft research.
Sec. 435. Mars aircraft research.
Sec. 436. Hypersonics research.
Sec. 437. NASA aeronautics scholarships.
Sec. 438. Aviation weather research.
Sec. 439. Assessment of wake turbulence research and development program.
Sec. 440. University-based centers for research on aviation training.

TITLE V—HUMAN SPACE FLIGHT

- Sec. 501. International Space Station completion.*
Sec. 502. Human exploration priorities.
Sec. 503. GAO assessment.

*TITLE VI—OTHER PROGRAM AREAS**Subtitle A—Space and Flight Support*

- Sec. 601. Orbital debris.*
Sec. 602. Secondary payload capability.

Subtitle B—Education

- Sec. 611. Institutions in NASA's minority institutions program.*
Sec. 612. Program to expand distance learning in rural underserved areas.
Sec. 613. Charles "Pete" Conrad Astronomy Awards.
Sec. 614. Review of education programs.

Sec. 615. Equal access to NASA's education programs.

TITLE VII—MISCELLANEOUS AMENDMENTS

Sec. 701. Retrocession of jurisdiction.

Sec. 702. Extension of indemnification.

Sec. 703. NASA scholarships.

Sec. 704. Independent cost analysis.

Sec. 705. Limitations on off-shore performance of contracts for the procurement of goods and services.

TITLE VIII—INDEPENDENT COMMISSIONS

Sec. 801. Definitions.

Subtitle A—International Space Station Independent Safety Commission

Sec. 811. Establishment of Commission.

Sec. 812. Tasks of the Commission.

Sec. 813. Sunset.

Subtitle B—Human Space Flight Independent Investigation Commission

Sec. 821. Establishment of Commission.

Sec. 822. Tasks of the Commission.

Subtitle C—Organization and Operation of Commissions

Sec. 831. Composition of Commissions.

Sec. 832. Powers of Commission.

Sec. 833. Public meetings, information, and hearings.

Sec. 834. Staff of Commission.

Sec. 835. Compensation and travel expenses.

Sec. 836. Security clearances for Commission members and staff.

Sec. 837. Reporting requirements and termination.

1 SEC. 2. FINDINGS.

2 *The Congress finds the following:*

3 *(1) On January 14, 2004, the President unveiled*
 4 *the Vision for Space Exploration to guide United*
 5 *States policy on human space exploration.*

6 *(2) The President's vision of returning humans*
 7 *to the Moon and working toward a sustainable*
 8 *human presence there and then venturing further into*
 9 *the solar system provides a sustainable rationale for*
 10 *the United States human space flight program.*

1 (3) *As we enter the Second Space Age, the Na-*
2 *tional Aeronautics and Space Administration should*
3 *continue to support robust programs in space science,*
4 *aeronautics, and earth science as it moves forward*
5 *with plans to send Americans to the Moon, Mars, and*
6 *worlds beyond.*

7 (4) *The National Aeronautics and Space Admin-*
8 *istration's programs can advance the frontiers of*
9 *science, expanding understanding of our planet and*
10 *of the universe, and contribute to American pros-*
11 *perity.*

12 (5) *The United States should honor its inter-*
13 *national commitments to the International Space*
14 *Station program.*

15 (6) *The United States must remain the leader in*
16 *aeronautics and aviation. Any erosion of this pre-*
17 *eminence is not in the Nation's economic or security*
18 *interests. Past Federal investments in aeronautics re-*
19 *search and development have benefited the economy*
20 *and national security of the United States and im-*
21 *proved the quality of life of its citizens.*

22 (7) *Long-term progress in aeronautics and space*
23 *requires continued Federal investment in funda-*
24 *mental research, test facilities, and maintenance of a*
25 *skilled civil service workforce at NASA's Centers.*

1 (8) *An important part of NASA’s mission is*
2 *education and outreach.*

3 **SEC. 3. DEFINITIONS.**

4 *In this Act:*

5 (1) *ADMINISTRATOR.*—*The term “Adminis-*
6 *trator” means the Administrator of the National Aer-*
7 *onautics and Space Administration.*

8 (2) *ISS.*—*The term “ISS” means the Inter-*
9 *national Space Station.*

10 (3) *NASA.*—*The term “NASA” means the Na-*
11 *tional Aeronautics and Space Administration.*

12 **TITLE I—GENERAL PRINCIPLES**
13 **AND REPORTS**

14 **SEC. 101. RESPONSIBILITIES, POLICIES, AND PLANS.**

15 (a) *GENERAL RESPONSIBILITIES.*—

16 (1) *PROGRAMS.*—*The Administrator shall ensure*
17 *that NASA carries out a balanced set of programs*
18 *that shall include, at a minimum, programs in—*

19 (A) *human space flight, in accordance with*
20 *subsection (b);*

21 (B) *aeronautics research and development;*
22 *and*

23 (C) *scientific research, which shall include,*
24 *at a minimum—*

1 (i) *robotic missions to study planets,*
2 *and to deepen understanding of astronomy,*
3 *astrophysics, and other areas of science that*
4 *can be productively studied from space;*

5 (ii) *earth science research and research*
6 *on the Sun-Earth connection through the*
7 *development and operation of research sat-*
8 *ellites and other means;*

9 (iii) *support of university research in*
10 *space science and earth science; and*

11 (iv) *research on microgravity, includ-*
12 *ing research that is not directly related to*
13 *human exploration.*

14 (2) *CONSULTATION AND COORDINATION.—In car-*
15 *rying out the programs of NASA, the Administrator*
16 *shall—*

17 (A) *consult and coordinate to the extent ap-*
18 *propriate with other relevant Federal agencies,*
19 *including through the National Science and*
20 *Technology Council;*

21 (B) *work closely with the private sector, in-*
22 *cluding by—*

23 (i) *encouraging the work of entre-*
24 *preneurs who are seeking to develop new*
25 *means to launch satellites, crew, or cargo;*

1 (ii) contracting with the private sector
2 for crew and cargo services to the extent
3 practicable; and

4 (iii) using commercially available
5 products (including software) and services
6 to the extent practicable to support all
7 NASA activities; and

8 (C) involve other nations to the extent ap-
9 propriate.

10 (b) *VISION FOR SPACE EXPLORATION.*—The Adminis-
11 trator shall manage human space flight programs to strive
12 to achieve the following goals:

13 (1) *Returning Americans to the Moon no later*
14 *than 2020.*

15 (2) *Launching the Crew Exploration Vehicle as*
16 *close to 2010 as possible.*

17 (3) *Increasing knowledge of the impacts of long*
18 *duration stays in space on the human body using the*
19 *most appropriate facilities available.*

20 (4) *Enabling humans to land on and return*
21 *from Mars and other destinations on a timetable that*
22 *is technically and fiscally possible.*

23 (c) *AERONAUTICS.*—

24 (1) *IN GENERAL.*—The President of the United
25 States, through the Administrator, and in consulta-

1 *tion with other Federal agencies, shall develop a na-*
2 *tional aeronautics policy to guide the aeronautics*
3 *programs of NASA through 2020.*

4 (2) *CONTENT.—At a minimum, the national aer-*
5 *onautics policy shall describe for NASA—*

6 (A) *the priority areas of research for aero-*
7 *onautics through fiscal year 2011;*

8 (B) *the basis on which and the process by*
9 *which priorities for ensuing fiscal years will be*
10 *selected;*

11 (C) *the facilities and personnel needed to*
12 *carry out the aeronautics program through fiscal*
13 *year 2011; and*

14 (D) *the budget assumptions on which the*
15 *national aeronautics policy is based, which for*
16 *fiscal years 2006 and 2007 shall be the author-*
17 *ized level for aeronautics provided in title II of*
18 *this Act.*

19 (3) *CONSIDERATIONS.—In developing the na-*
20 *tional aeronautics policy, the President shall consider*
21 *the following issues, which shall be discussed in the*
22 *transmittal under paragraph (5):*

23 (A) *The extent to which NASA should focus*
24 *on long-term, high-risk research or more incre-*
25 *mental research, and the expected impact on the*

1 *United States aircraft and airline industries of*
2 *that decision.*

3 *(B) The extent to which NASA should ad-*
4 *dress military and commercial needs.*

5 *(C) How NASA will coordinate its aero-*
6 *navitics program with other Federal agencies.*

7 *(D) The extent to which NASA will fund*
8 *university research, and the expected impact of*
9 *that funding on the supply of United States*
10 *workers for the aeronautics industry.*

11 *(E) The extent to which the priority areas*
12 *of research listed pursuant to paragraph (2)(A)*
13 *should include the activities authorized by title*
14 *IV of this Act, the discussion of which shall in-*
15 *clude a priority ranking of all of the activities*
16 *authorized in title IV and an explanation for*
17 *that ranking.*

18 *(4) CONSULTATION.—In the development of the*
19 *national aeronautics policy, the Administrator shall*
20 *consult widely with academic and industry experts*
21 *and with other Federal agencies. The Administrator*
22 *may enter into an arrangement with the National*
23 *Academy of Sciences to help develop the national aer-*
24 *onautics policy.*

1 (5) *SCHEDULE.*—*The Administrator shall trans-*
2 *mit the national aeronautics policy to the Committee*
3 *on Appropriations and the Committee on Science of*
4 *the House of Representatives, and to the Committee*
5 *on Appropriations and the Committee on Commerce,*
6 *Science, and Transportation of the Senate, not later*
7 *than the date on which the President submits the pro-*
8 *posed budget for the Federal Government for fiscal*
9 *year 2007 to the Congress. The Administrator shall*
10 *make available to those committees any study done by*
11 *a nongovernmental entity that was used in the devel-*
12 *opment of the national aeronautics policy.*

13 (d) *SCIENCE.*—

14 (1) *IN GENERAL.*—*The Administrator shall de-*
15 *velop a policy to guide the science programs of NASA*
16 *through 2016.*

17 (2) *CONTENT.*—*At a minimum, the policy shall*
18 *describe—*

19 (A) *the missions NASA will initiate, design,*
20 *develop, launch, or operate in space science and*
21 *earth science through fiscal year 2016, including*
22 *launch dates;*

23 (B) *a priority ranking of all of the missions*
24 *listed under subparagraph (A), and the rationale*
25 *for the ranking;*

1 (C) *the budget assumptions on which the*
2 *policy is based, which for fiscal years 2006 and*
3 *2007 shall be consistent with the authorizations*
4 *provided in title II of this Act; and*

5 (D) *the facilities and personnel needed to*
6 *carry out the policy through fiscal year 2016.*

7 (3) *CONSIDERATIONS.—In developing the science*
8 *policy under this subsection, the Administrator shall*
9 *consider the following issues, which shall be discussed*
10 *in the transmittal under paragraph (6):*

11 (A) *What the most important scientific*
12 *questions in space science and earth science are.*

13 (B) *The relationship between NASA’s space*
14 *and earth science activities and those of other*
15 *Federal agencies.*

16 (4) *CONSULTATION.—In developing the policy*
17 *under this subsection, the Administrator shall draw*
18 *on decadal surveys and other reports in planetary*
19 *science, astronomy, solar and space physics, earth*
20 *science, and any other relevant fields developed by the*
21 *National Academy of Sciences. The Administrator*
22 *shall also consult widely with academic and industry*
23 *experts and with other Federal agencies.*

24 (5) *HUBBLE SPACE TELESCOPE.—The policy de-*
25 *veloped under this subsection shall address plans for*

1 *a human mission to repair the Hubble Space Tele-*
2 *scope consistent with section 302 of this Act.*

3 (6) *SCHEDULE.—The Administrator shall trans-*
4 *mit the policy developed under this subsection to the*
5 *Committee on Science of the House of Representatives*
6 *and the Committee on Commerce, Science, and Trans-*
7 *portation of the Senate not later than the date on*
8 *which the President submits the proposed budget for*
9 *the Federal Government for fiscal year 2007 to the*
10 *Congress. The Administrator shall make available to*
11 *those committees any study done by a nongovern-*
12 *mental entity that was used in the development of the*
13 *policy.*

14 (e) *FACILITIES.—*

15 (1) *IN GENERAL.—The Administrator shall de-*
16 *velop a plan for managing NASA’s facilities through*
17 *fiscal year 2015. The plan shall be consistent with the*
18 *policies and plans developed pursuant to this section.*

19 (2) *CONTENT.—At a minimum, the plan shall*
20 *describe—*

21 (A) *any new facilities NASA intends to ac-*
22 *quire, whether through construction, purchase, or*
23 *lease, and the expected dates for doing so;*

1 (B) any facilities NASA intends to signifi-
2 cantly modify, and the expected dates for doing
3 so;

4 (C) any facilities NASA intends to close,
5 and the expected dates for doing so;

6 (D) any transaction NASA intends to con-
7 duct to sell, lease, or otherwise transfer the own-
8 ership of a facility, and the expected dates for
9 doing so;

10 (E) how each of the actions described in
11 subparagraphs (A), (B), (C), and (D) will en-
12 hance the ability of NASA to carry out its pro-
13 grams;

14 (F) the expected costs or savings expected
15 from each of the actions described in subpara-
16 graphs (A), (B), (C), and (D);

17 (G) the priority order of the actions de-
18 scribed in subparagraphs (A), (B), (C), and (D);

19 (H) the budget assumptions of the plan,
20 which for fiscal years 2006 and 2007 shall be
21 consistent with the authorizations provided in
22 title II of this Act; and

23 (I) how facilities were evaluated in devel-
24 oping the plan.

1 (3) *SCHEDULE.*—*The Administrator shall trans-*
2 *mit the plan developed under this subsection to the*
3 *Committee on Science of the House of Representatives*
4 *and the Committee on Commerce, Science, and Trans-*
5 *portation of the Senate not later than the date on*
6 *which the President submits the proposed budget for*
7 *the Federal Government for fiscal year 2008 to the*
8 *Congress.*

9 (f) *WORKFORCE.*—

10 (1) *IN GENERAL.*—*The Administrator shall de-*
11 *velop a human capital strategy to ensure that NASA*
12 *has a workforce of the appropriate size and with the*
13 *appropriate skills to carry out the programs of*
14 *NASA, consistent with the policies and plans devel-*
15 *oped pursuant to this section. The strategy shall cover*
16 *the period through fiscal year 2011.*

17 (2) *CONTENT.*—*The strategy shall describe, at a*
18 *minimum—*

19 (A) *any categories of employees NASA in-*
20 *tends to reduce, the expected size and timing of*
21 *those reductions, the methods NASA intends to*
22 *use to make the reductions, and the reasons*
23 *NASA no longer needs those employees;*

24 (B) *any categories of employees NASA in-*
25 *tends to increase, the expected size and timing of*

1 *those increases, the methods NASA intends to use*
2 *to recruit the additional employees, and the rea-*
3 *sons NASA needs those employees;*

4 *(C) the steps NASA will use to retain need-*
5 *ed employees; and*

6 *(D) the budget assumptions of the strategy,*
7 *which for fiscal years 2006 and 2007 shall be*
8 *consistent with the authorizations provided in*
9 *title II of this Act, and any expected additional*
10 *costs or savings from the strategy by fiscal year.*

11 (3) *SCHEDULE.—The Administrator shall trans-*
12 *mit the strategy developed under this subsection to the*
13 *Committee on Science of the House of Representatives*
14 *and the Committee on Commerce, Science, and Trans-*
15 *portation of the Senate not later than the date on*
16 *which the President submits the proposed budget for*
17 *the Federal Government for fiscal year 2007 to the*
18 *Congress. At least 60 days before transmitting the*
19 *strategy, NASA shall provide a draft of the strategy*
20 *to its Federal Employee Unions for a 30-day con-*
21 *sultation period after which NASA shall respond in*
22 *writing to any written concerns provided by the*
23 *Unions.*

24 (4) *LIMITATION.—NASA may not initiate any*
25 *buyout offer or Reduction in Force until 60 days after*

1 *the strategy required by this subsection has been*
2 *transmitted to the Congress in accordance with para-*
3 *graph (3). NASA may not implement any Reduction*
4 *in Force or other involuntary separations prior to*
5 *October 1, 2006.*

6 *(g) CENTER MANAGEMENT.—*

7 *(1) IN GENERAL.—The Administrator shall con-*
8 *duct a study to determine whether any of NASA's*
9 *centers should be operated by or with the private sec-*
10 *tor by converting a center to a Federally Funded Re-*
11 *search and Development Center or through any other*
12 *mechanism.*

13 *(2) CONTENT.—The study shall, at a min-*
14 *imum—*

15 *(A) make a recommendation for the oper-*
16 *ation of each center and provide reasons for that*
17 *recommendation; and*

18 *(B) describe the advantages and disadvan-*
19 *tages of each mode of operation considered in the*
20 *study.*

21 *(3) CONSIDERATIONS.—In conducting the study,*
22 *the Administrator shall take into consideration the*
23 *experiences of other relevant Federal agencies in oper-*
24 *ating laboratories and centers and any reports that*
25 *have reviewed the mode of operation of those labora-*

1 *tories and centers, as well as any reports that have*
2 *reviewed NASA's centers.*

3 (4) *SCHEDULE.—The Administrator shall trans-*
4 *mit the study conducted under this subsection to the*
5 *Committee on Science of the House of Representatives*
6 *and the Committee on Commerce, Science, and Trans-*
7 *portation of the Senate not later than May 31, 2006.*

8 (h) *BUDGETS.—The proposed budget for NASA sub-*
9 *mitted by the President for each fiscal year shall be accom-*
10 *panied by documents showing—*

11 (1) *the budget for each element of the human*
12 *space flight program;*

13 (2) *the budget for aeronautics;*

14 (3) *the budget for space science;*

15 (4) *the budget for earth science;*

16 (5) *the budget for microgravity science;*

17 (6) *the budget for education;*

18 (7) *the budget for technology transfer programs;*

19 (8) *the budget for the Integrated Financial Man-*
20 *agement Program, by individual element;*

21 (9) *the budget for the Independent Technical Au-*
22 *thority, both total and by center;*

23 (10) *the budget for public relations, by program;*

1 (11) *the comparable figures for at least the 2 pre-*
2 *vious fiscal years for each item in the proposed budg-*
3 *et;*

4 (12) *the amount of unobligated funds and unex-*
5 *pended funds, by appropriations account—*

6 (A) *that remained at the end of the fiscal*
7 *year prior to the fiscal year in which the budget*
8 *is being presented that were carried over into the*
9 *fiscal year in which the budget is being pre-*
10 *sented;*

11 (B) *that are estimated will remain at the*
12 *end of the fiscal year in which the budget is*
13 *being presented that are proposed to be carried*
14 *over into the fiscal year for which the budget is*
15 *being presented; and*

16 (C) *that are estimated will remain at the*
17 *end of the fiscal year for which the budget is*
18 *being presented; and*

19 (13) *the budget for safety, by program.*

20 (i) *GENERAL AND ADMINISTRATIVE EXPENSES.—*
21 *NASA shall make available, upon request from the Com-*
22 *mittee on Science of the House of Representatives or the*
23 *Committee on Commerce, Science, and Transportation of*
24 *the Senate, information on Corporate and Center General*

1 *and Administrative Costs and Service Pool costs, includ-*
2 *ing—*

3 (1) *the total amount of funds being allocated for*
4 *those purposes for any fiscal year for which the Presi-*
5 *dent has submitted an annual budget request to Con-*
6 *gress;*

7 (2) *the amount of funds being allocated for those*
8 *purposes for each center, for headquarters, and for*
9 *each directorate; and*

10 (3) *the major activities included in each cost cat-*
11 *egory.*

12 *(j) NASA TEST FACILITIES.—*

13 (1) *REVIEW.—The Director of the Office of*
14 *Science and Technology Policy shall commission an*
15 *independent review of the Nation’s long-term strategic*
16 *needs for test facilities and shall submit the review to*
17 *the Committee on Science of the House of Representa-*
18 *tives and the Committee on Commerce, Science, and*
19 *Transportation of the Senate. The review shall in-*
20 *clude an evaluation of the facility needs described*
21 *pursuant to subsection (c)(2)(C).*

22 (2) *LIMITATION.—The Administrator shall not*
23 *close or mothball any aeronautical test facilities iden-*
24 *tified in the 2003 independent assessment by the*
25 *RAND Corporation, entitled “Wind Tunnel and Pro-*

1 *pulsion Test Facilities: An Assessment of NASA's Ca-*
2 *pabilities to Serve National Needs'' as being part of*
3 *the minimum set of those facilities necessary to retain*
4 *and manage to serve national needs, as well as any*
5 *other NASA test facilities that were in use as of Jan-*
6 *uary 1, 2004, until the review conducted under para-*
7 *graph (1) has been transmitted to the Congress.*

8 **SEC. 102. REPORTS.**

9 *(a) IMMEDIATE ISSUES.—Not later than September*
10 *30, 2005, the Administrator shall transmit to the Com-*
11 *mittee on Science of the House of Representatives and the*
12 *Committee on Commerce, Science, and Transportation of*
13 *the Senate a report on each of the following items:*

14 *(1) The research agenda for the ISS and its pro-*
15 *posed final configuration.*

16 *(2) The number of flights the Space Shuttle will*
17 *make before its retirement, the purpose of those*
18 *flights, and the expected date of the final flight.*

19 *(3) A description of the means, other than the*
20 *Space Shuttle, that may be used to ferry crew and*
21 *cargo to and from the ISS.*

22 *(4) A plan for the operation of the ISS in the*
23 *event that the Iran Nonproliferation Act of 2000 is*
24 *not amended.*

1 (5) *A description of the launch vehicle for the*
2 *Crew Exploration Vehicle.*

3 (6) *A description of any heavy lift vehicle NASA*
4 *intends to develop, the intended uses of that vehicle,*
5 *and whether the decision to develop that vehicle has*
6 *undergone an interagency review.*

7 (7) *A description of the intended purpose of*
8 *lunar missions and the architecture for those mis-*
9 *sions.*

10 (8) *The program goals for Project Prometheus.*

11 (9) *A plan for managing the cost increase for the*
12 *James Webb Space Telescope.*

13 (b) *CREW EXPLORATION VEHICLE.—The Adminis-*
14 *trator shall not enter into a development contract for the*
15 *Crew Exploration Vehicle until at least 30 days after the*
16 *Administrator has transmitted to the Committee on Science*
17 *of the House of Representatives and the Committee on Com-*
18 *merce, Science, and Transportation of the Senate a report*
19 *describing—*

20 (1) *the expected cost of the Crew Exploration Ve-*
21 *hicle through fiscal year 2020, based on the specifica-*
22 *tions for that development contract;*

23 (2) *the expected budgets for each fiscal year*
24 *through fiscal year 2020 for human space flight, aero-*
25 *navitics, space science, and earth science—*

1 (A) first assuming inflationary growth for
2 the budget of NASA as a whole and including
3 costs for the Crew Exploration Vehicle as pro-
4 jected under paragraph (1); and

5 (B) then assuming inflationary growth for
6 the budget of NASA as a whole and including at
7 least two cost estimates for the Crew Exploration
8 Vehicle that are higher than those projected
9 under paragraph (1), based on NASA's past ex-
10 perience with cost increases for similar pro-
11 grams, along with a description of the reasons
12 for selecting the cost estimates used for the cal-
13 culations under this subparagraph and the prob-
14 ability that the cost of the Crew Exploration Ve-
15 hicle will reach those estimated amounts; and

16 (3) the extent to which the Crew Exploration Ve-
17 hicle will allow for the escape of the crew in the event
18 of an emergency.

19 (c) *SPACE COMMUNICATIONS STUDY.*—

20 (1) *STUDY.*—The Administrator shall develop a
21 plan for updating NASA's space communications ar-
22 chitecture for both low-Earth orbital operations and
23 deep space exploration so that it is capable of meeting
24 NASA's needs over the next 20 years. The plan shall
25 also include life-cycle cost estimates, milestones, esti-

1 *mated performance capabilities, and 5-year funding*
2 *profiles. The plan shall also include an estimate of the*
3 *amounts of any reimbursements NASA is likely to re-*
4 *ceive from other Federal agencies during the expected*
5 *life of the upgrades described in the plan. The plan*
6 *shall include a description of the following:*

7 *(A) Projected Deep Space Network require-*
8 *ments for the next decade, including those in*
9 *support of human space exploration missions.*

10 *(B) Upgrades needed to support Deep Space*
11 *Network requirements.*

12 *(C) Cost estimates for the maintenance of*
13 *existing Deep Space Network capabilities.*

14 *(D) Cost estimates and schedules for the up-*
15 *grades described in subparagraph (B).*

16 *(2) CONSULTATIONS.—The Administrator shall*
17 *consult with other relevant Federal agencies in devel-*
18 *oping the plan under this subsection.*

19 *(3) REPORT.—The Administrator shall transmit*
20 *the plan under this subsection to the Committee on*
21 *Science of the House of Representatives and the Com-*
22 *mittee on Commerce, Science, and Transportation of*
23 *the Senate not later than February 17, 2007.*

24 *(d) PUBLIC RELATIONS.—Not later than December 31,*
25 *2005, the Administrator shall transmit a plan to the Com-*

1 *mittee on Appropriations and the Committee on Science of*
2 *the House of Representatives, and to the Committee on Ap-*
3 *propriations and the Committee on Commerce, Science, and*
4 *Transportation of the Senate, describing the activities that*
5 *will be undertaken as part of the national awareness cam-*
6 *paign required by the report of the Committee on Appro-*
7 *priations of the House of Representatives accompanying the*
8 *Science, State, Justice, Commerce, and Related Agencies*
9 *Appropriations Act, 2006, and the expected cost of those ac-*
10 *tivities. NASA may undertake activities as part of the na-*
11 *tional awareness campaign prior to the transmittal of the*
12 *plan required by this subsection, but not until 15 days after*
13 *notifying the Committee on Science of the House of Rep-*
14 *resentatives and the Committee on Commerce, Science, and*
15 *Transportation of the Senate of any activity. The plan re-*
16 *quired by this subsection shall include the estimated costs*
17 *of any activities undertaken pursuant to notice under the*
18 *preceding sentence.*

19 (e) *JOINT DARK ENERGY MISSION.—The Adminis-*
20 *trator and the Director of the Department of Energy Office*
21 *of Science shall jointly transmit to the Committee on*
22 *Science of the House of Representatives and the Committee*
23 *on Commerce, Science, and Transportation of the Senate,*
24 *not later than the date on which the President submits the*
25 *proposed budget for the Federal Government for fiscal year*

1 2007, a report on plans for a Joint Dark Energy Mission.
2 The report shall include the amount of funds each agency
3 intends to expend on the Joint Dark Energy Mission for
4 each of the fiscal years 2007 through 2011, and any specific
5 milestones for the development and launch of the Mission.

6 (f) *SHUTTLE EMPLOYEE TRANSITION.*—The Adminis-
7 trator shall consult with other appropriate Federal agencies
8 and with NASA contractors and employees to develop a
9 transition plan for Federal and contractor personnel en-
10 gaged in the Space Shuttle program. The plan shall include
11 actions to assist Federal and contractor personnel to take
12 advantage of training, retraining, job placement, and relo-
13 cation programs, and any other actions that NASA will
14 take to assist the employees. The plan shall also describe
15 how the Administrator will ensure that NASA and its con-
16 tractors will have an appropriate complement of employees
17 to allow for the safest possible use of the Space Shuttle
18 through its final flight. The Administrator shall transmit
19 the plan to the Committee on Science of the House of Rep-
20 resentatives and the Committee on Commerce, Science, and
21 Transportation of the Senate not later than 90 days after
22 the date of enactment of this Act.

23 (g) *OFFICE OF SCIENCE AND TECHNOLOGY POLICY.*—

1 (1) *STUDY.*—*The Director of the Office of*
2 *Science and Technology Policy shall conduct a study*
3 *to determine—*

4 (A) *if any research and development pro-*
5 *grams of NASA are unnecessarily duplicating*
6 *aspects of programs of other Federal agencies;*
7 *and*

8 (B) *if any research and development pro-*
9 *grams of NASA are neglecting any topics of na-*
10 *tional interest that are related to the mission of*
11 *NASA.*

12 (2) *REPORT.*—*Not later than March 1, 2006, the*
13 *Director of the Office of Science and Technology Pol-*
14 *icy shall transmit to the Committee on Science of the*
15 *House of Representatives and the Committee on Com-*
16 *merce, Science, and Transportation of the Senate a*
17 *report that—*

18 (A) *describes the results of the study under*
19 *paragraph (1);*

20 (B) *lists the research and development pro-*
21 *grams of Federal agencies other than NASA that*
22 *were reviewed as part of the study, which shall*
23 *include any program supporting research and*
24 *development in an area related to the programs*

1 of NASA, and the most recent budget figures for
2 those programs of other agencies;

3 (C) recommends any changes to the research
4 and development programs of NASA that should
5 be made to eliminate unnecessary duplication or
6 address topics of national interest; and

7 (D) describes mechanisms the Office of
8 Science and Technology Policy will use to ensure
9 adequate coordination between NASA and Fed-
10 eral agencies that operate related programs.

11 **SEC. 103. BASELINES AND COST CONTROLS.**

12 (a) *CONDITIONS FOR DEVELOPMENT.*—

13 (1) *IN GENERAL.*—NASA shall not enter into a
14 contract for the development phase of a major pro-
15 gram unless the Administrator determines that—

16 (A) the technical, cost, and schedule risks of
17 the program are clearly identified and the pro-
18 gram has developed a plan to manage those
19 risks; and

20 (B) the program complies with all relevant
21 policies, regulations, and directives of NASA.

22 (2) *REPORT.*—The Administrator shall transmit
23 a report describing the basis for the determination re-
24 quired under paragraph (1) to the Committee on
25 Science of the House of Representatives and the Com-

1 *mittee on Commerce, Science, and Transportation of*
2 *the Senate at least 30 days before entering into a con-*
3 *tract for development under a major program.*

4 (3) *NONDELEGATION.—The Administrator may*
5 *not delegate the determination requirement under this*
6 *subsection.*

7 (b) *MAJOR PROGRAM ANNUAL REPORTS.—*

8 (1) *REQUIREMENT.—Not later than February 15*
9 *of each year following the date of enactment of this*
10 *Act, the Administrator shall transmit to the Com-*
11 *mittee on Science of the House of Representatives and*
12 *the Committee on Commerce, Science, and Transpor-*
13 *tation of the Senate a report on each major program*
14 *for which NASA proposes to expend funds in the sub-*
15 *sequent fiscal year. Reports under this section shall be*
16 *known as Major Program Annual Reports.*

17 (2) *BASELINE REPORT.—The first Major Pro-*
18 *gram Annual Report for each major program shall*
19 *include a Baseline Report that shall, at a minimum,*
20 *include—*

21 (A) *the purposes of the program and key*
22 *technical characteristics necessary to fulfill those*
23 *purposes;*

24 (B) *an estimate of the life-cycle cost for the*
25 *program, with a detailed breakout of the develop-*

1 *ment cost and an estimate of the annual costs*
2 *until the development is completed;*

3 *(C) the schedule for the development, includ-*
4 *ing key program milestones; and*

5 *(D) the name of the person responsible for*
6 *making notifications under subsection (c), who*
7 *shall be an individual whose primary responsi-*
8 *bility is overseeing the program.*

9 (3) *INFORMATION UPDATES.*—*For major pro-*
10 *grams with respect to which a Baseline Report has*
11 *been previously submitted, each subsequent Major*
12 *Program Annual Report shall describe any changes to*
13 *the information that had been provided in the Base-*
14 *line Report, and the reasons for those changes.*

15 (c) *NOTIFICATION.*—

16 (1) *REQUIREMENT.*—*The individual identified*
17 *under subsection (b)(2)(D) shall immediately notify*
18 *the Administrator any time that individual has rea-*
19 *sonable cause to believe that, for the major program*
20 *for which he or she is responsible—*

21 (A) *the development cost of the program is*
22 *likely to exceed the estimate provided in the*
23 *Baseline Report of the program by 15 percent or*
24 *more; or*

1 (B) a milestone of the program is likely to
2 be delayed by 6 months or more from the date
3 provided for it in the Baseline Report of the pro-
4 gram.

5 (2) REASONS.—Not later than 7 days after the
6 notification required under paragraph (1), the indi-
7 vidual identified under subsection (b)(2)(D) shall
8 transmit to the Administrator a written notification
9 explaining the reasons for the change in the cost or
10 milestone of the program for which notification was
11 provided under paragraph (1).

12 (3) NOTIFICATION OF CONGRESS.—Not later
13 than 5 days after the Administrator receives a writ-
14 ten notification under paragraph (2), the Adminis-
15 trator shall transmit the notification to the Com-
16 mittee on Science of the House of Representatives and
17 the Committee on Commerce, Science, and Transpor-
18 tation of the Senate.

19 (d) FIFTEEN PERCENT THRESHOLD.—Not later than
20 30 days after receiving a written notification under sub-
21 section (c)(2), the Administrator shall determine whether
22 the development cost of the program is likely to exceed the
23 estimate provided in the Baseline Report of the program
24 by 15 percent or more, or whether a milestone is likely to

1 *be delayed by 6 months or more. If the determination is*
2 *affirmative, the Administrator shall—*

3 *(1) transmit to the Committee on Science of the*
4 *House of Representatives and the Committee on Com-*
5 *merce, Science, and Transportation of the Senate, not*
6 *later than 14 days after making the determination, a*
7 *report that includes—*

8 *(A) a description of the increase in cost or*
9 *delay in schedule and a detailed explanation for*
10 *the increase or delay;*

11 *(B) a description of actions taken or pro-*
12 *posed to be taken in response to the cost increase*
13 *or delay; and*

14 *(C) a description of any impacts the cost*
15 *increase or schedule delay will have on any other*
16 *program within NASA; and*

17 *(2) if the Administrator intends to continue with*
18 *the program, promptly initiate an analysis of the*
19 *program, which shall include, at a minimum—*

20 *(A) the projected cost and schedule for com-*
21 *pleting the program if current requirements of*
22 *the program are not modified;*

23 *(B) the projected cost and the schedule for*
24 *completing the program after instituting the ac-*
25 *tions described under paragraph (1)(B); and*

1 (C) a description of, and the projected cost
2 and schedule for, a broad range of alternatives to
3 the program.

4 NASA shall complete an analysis initiated under para-
5 graph (2) not later than 6 months after the Administrator
6 makes a determination under this subsection. The Adminis-
7 trator shall transmit the analysis to the Committee on
8 Science of the House of Representatives and Committee on
9 Commerce, Science, and Transportation of the Senate not
10 later than 30 days after its completion.

11 (e) *THIRTY PERCENT THRESHOLD.*—If the Adminis-
12 trator determines under subsection (d) that the development
13 cost of a program will exceed the estimate provided in the
14 Baseline Report of the program by more than the lower of
15 30 percent or \$1,000,000,000, then, beginning 1 year after
16 the date the Administrator transmits a report under sub-
17 section (d)(1), the Administrator shall not expend any addi-
18 tional funds on the program, other than termination costs,
19 unless the Congress has subsequently authorized continu-
20 ation of the program by law. If the program is continued,
21 the Administrator shall submit a new Baseline Report for
22 the program no later than 90 days after the date of enact-
23 ment of the Act under which Congress has authorized con-
24 tinuation of the program.

25 (f) *DEFINITIONS.*—For the purposes of this section—

1 (1) *the term “development” means the phase of*
2 *a program following the formulation phase and begin-*
3 *ning with the approval to proceed to implementation,*
4 *as defined in NASA’s Procedural Requirements*
5 *7120.5c, dated March 22, 2005;*

6 (2) *the term “development cost” means the total*
7 *of all costs, including construction of facilities and*
8 *civil servant costs, from the period beginning with the*
9 *approval to proceed to implementation through the*
10 *achievement of operational readiness, without regard*
11 *to funding source or management control, for the life*
12 *of the program;*

13 (3) *the term “life-cycle cost” means the total of*
14 *the direct, indirect, recurring, and nonrecurring costs,*
15 *including the construction of facilities and civil serv-*
16 *ant costs, and other related expenses incurred or esti-*
17 *mated to be incurred in the design, development,*
18 *verification, production, operation, maintenance, sup-*
19 *port, and retirement of a program over its planned*
20 *lifespan, without regard to funding source or manage-*
21 *ment control; and*

22 (4) *the term “major program” means an activity*
23 *approved to proceed to implementation that has an*
24 *estimated life-cycle cost of more than \$100,000,000.*

1 **SEC. 104. PRIZE AUTHORITY.**

2 *The National Aeronautics and Space Act of 1958 (42*
3 *U.S.C. 2451, et seq.) is amended by inserting after section*
4 *313 the following new section:*

5 *“PRIZE AUTHORITY*

6 *“SEC. 314. (a) IN GENERAL.—The Administration*
7 *may carry out a program to competitively award cash*
8 *prizes to stimulate innovation in basic and applied re-*
9 *search, technology development, and prototype demonstra-*
10 *tion that have the potential for application to the perform-*
11 *ance of the space and aeronautical activities of the Admin-*
12 *istration. The Administration may carry out a program*
13 *to award prizes only in conformity with this section.*

14 *“(b) TOPICS.—In selecting topics for prize competi-*
15 *tions, the Administrator shall consult widely both within*
16 *and outside the Federal Government, and may empanel ad-*
17 *visory committees.*

18 *“(c) ADVERTISING.—The Administrator shall widely*
19 *advertise prize competitions to encourage participation.*

20 *“(d) REQUIREMENTS AND REGISTRATION.—For each*
21 *prize competition, the Administrator shall publish a notice*
22 *in the Federal Register announcing the subject of the com-*
23 *petition, the rules for being eligible to participate in the*
24 *competition, the amount of the prize, and the basis on which*
25 *a winner will be selected.*

1 “(e) *ELIGIBILITY.*—*To be eligible to win a prize under*
2 *this section, an individual or entity—*

3 “(1) *shall have registered to participate in the*
4 *competition pursuant to any rules promulgated by*
5 *the Administrator under subsection (d);*

6 “(2) *shall have complied with all the require-*
7 *ments under this section;*

8 “(3) *in the case of a private entity, shall be in-*
9 *corporated in and maintain a primary place of busi-*
10 *ness in the United States, and in the case of an indi-*
11 *vidual, whether participating singly or in a group,*
12 *shall be a citizen or permanent resident of the United*
13 *States; and*

14 “(4) *shall not be a Federal entity or Federal em-*
15 *ployee acting within the scope of their employment.*

16 “(f) *LIABILITY.*—(1) *Registered participants must*
17 *agree to assume any and all risks and waive claims against*
18 *the United States Government and its related entities, ex-*
19 *cept in the case of willful misconduct, for any injury, death,*
20 *damage, or loss of property, revenue, or profits, whether di-*
21 *rect, indirect, or consequential, arising from their partici-*
22 *pation in a competition, whether such injury, death, dam-*
23 *age, or loss arises through negligence or otherwise. For the*
24 *purposes of this subparagraph, the term ‘related entity’*
25 *means a contractor or subcontractor at any tier, and a sup-*

1 *plier, user, customer, cooperating party, grantee, investi-*
2 *gator, or detailee.*

3 “(2) *Participants must obtain liability insurance or*
4 *demonstrate financial responsibility in amounts to com-*
5 *pensate for the maximum probable loss, as determined by*
6 *the Administrator, from claims by—*

7 “(A) *a third party for death, bodily injury, or*
8 *property damage, or loss resulting from an activity*
9 *carried out in connection with participation in a*
10 *competition, with the Federal Government named as*
11 *an additional insured under the registered partici-*
12 *part’s insurance policy and registered participants*
13 *agreeing to indemnify the Federal Government*
14 *against third party claims for damages arising from*
15 *or related to competition activities; and*

16 “(B) *the United States Government for damage*
17 *or loss to Government property resulting from such*
18 *an activity.*

19 “(g) *JUDGES.—For each competition, the Administra-*
20 *tion, either directly or through a contract under subsection*
21 *(h), shall assemble a panel of qualified judges from both*
22 *within and outside the Administration to select the winner*
23 *or winners of the prize competition on the basis described*
24 *pursuant to subsection (d). Judges for each competition*

1 *shall include individuals from the private sector. A judge*
2 *may not—*

3 “(1) *have personal or financial interests in, or be*
4 *employees, officers, directors, or agents of, any entity*
5 *that is a registered participant in a competition; or*

6 “(2) *have a familial or financial relationship*
7 *with an individual who is a registered participant.*

8 “(h) *ADMINISTERING THE COMPETITION.—The Ad-*
9 *ministrators may enter into an agreement with a private,*
10 *nonprofit entity to administer the prize competition, subject*
11 *to the provisions of this section.*

12 “(i) *FUNDING.—(1) The Administrator may accept*
13 *funds from other Federal agencies and from the private sec-*
14 *tor for cash prizes under this section. Such funds shall not*
15 *increase the amount of a prize after the amount has been*
16 *announced pursuant to subsection (d). The Administrator*
17 *may not give any special consideration to any private sec-*
18 *tor entity in return for a donation.*

19 “(2) *Funds appropriated for the program under this*
20 *section shall remain available until expended, and may be*
21 *transferred, reprogrammed, or expended for other purposes*
22 *only after the expiration of 10 fiscal years after the fiscal*
23 *year for which the funds were originally appropriated. No*
24 *provision in this section permits obligation or payment of*

1 *funds in violation of the Anti-Deficiency Act (31 U.S.C.*
2 *1341).*

3 “(3) *No prize may be announced under subsection (d)*
4 *until all the funds for that prize have been appropriated*
5 *or obligated for such purpose by a private sector source.*

6 “(4) *No prize competition under this section may offer*
7 *a prize in an amount greater than \$10,000,000 unless 30*
8 *days have elapsed after written notice has been provided*
9 *to the Committee on Science of the House of Representatives*
10 *and the Committee on Commerce, Science, and Transpor-*
11 *tation of the Senate.*

12 “(j) *USE OF NASA NAME AND INSIGNIA.—A registered*
13 *participant in a competition under this section may use*
14 *the Administration’s name, initials, or insignia only after*
15 *prior review and written approval by the Administration.*

16 “(k) *COMPLIANCE WITH EXISTING LAW.—The Federal*
17 *Government shall not, by virtue of offering or providing a*
18 *prize under this section, be responsible for compliance by*
19 *registered participants in a prize competition with Federal*
20 *law, including licensing, export control, and nonprolifera-*
21 *tion laws, and related regulations.”.*

22 **SEC. 105. FOREIGN LAUNCH VEHICLES.**

23 “(a) *ACCORD WITH SPACE TRANSPORTATION POL-*
24 *ICY.—NASA shall not launch a mission on a foreign launch*

1 *vehicle except in accordance with the Space Transportation*
2 *Policy announced by the President on December 21, 2004.*

3 (b) *INTERAGENCY COORDINATION.*—NASA shall not
4 *launch a mission on a foreign launch vehicle unless NASA*
5 *commenced the interagency coordination required by the*
6 *Space Transportation Policy announced by the President*
7 *on December 21, 2004, at least 90 days before entering into*
8 *a development contract for the mission.*

9 (c) *APPLICATION.*—This section shall not apply to any
10 *mission for which development has begun prior to the date*
11 *of enactment of this Act, including the James Webb Space*
12 *Telescope.*

13 **SEC. 106. SAFETY MANAGEMENT.**

14 *Section 6 of the National Aeronautics and Space Ad-*
15 *ministration Authorization Act, 1968 (42 U.S.C. 2477) is*
16 *amended—*

17 (1) *by inserting “(a) IN GENERAL.—” before*
18 *“There is hereby”;*

19 (2) *by striking “plans referred to it” and insert-*
20 *ing “plans referred to it, including evaluating the Na-*
21 *tional Aeronautics and Space Administration’s com-*
22 *pliance with the return-to-flight and continue-to-fly*
23 *recommendations of the Columbia Accident Investiga-*
24 *tion Board,”;*

1 (3) by inserting “and the Congress” after “advise
2 *the Administrator*”;

3 (4) by striking “and with respect to the ade-
4 *quacy of proposed or existing safety standards and*
5 *shall” and inserting “, with respect to the adequacy*
6 *of proposed or existing safety standards, and with re-*
7 *spect to management and culture. The Panel shall*
8 *also*”; and

9 (5) by adding at the end the following:

10 “(b) *ANNUAL REPORT.—The Panel shall submit an*
11 *annual report to the Administrator and to the Congress.*
12 *In the first annual report submitted after the date of enact-*
13 *ment of the National Aeronautics and Space Administra-*
14 *tion Authorization Act of 2005, the Panel shall include an*
15 *evaluation of the Administration’s safety management cul-*
16 *ture. Each annual report shall include an evaluation of the*
17 *Administration’s compliance with the recommendations of*
18 *the Columbia Accident Investigation Board.”.*

19 **SEC. 107. LESSONS LEARNED AND BEST PRACTICES.**

20 (a) *IN GENERAL.—The Administrator shall provide an*
21 *implementation plan describing NASA’s approach for ob-*
22 *taining, implementing, and sharing lessons learned and*
23 *best practices for its major programs and projects not later*
24 *than 180 days after the date of enactment of this Act. The*
25 *implementation plan shall be updated and maintained to*

1 *ensure that it is current and consistent with the burgeoning*
2 *culture of learning and safety that is emerging at NASA.*

3 (b) *REQUIRED CONTENT.*—*The implementation plan*
4 *shall contain at a minimum the lessons learned and best*
5 *practices requirements for NASA, the organizations or posi-*
6 *tions responsible for enforcement of the requirements, the*
7 *reporting structure, and the objective performance measures*
8 *indicating the effectiveness of the activity.*

9 (c) *INCENTIVES.*—*The Administrator shall provide in-*
10 *centives to encourage sharing and implementation of lessons*
11 *learned and best practices by employees, projects, and pro-*
12 *grams, as well as penalties for programs and projects that*
13 *are determined not to have demonstrated use of those re-*
14 *sources.*

15 **SEC. 108. COMMERCIALIZATION PLAN.**

16 (a) *IN GENERAL.*—*The Administrator, in consultation*
17 *with other relevant agencies, shall develop a commercializa-*
18 *tion plan to support the human missions to the Moon and*
19 *Mars, to support Low-Earth Orbit activities and Earth*
20 *science missions and applications, and to transfer science*
21 *research and technology to society. The plan shall identify*
22 *opportunities for the private sector to participate in the fu-*
23 *ture missions and activities, including opportunities for*
24 *partnership between NASA and the private sector in con-*
25 *ducting research and the development of technologies and*

1 *services. The plan shall include provisions for developing*
2 *and funding sustained university and industry partner-*
3 *ships to conduct commercial research and technology devel-*
4 *opment, to proactively translate results of space research*
5 *to Earth benefits, to advance United States economic inter-*
6 *ests, and to support the vision for exploration.*

7 **(b) REPORT.**—*Not later than 180 days after the date*
8 *of enactment of this Act, the Administrator shall submit*
9 *a copy of the plan to the Committee on Science of the House*
10 *of Representatives and the Committee on Commerce,*
11 *Science, and Transportation of the Senate.*

12 **SEC. 109. STUDY ON THE FEASIBILITY OF USE OF GROUND**
13 **SOURCE HEAT PUMPS.**

14 **(a) IN GENERAL.**—*The Administrator shall conduct a*
15 *feasibility study on the use of ground source heat pumps*
16 *in future NASA facilities or substantial renovation of exist-*
17 *ing NASA facilities involving the installation of heating,*
18 *ventilating, and air conditioning systems.*

19 **(b) CONTENTS.**—*The study shall examine—*

20 **(1)** *the life-cycle costs, including maintenance*
21 *costs, of the operation of such heat pumps compared*
22 *to generally available heating, cooling, and water*
23 *heating equipment;*

24 **(2)** *barriers to installation, such as availability*
25 *and suitability of terrain; and*

1 (3) *such other issues as the Administrator con-*
2 *siders appropriate.*

3 (c) *DEFINITION.—In this section, the term “ground*
4 *source heat pump” means an electric-powered system that*
5 *uses the Earth’s relatively constant temperature to provide*
6 *heating, cooling, or hot water.*

7 ***TITLE II—AUTHORIZATION OF***
8 ***APPROPRIATIONS***

9 ***SEC. 201. STRUCTURE OF BUDGETARY ACCOUNTS.***

10 *Section 313 of the National Aeronautics and Space Act*
11 *of 1958 (42 U.S.C. 2459f) is amended to read as follows:*

12 ***“SEC. 313. BUDGETARY ACCOUNTS.***

13 *“Appropriations for the Administration for fiscal year*
14 *2007 and thereafter shall be made in four accounts,*
15 *‘Science, Aeronautics, and Education’, ‘Exploration Sys-*
16 *tems’, ‘Space Operations’, and an account for amounts ap-*
17 *propriated for the necessary expenses of the Office of the*
18 *Inspector General. Appropriations shall remain available*
19 *for two fiscal years, unless otherwise specified in law. Each*
20 *account shall include the planned full costs of Administra-*
21 *tion activities.”.*

22 ***SEC. 202. FISCAL YEAR 2006.***

23 *There are authorized to be appropriated to NASA for*
24 *fiscal year 2006 \$16,471,050,000, as follows:*

1 (1) *For Science, Aeronautics and Education (in-*
2 *cluding amounts for construction of facilities),*
3 *\$6,870,250,000 of which—*

4 (A) *\$962,000,000 shall be for Aeronautics;*

5 (B) *\$150,000,000 shall be for a Hubble*
6 *Space Telescope servicing mission; and*

7 (C) *\$24,000,000 shall be for the National*
8 *Space Grant College and Fellowship Program.*

9 (2) *For Exploration Systems (including amounts*
10 *for construction of facilities), \$3,181,100,000.*

11 (3) *For Space Operations (including amounts*
12 *for construction of facilities), \$6,387,300,000.*

13 (4) *For the Office of Inspector General,*
14 *\$32,400,000.*

15 **SEC. 203. FISCAL YEAR 2007.**

16 *There are authorized to be appropriated to NASA for*
17 *fiscal year 2007 \$16,962,000,000, as follows:*

18 (1) *For Science, Aeronautics and Education (in-*
19 *cluding amounts for construction of facilities),*
20 *\$7,331,600,000 of which—*

21 (A) *\$990,000,000 shall be for Aeronautics;*

22 *and*

23 (B) *\$24,000,000 shall be for the National*
24 *Space Grant College and Fellowship Program.*

1 (2) *For Exploration Systems (including amounts*
2 *for construction of facilities), \$3,589,200,000.*

3 (3) *For Space Operations (including amounts*
4 *for construction of facilities), \$6,007,700,000.*

5 (4) *For the Office of Inspector General,*
6 *\$33,500,000.*

7 **SEC. 204. ISS RESEARCH.**

8 *The Administrator shall allocate at least 15 percent*
9 *of the funds budgeted for ISS research to research that is*
10 *not directly related to supporting the human exploration*
11 *program.*

12 **SEC. 205. TEST FACILITIES.**

13 (a) *CHARGES.—The Administrator shall establish a*
14 *policy of charging users of NASA’s test facilities for the*
15 *costs associated with their tests at a level that is competitive*
16 *with alternative test facilities. As a general principle,*
17 *NASA shall not seek to recover the full costs of the operation*
18 *of those facilities from the users. The Administrator shall*
19 *not implement a policy of seeking full cost recovery for a*
20 *facility until at least 30 days after transmitting a notice*
21 *to the Committee on Science of the House of Representatives*
22 *and the Committee on Commerce, Science, and Transpor-*
23 *tation of the Senate.*

24 (b) *FUNDING ACCOUNT.—The Administrator shall es-*
25 *tablish a funding account that shall be used for all test fa-*

1 *cilities. The account shall be sufficient to maintain the via-*
2 *bility of test facilities during periods of low utilization.*

3 **SEC. 206. PROPORTIONALITY.**

4 *If the total amount appropriated for NASA pursuant*
5 *to section 202 or 203 is less than the amount authorized*
6 *under such section, the amounts authorized under each of*
7 *the accounts specified in such section shall be reduced pro-*
8 *portionately.*

9 **SEC. 207. LIMITATIONS ON AUTHORITY.**

10 *Notwithstanding any other provision of this Act, no*
11 *amount appropriated pursuant to this Act may be used for*
12 *any program in excess of the amount actually authorized*
13 *for the particular program by section 202 or 203, unless*
14 *a period of 30 days has passed after the receipt, by each*
15 *such Committee, of notice given by the Administrator con-*
16 *taining a full and complete statement of the action proposed*
17 *to be taken and the facts and circumstances relied upon*
18 *in support of such a proposed action. NASA shall keep the*
19 *Committee on Science of the House of Representatives and*
20 *the Committee on Commerce, Science, and Transportation*
21 *of the Senate fully and currently informed with respect to*
22 *all activities and responsibilities within the jurisdiction of*
23 *those Committees.*

1 **SEC. 208. NOTICE OF REPROGRAMMING.**

2 *If any funds authorized by this Act are subject to a*
3 *reprogramming action that requires notice to be provided*
4 *to the Appropriations Committees of the House of Rep-*
5 *resentatives and the Senate, notice of such action shall con-*
6 *currently be provided to the Committee on Science of the*
7 *House of Representatives and the Committee on Commerce,*
8 *Science, and Transportation of the Senate.*

9 **SEC. 209. COST OVERRUNS.**

10 *When reprogramming funds to cover unexpected cost*
11 *growth within a program, the Administrator shall, to the*
12 *maximum extent practicable, protect funds intended for*
13 *fundamental and applied Research and Analysis.*

14 **SEC. 210. OFFICIAL REPRESENTATIONAL FUND.**

15 *Amounts appropriated pursuant to this Act may be*
16 *used, but not to exceed a total of \$35,000 in any fiscal year,*
17 *for official reception and representation expenses.*

18 **SEC. 211. INTERNATIONAL SPACE STATION COST CAP.**

19 *Section 202 of the National Aeronautics and Space*
20 *Administration Authorization Act of 2000 (42 U.S.C. 2451*
21 *note) is repealed.*

TITLE III—SCIENCE

Subtitle A—General Provisions

SEC. 301. PERFORMANCE ASSESSMENTS.

(a) *IN GENERAL.*—Performance of each discipline in the Science account of NASA shall be reviewed and assessed by the National Academy of Sciences at 5-year intervals.

(b) *TIMING.*—Beginning with the first fiscal year following the date of enactment of this Act, the Administrator shall select at least one discipline for review under this section. The Administrator shall select disciplines so that all disciplines will have received their first review within six fiscal years of the date of enactment of this Act.

(c) *REPORTS.*—Each year, beginning with the first fiscal year after the date of enactment of this Act, the Administrator shall transmit a report to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate—

(1) *setting forth in detail the results of any external review under subsection (a);*

(2) *setting forth in detail actions taken by NASA in response to any external review; and*

(3) *including a summary of findings and recommendations from any other relevant external reviews of NASA’s science mission priorities and programs.*

1 **SEC. 302. STATUS REPORT ON HUBBLE SPACE TELESCOPE**
2 **SERVICING MISSION.**

3 *It is the sense of the Congress that the Hubble Space*
4 *Telescope is an extraordinary instrument that has provided,*
5 *and should continue to provide, answers to profound sci-*
6 *entific questions. In accordance with the recommendations*
7 *of the National Academy of Sciences, all appropriate efforts*
8 *should be expended to complete the Space Shuttle servicing*
9 *mission. Upon successful completion of the planned return-*
10 *to-flight schedule of the Space Shuttle, the schedule for a*
11 *Space Shuttle servicing mission to the Hubble Space Tele-*
12 *scope shall be determined, unless such a mission would com-*
13 *promise astronaut safety. Not later than 60 days after the*
14 *landing of the second Space Shuttle mission for return-to-*
15 *flight certification, the Administrator shall transmit to the*
16 *Committee on Science of the House of Representatives and*
17 *the Committee on Commerce, Science, and Transportation*
18 *of the Senate a status report on plans for a Hubble Space*
19 *Telescope servicing mission.*

20 **SEC. 303. INDEPENDENT ASSESSMENT OF LANDSAT-**
21 **NPOESS INTEGRATED MISSION.**

22 *(a) ASSESSMENT.—In view of the importance of ensur-*
23 *ing continuity of Landsat data and in view of the chal-*
24 *lenges facing the National Polar-Orbiting Environmental*
25 *Satellite System program, the Administrator shall seek an*
26 *independent assessment of the costs as well as the technical,*

1 *cost, and schedule risks associated with incorporating the*
2 *Landsat instrument on the first National Polar-Orbiting*
3 *Environmental Satellite System spacecraft versus under-*
4 *taking a dedicated Landsat data “gap-filler” mission fol-*
5 *lowed by the incorporation of the Landsat instrument on*
6 *the second National Polar-Orbiting Environmental Sat-*
7 *ellite System spacecraft. The assessment shall also include*
8 *an evaluation of the budgetary requirements of each of the*
9 *options under consideration.*

10 *(b) REPORT.—The Administrator shall transmit the*
11 *independent assessment to the Committee on Science of the*
12 *House of Representatives and the Committee on Commerce,*
13 *Science, and Transportation of the Senate not later than*
14 *180 days after the date of enactment of this Act.*

15 **SEC. 304. ASSESSMENT OF SCIENCE MISSION EXTENSIONS.**

16 *(a) ASSESSMENT.—The Administrator shall carry out*
17 *annual termination reviews within each of the Science dis-*
18 *ciplines to assess the cost and benefits of extending the date*
19 *of the termination of data collection for those missions*
20 *which are beyond their primary goals. In addition:*

21 *(1) Not later than 60 days after the date of en-*
22 *actment of this Act, the Administrator shall carry out*
23 *such an assessment for the following missions: FAST,*
24 *TIMED, Cluster, Wind, Geotail, Polar, TRACE,*
25 *Ulysses, and Voyager.*

1 (2) *For those missions that have an operational*
2 *component, the National Oceanic and Atmospheric*
3 *Administration shall be consulted and the potential*
4 *benefits of instruments on missions which are beyond*
5 *their primary goals taken into account.*

6 (b) *REPORT.*—*Not later than 30 days after completing*
7 *the assessments required by subsection (a)(1), the Adminis-*
8 *trator shall transmit a report on the assessment to the Com-*
9 *mittee on Science of the House of Representatives and the*
10 *Committee on Commerce, Science, and Transportation of*
11 *the Senate.*

12 **SEC. 305. MICROGRAVITY RESEARCH.**

13 (a) *IN GENERAL.*—*The Administrator shall—*

14 (1) *not later than 60 days after the date of en-*
15 *actment of this Act, provide to the Committee on*
16 *Science of the House of Representatives and the Com-*
17 *mittee on Commerce, Science, and Transportation of*
18 *the Senate an assessment of microgravity research*
19 *planned for implementation aboard the ISS that in-*
20 *cludes the identification of research which can be per-*
21 *formed in ground-based facilities and then validated*
22 *in space;*

23 (2) *ensure the capacity to support ground-based*
24 *research leading to space-based basic and applied sci-*
25 *entific research in a variety of disciplines with poten-*

1 *tial direct national benefits and applications that can*
2 *advance significantly from the uniqueness of micro-*
3 *gravity and the space environment; and*

4 *(3) carry out, to the maximum extent practicable*
5 *basic, applied, and commercial ISS research activi-*
6 *ties such as molecular crystal growth, animal re-*
7 *search, basic fluid physics, combustion research, cel-*
8 *lular biotechnology, low temperature physics, and cel-*
9 *lular research at a level which will sustain the exist-*
10 *ing scientific expertise and research capabilities.*

11 *(b) ON-ORBIT CAPABILITIES.—The Administrator*
12 *shall ensure that the on-orbit analytical capabilities of the*
13 *ISS are sufficient to support any diagnostic human re-*
14 *search and on-orbit characterization of molecular crystal*
15 *growth, cellular research, and other research that NASA be-*
16 *lieves is necessary to conduct, but for which NASA lacks*
17 *the capacity to return the materials that need to be ana-*
18 *lyzed to Earth.*

19 *(c) ASSESSMENT OF POTENTIAL SCIENTIFIC USES.—*
20 *The Administrator shall assess further potential scientific*
21 *uses of the ISS for other applications, such as technology*
22 *development, development of manufacturing processes,*
23 *Earth observation and characterization, and astronomical*
24 *observations.*

1 **SEC. 306. COORDINATION WITH THE NATIONAL OCEANIC**
2 **AND ATMOSPHERIC ADMINISTRATION.**

3 (a) *JOINT WORKING GROUP.*—*The Administrator and*
4 *the Administrator of the National Oceanic and Atmospheric*
5 *Administration shall appoint a Joint Working Group,*
6 *which shall review and monitor missions of the two agencies*
7 *to ensure maximum coordination in the design, operation,*
8 *and transition of missions. The Joint Working Group shall*
9 *also prepare the transition plans required by subsection (c).*

10 (b) *COORDINATION REPORT.*—*Not later than February*
11 *15 of each year, the Under Secretary of Commerce for*
12 *Oceans and Atmosphere and the Administrator shall jointly*
13 *transmit a report to the Committee on Science of the House*
14 *of Representatives and the Committee on Commerce,*
15 *Science, and Transportation of the Senate on how the earth*
16 *science programs of the National Oceanic and Atmospheric*
17 *Administration and NASA will be coordinated during the*
18 *fiscal year following the fiscal year in which the report is*
19 *transmitted.*

20 (c) *COORDINATION OF TRANSITION PLANNING AND RE-*
21 *PORTING.*—*The Administrator, in conjunction with the Ad-*
22 *ministrator of the National Oceanic and Atmospheric Ad-*
23 *ministration, shall evaluate all NASA missions for their po-*
24 *tential operational capabilities and shall prepare transition*
25 *plans for all existing and future Earth observing systems*
26 *found to have potential operational capabilities and all Na-*

1 *tional Oceanic and Atmospheric Administration oper-*
2 *ational space-based systems.*

3 (d) *LIMITATION.*—*The Administrator shall not trans-*
4 *fer any NASA earth science mission or Earth observing sys-*
5 *tem to the National Oceanic and Atmospheric Administra-*
6 *tion until the transition plan required under subsection (c)*
7 *has been approved by the Administrator and the Adminis-*
8 *trator of the National Oceanic and Atmospheric Adminis-*
9 *tration and until financial resources have been identified*
10 *to support the transition or transfer in the President’s*
11 *budget request for the National Oceanic and Atmospheric*
12 *Administration.*

13 ***Subtitle B—Remote Sensing***

14 ***SEC. 311. DEFINITIONS.***

15 *In this subtitle—*

16 (1) *the term “geospatial information” means*
17 *knowledge of the nature and distribution of physical*
18 *and cultural features on the landscape based on anal-*
19 *ysis of data from airborne or spaceborne platforms or*
20 *other types and sources of data;*

21 (2) *the term “high resolution” means resolution*
22 *better than five meters; and*

23 (3) *the term “institution of higher education”*
24 *has the meaning given that term in section 101(a) of*

1 *merging that data with other geospatial information,*
2 *to create data products that have significant value*
3 *added to the original data; and*

4 *(5) taken together demonstrate as diverse a set of*
5 *public sector applications as possible.*

6 *(c) OPPORTUNITIES.—In carrying out this section, the*
7 *Administrator shall seek opportunities to assist—*

8 *(1) in the development of commercial applica-*
9 *tions potentially available from the remote sensing in-*
10 *dustry; and*

11 *(2) State, local, regional, and tribal agencies in*
12 *applying remote sensing and other geospatial infor-*
13 *mation technologies for growth management.*

14 *(d) DURATION.—Assistance for a pilot project under*
15 *subsection (a) shall be provided for a period not to exceed*
16 *3 years.*

17 *(e) REPORT.—Each recipient of a grant under sub-*
18 *section (a) shall transmit a report to the Administrator on*
19 *the results of the pilot project within 180 days of the com-*
20 *pletion of that project.*

21 *(f) WORKSHOP.—Each recipient of a grant under sub-*
22 *section (a) shall, not later than 180 days after the comple-*
23 *tion of the pilot project, conduct at least one workshop for*
24 *potential users to disseminate the lessons learned from the*
25 *pilot project as widely as feasible.*

1 (g) *REGULATIONS.*—*The Administrator shall issue reg-*
2 *ulations establishing application, selection, and implemen-*
3 *tation procedures for pilot projects, and guidelines for re-*
4 *ports and workshops required by this section.*

5 **SEC. 313. PROGRAM EVALUATION.**

6 (a) *ADVISORY COMMITTEE.*—*The Administrator shall*
7 *establish an advisory committee, consisting of individuals*
8 *with appropriate expertise in State, local, regional, and*
9 *tribal agencies, the university research community, and the*
10 *remote sensing and other geospatial information industry,*
11 *to monitor the program established under section 312. The*
12 *advisory committee shall consult with the Federal Geo-*
13 *graphic Data Committee and other appropriate industry*
14 *representatives and organizations. Notwithstanding section*
15 *14 of the Federal Advisory Committee Act, the advisory*
16 *committee established under this subsection shall remain in*
17 *effect until the termination of the program under section*
18 *312.*

19 (b) *EFFECTIVENESS EVALUATION.*—*Not later than De-*
20 *cember 31, 2009, the Administrator shall transmit to the*
21 *Congress an evaluation of the effectiveness of the program*
22 *established under section 312 in exploring and promoting*
23 *the integrated use of sources of remote sensing and other*
24 *geospatial information to address State, local, regional, and*

1 *tribal agency needs. Such evaluation shall have been con-*
2 *ducted by an independent entity.*

3 **SEC. 314. DATA AVAILABILITY.**

4 *The Administrator shall ensure that the results of each*
5 *of the pilot projects completed under section 312 shall be*
6 *retrievable through an electronic, Internet-accessible data-*
7 *base.*

8 **SEC. 315. EDUCATION.**

9 *The Administrator shall establish an educational out-*
10 *reach program to increase awareness at institutions of high-*
11 *er education and State, local, regional, and tribal agencies*
12 *of the potential applications of remote sensing and other*
13 *geospatial information.*

14 ***Subtitle C—George E. Brown, Jr.***
15 ***Near-Earth Object Survey***

16 **SEC. 321. GEORGE E. BROWN, JR. NEAR-EARTH OBJECT SUR-**
17 **VEY.**

18 (a) *SHORT TITLE.*—*This section may be cited as the*
19 *“George E. Brown, Jr. Near-Earth Object Survey Act”.*

20 (b) *FINDINGS.*—*The Congress makes the following*
21 *findings:*

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

1 *mass extinction of the majority of the Earth's species,*
2 *including the dinosaurs, nearly 65,000,000 years ago.*

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

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

12 (4) *The efforts taken to date by NASA for detect-*
13 *ing and characterizing the hazards of near-Earth ob-*
14 *jects are not sufficient to fully determine the threat*
15 *posed by such objects to cause widespread destruction*
16 *and loss of life.*

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

21 (d) *NEAR-EARTH OBJECT SURVEY.—*

22 (1) *SURVEY PROGRAM.—The Administrator shall*
23 *plan, develop, and implement a Near-Earth Object*
24 *Survey program to detect, track, catalogue, and char-*
25 *acterize the physical characteristics of near-Earth ob-*

1 jects equal to or greater than 100 meters in diameter
2 in order to assess the threat of such near-Earth objects
3 to the Earth. It shall be the goal of the Survey pro-
4 gram to achieve 90 percent completion of its near-
5 Earth object catalogue (based on statistically pre-
6 dicted populations of near-Earth objects) within 15
7 years after the date of enactment of this Act.

8 (2) *AMENDMENTS.*—Section 102 of the National
9 Aeronautics and Space Act of 1958 (42 U.S.C. 2451)
10 is amended—

11 (A) by redesignating subsection (g) as sub-
12 section (h);

13 (B) by inserting after subsection (f) the fol-
14 lowing new subsection:

15 “(g) The Congress declares that the general welfare and
16 security of the United States require that the unique com-
17 petence of the National Aeronautics and Space Administra-
18 tion be directed to detecting, tracking, cataloguing, and
19 characterizing near-Earth asteroids and comets in order to
20 provide warning and mitigation of the potential hazard of
21 such near-Earth objects to the Earth.”; and

22 (C) in subsection (h), as so redesignated by
23 subparagraph (A) of this paragraph, by striking
24 “and (f)” and inserting “(f), and (g)”.

1 (3) *ANNUAL REPORT.*—*The Administrator shall*
2 *transmit to the Congress, not later than February 28*
3 *of each of the next 5 years beginning after the date*
4 *of enactment of this Act, a report that provides the*
5 *following:*

6 (A) *A summary of all activities taken pur-*
7 *suant to paragraph (1) for the previous fiscal*
8 *year.*

9 (B) *A summary of expenditures for all ac-*
10 *tivities pursuant to paragraph (1) for the pre-*
11 *vious fiscal year.*

12 (4) *INITIAL REPORT.*—*The Administrator shall*
13 *transmit to Congress not later than 1 year after the*
14 *date of enactment of this Act an initial report that*
15 *provides the following:*

16 (A) *An analysis of possible alternatives that*
17 *NASA may employ to carry out the Survey pro-*
18 *gram, including ground-based and space-based*
19 *alternatives with technical descriptions.*

20 (B) *A recommended option and proposed*
21 *budget to carry out the Survey program pursu-*
22 *ant to the recommended option.*

23 (C) *An analysis of possible alternatives that*
24 *NASA could employ to divert an object on a like-*
25 *ly collision course with Earth.*

1 **TITLE IV—AERONAUTICS**

2 **SEC. 401. DEFINITION.**

3 *For purposes of this title, the term “institution of high-*
4 *er education” has the meaning given that term by section*
5 *101 of the Higher Education Act of 1965 (20 U.S.C. 1001).*

6 **Subtitle A—National Policy for Aer-**
7 **onautics Research and Develop-**
8 **ment**

9 **SEC. 411. POLICY.**

10 *It shall be the policy of the United States to reaffirm*
11 *the National Aeronautics and Space Act of 1958 and its*
12 *identification of aeronautical research and development as*
13 *a core mission of NASA. Further, it shall be the policy of*
14 *the United States to promote aeronautical research and de-*
15 *velopment that will expand the capacity, ensure the safety,*
16 *and increase the efficiency of the Nation’s air transpor-*
17 *tation system, promote the security of the Nation, protect*
18 *the environment, and retain the leadership of the United*
19 *States in global aviation.*

20 **Subtitle B—NASA Aeronautics**
21 **Breakthrough Research Initiatives**

22 **SEC. 421. ENVIRONMENTAL AIRCRAFT RESEARCH AND DE-**
23 **VELOPMENT INITIATIVE.**

24 *(a) OBJECTIVE.—The Administrator may establish an*
25 *initiative with the objective of developing, and dem-*

1 *onstrating in a relevant environment, within 10 years after*
2 *the date of enactment of this Act, technologies to enable the*
3 *following commercial aircraft performance characteristics:*

4 (1) *NOISE*.—*Noise levels on takeoff and on air-*
5 *port approach and landing that do not exceed ambi-*
6 *ent noise levels in the absence of flight operations in*
7 *the vicinity of airports from which such commercial*
8 *aircraft would normally operate.*

9 (2) *ENERGY CONSUMPTION*.—*Twenty-five percent*
10 *reduction in the energy required for medium to long*
11 *range flights, compared to aircraft in commercial*
12 *service as of the date of enactment of this Act. This*
13 *reduction may be achieved by a combination of im-*
14 *provements to—*

15 (A) *specific fuel consumption;*

16 (B) *lift-to-drag ratio; and*

17 (C) *structural weight fraction.*

18 (3) *EMISSIONS*.—*Nitrogen oxides on take-off and*
19 *landing that are reduced by 50 percent relative to*
20 *aircraft in commercial service as of the date of enact-*
21 *ment of this Act.*

22 (b) *STUDY*.—

23 (1) *REQUIREMENT*.—*The Administrator shall*
24 *enter into an arrangement for the National Research*
25 *Council to conduct a study to identify and quantify*

1 *new markets that would be created, as well as existing*
2 *markets that would be expanded, by the incorporation*
3 *of the technologies developed pursuant to this section*
4 *into future commercial aircraft. The study shall iden-*
5 *tify whether any of the performance characteristics*
6 *specified in subsection (a) would need to be made*
7 *more stringent in order to create new markets or ex-*
8 *pand existing markets. The National Research Coun-*
9 *cil shall seek input from at least the aircraft manu-*
10 *facturing industry, academia, and the airlines in car-*
11 *rying out the study.*

12 *(2) REPORT.—A report containing the results of*
13 *the study conducted under paragraph (1) shall be pro-*
14 *vided to Congress not later than 18 months after the*
15 *date of enactment of this Act.*

16 **SEC. 422. CIVIL SUPERSONIC TRANSPORT RESEARCH AND**
17 **DEVELOPMENT INITIATIVE.**

18 *The Administrator may establish an initiative with*
19 *the objective of developing, and demonstrating in a relevant*
20 *environment, within 20 years after the date of enactment*
21 *of this Act, technologies to enable overland flight of super-*
22 *sonic civil transport aircraft with at least the following per-*
23 *formance characteristics:*

24 *(1) Mach number of at least 1.4.*

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

1 (3) *Payload of at least 24 passengers.*

2 (4) *Noise levels on takeoff and on airport ap-*
3 *proach and landing that meet community noise*
4 *standards in place at airports from which such com-*
5 *mmercial supersonic aircraft would normally operate*
6 *at the time the aircraft would enter commercial serv-*
7 *ice.*

8 (5) *Shaped sonic boom signatures sufficiently*
9 *low to permit overland flight over populated areas.*

10 (6) *Nitrogen oxide, carbon dioxide, and water*
11 *vapor emissions consistent with regulations likely to*
12 *be in effect at the time of this aircraft's introduction.*

13 **SEC. 423. ROTORCRAFT AND OTHER RUNWAY-INDE-**
14 **PENDENT AIR VEHICLES RESEARCH AND DE-**
15 **VELOPMENT INITIATIVE.**

16 *The Administrator may establish a rotorcraft and*
17 *other runway-independent air vehicles initiative with the*
18 *objective of developing and demonstrating in a relevant en-*
19 *vironment, within 10 years after the date of enactment of*
20 *this Act, technologies to enable significantly safer, quieter,*
21 *and more environmentally compatible operation from a*
22 *wider range of airports under a wider range of weather con-*
23 *ditions than is the case for rotorcraft and other runway-*
24 *independent air vehicles in service as of the date of enact-*
25 *ment of this Act.*

1 **Subtitle C—Other NASA Aero-**
2 **nautics Research and Develop-**
3 **ment Activities**

4 **SEC. 431. FUNDAMENTAL RESEARCH AND TECHNOLOGY**
5 **BASE PROGRAM.**

6 (a) *OBJECTIVE.*—In order to ensure that the Nation
7 maintains needed capabilities in fundamental areas of
8 aeronautical research, the Administrator shall establish a
9 program of long-term fundamental research in aeronautical
10 sciences and technologies that is not tied to specific develop-
11 ment projects.

12 (b) *ASSESSMENT.*—The Administrator shall enter into
13 an arrangement with the National Research Council for an
14 assessment of the Nation’s future requirements for funda-
15 mental aeronautics research and whether the Nation will
16 have a skilled research workforce and research facilities
17 commensurate with those requirements. The assessment
18 shall include an identification of any projected gaps, and
19 recommendations for what steps should be taken by the Fed-
20 eral Government to eliminate those gaps.

21 (c) *REPORT.*—The Administrator shall transmit the
22 assessment, along with NASA’s response to the assessment,
23 to Congress not later than 2 years after the date of enact-
24 ment of this Act.

1 **SEC. 432. AIRSPACE SYSTEMS RESEARCH.**

2 (a) *OBJECTIVE.*—*The Airspace Systems Research pro-*
3 *gram shall pursue research and development to enable revo-*
4 *lutionary improvements to and modernization of the Na-*
5 *tional Airspace System, as well as to enable the introduc-*
6 *tion of new systems for vehicles that can take advantage*
7 *of an improved, modern air transportation system.*

8 (b) *ALIGNMENT.*—*Not later than 2 years after the date*
9 *of enactment of this Act, the Administrator shall align the*
10 *projects of the Airspace Systems Research program so that*
11 *they directly support the objectives of the Joint Planning*
12 *and Development Office’s Next Generation Air Transpor-*
13 *tation System Integrated Plan.*

14 **SEC. 433. AVIATION SAFETY AND SECURITY RESEARCH.**

15 (a) *OBJECTIVE.*—*The Aviation Safety and Security*
16 *Research program shall pursue research and development*
17 *activities that directly address the safety and security needs*
18 *of the National Airspace System and the aircraft that fly*
19 *in it. The program shall develop prevention, intervention,*
20 *and mitigation technologies aimed at causal, contributory,*
21 *or circumstantial factors of aviation accidents.*

22 (b) *PLAN.*—*Not later than 1 year after the date of en-*
23 *actment of this Act, the Administrator shall transmit to*
24 *Congress a 5-year prioritized plan for the research to be*
25 *conducted within the Aviation Safety and Security Re-*
26 *search program. The plan shall be aligned with the objec-*

1 *tives of the Joint Planning and Development Office's Next*
2 *Generation Air Transportation System Integrated Plan.*

3 **SEC. 434. ZERO-EMISSIONS AIRCRAFT RESEARCH.**

4 (a) *OBJECTIVE.*—*The Administrator may establish a*
5 *zero-emissions aircraft research program whose objective*
6 *shall be to develop and test concepts to enable a hydrogen*
7 *fuel cell-powered aircraft that would have no hydrocarbon*
8 *or nitrogen oxide emissions into the environment.*

9 (b) *APPROACH.*—*The Administrator may establish a*
10 *program of competitively awarded grants available to teams*
11 *of researchers that may include the participation of indi-*
12 *viduals from universities, industry, and government for the*
13 *conduct of this research.*

14 **SEC. 435. MARS AIRCRAFT RESEARCH.**

15 (a) *OBJECTIVE.*—*The Administrator may establish a*
16 *Mars Aircraft project whose objective shall be to develop and*
17 *test concepts for an uncrewed aircraft that could operate*
18 *for sustained periods in the atmosphere of Mars.*

19 (b) *APPROACH.*—*The Administrator may establish a*
20 *program of competitively awarded grants available to teams*
21 *of researchers that may include the participation of indi-*
22 *viduals from universities, industry, and government for the*
23 *conduct of this research.*

1 **SEC. 436. HYPERSONICS RESEARCH.**

2 *The Administrator may establish a hypersonics re-*
3 *search program whose objective shall be to explore the*
4 *science and technology of hypersonic flight using air-breath-*
5 *ing propulsion concepts, through a mix of theoretical work,*
6 *basic and applied research, and development of flight re-*
7 *search demonstration vehicles.*

8 **SEC. 437. NASA AERONAUTICS SCHOLARSHIPS.**

9 *(a) ESTABLISHMENT.—The Administrator shall estab-*
10 *lish a program of scholarships for full-time graduate stu-*
11 *dents who are United States citizens and are enrolled in,*
12 *or have been accepted by and have indicated their intention*
13 *to enroll in, accredited Masters degree programs in aero-*
14 *nautical engineering at institutions of higher education.*
15 *Each such scholarship shall cover the costs of room, board,*
16 *tuition, and fees, and may be provided for a maximum of*
17 *2 years.*

18 *(b) IMPLEMENTATION.—Not later than 180 days after*
19 *the date of enactment of this Act, the Administrator shall*
20 *publish regulations governing the scholarship program*
21 *under this section.*

22 *(c) COOPERATIVE TRAINING OPPORTUNITIES.—Stu-*
23 *dents who have been awarded a scholarship under this sec-*
24 *tion shall have the opportunity for paid employment at one*
25 *of the NASA Centers engaged in aeronautics research and*
26 *development during the summer prior to the first year of*

1 *the student's Masters program, and between the first and*
2 *second year, if applicable.*

3 **SEC. 438. AVIATION WEATHER RESEARCH.**

4 *The Administrator may carry out a program of col-*
5 *laborative research with the National Oceanic and Atmos-*
6 *pheric Administration on convective weather events, with*
7 *the goal of significantly improving the reliability of 2-hour*
8 *to 6-hour aviation weather forecasts.*

9 **SEC. 439. ASSESSMENT OF WAKE TURBULENCE RESEARCH**
10 **AND DEVELOPMENT PROGRAM.**

11 *(a) ASSESSMENT.—The Administrator shall enter into*
12 *an arrangement with the National Research Council for an*
13 *assessment of Federal wake turbulence research and develop-*
14 *ment programs. The assessment shall address at least the*
15 *following questions:*

16 *(1) Are the Federal research and development*
17 *goals and objectives well defined?*

18 *(2) Are there any deficiencies in the Federal re-*
19 *search and development goals and objectives?*

20 *(3) What roles should be played by each of the*
21 *relevant Federal agencies, such as NASA, the Federal*
22 *Aviation Administration, and the National Oceanic*
23 *and Atmospheric Administration, in wake turbulence*
24 *research and development?*

1 (b) *REPORT.*—A report containing the results of the
2 assessment conducted pursuant to subsection (a) shall be
3 provided to Congress not later than 1 year after the date
4 of enactment of this Act.

5 **SEC. 440. UNIVERSITY-BASED CENTERS FOR RESEARCH ON**
6 **AVIATION TRAINING.**

7 (a) *IN GENERAL.*—The Administrator may award
8 grants to institutions of higher education (or consortia
9 thereof) to establish one or more Centers for Research on
10 Aviation Training under cooperative agreements with ap-
11 propriate NASA Centers.

12 (b) *PURPOSE.*—The purpose of the Centers shall be to
13 investigate the impact of new technologies and procedures,
14 particularly those related to the aircraft flight deck and to
15 the air traffic management functions, on training require-
16 ments for pilots and air traffic controllers.

17 (c) *APPLICATION.*—An institution of higher education
18 (or a consortium of such institutions) seeking funding
19 under this section shall submit an application to the Ad-
20 ministrator at such time, in such manner, and containing
21 such information as the Administrator may require, includ-
22 ing, at a minimum, a 5-year research plan.

23 (d) *AWARD DURATION.*—An award made by the Ad-
24 ministrator under this section shall be for a period of 5
25 years and may be renewed on the basis of—

1 (1) *satisfactory performance in meeting the goals*
2 *of the research plan proposed by the Center in its ap-*
3 *plication under subsection (c); and*

4 (2) *other requirements as specified by the Ad-*
5 *ministrator.*

6 **TITLE V—HUMAN SPACE FLIGHT**

7 **SEC. 501. INTERNATIONAL SPACE STATION COMPLETION.**

8 (a) *ELEMENTS, CAPABILITIES, AND CONFIGURATION*
9 *CRITERIA.—The Administrator shall ensure that the ISS*
10 *will be able to—*

11 (1) *be used for a diverse range of microgravity*
12 *research, including fundamental, applied, and com-*
13 *mercial research;*

14 (2) *have an ability to support crew size of at*
15 *least 6 persons;*

16 (3) *support Crew Exploration Vehicle docking*
17 *and automated docking of cargo vehicles or modules*
18 *launched by either heavy-lift or commercially-devel-*
19 *oped launch vehicles; and*

20 (4) *be operated at an appropriate risk level.*

21 (b) *CONTINGENCY PLAN.—The transportation plan to*
22 *support ISS shall include contingency options to ensure suf-*
23 *ficient logistics and on-orbit capabilities to support any po-*
24 *tential period during which the Space Shuttle or its follow-*
25 *on crew and cargo systems is unavailable, and provide suf-*

1 *ficient prepositioning of spares and other supplies needed*
2 *to accommodate any such hiatus.*

3 (c) *CERTIFICATION.*—*Not later than 60 days after the*
4 *date of enactment of this Act, and before making any change*
5 *in the ISS assembly sequence in effect on the date of enact-*
6 *ment of this Act, the Administrator shall certify in writing*
7 *to the Committee on Science of the House of Representatives*
8 *and the Committee on Commerce, Science, and Transpor-*
9 *tation of the Senate NASA’s plan to meet the requirements*
10 *of subsections (a) and (b).*

11 **SEC. 502. HUMAN EXPLORATION PRIORITIES.**

12 (a) *IN GENERAL.*—*The Administrator shall—*

13 (1) *construct an architecture and implementa-*
14 *tion plan for NASA’s human exploration program*
15 *that is not critically dependent on the achievement of*
16 *milestones by fixed dates; and*

17 (2) *determine the relative priority of each of the*
18 *potential elements of NASA’s implementation plan for*
19 *its human exploration program in case funding short-*
20 *falls or cost growth necessitate the adjustment of*
21 *NASA’s implementation plan.*

22 (b) *PRIORITIES.*—*Development of a Crew Exploration*
23 *Vehicle with a robust crew escape system, development of*
24 *a launch system for the Crew Exploration Vehicle, and defi-*
25 *inition of an overall architecture and prioritized implemen-*

1 *tation plan shall be the highest priorities of the human ex-*
2 *ploration program over the period governed by this Act.*

3 **SEC. 503. GAO ASSESSMENT.**

4 *Not later than 9 months after the date of enactment*
5 *of this Act, the Comptroller General shall transmit to the*
6 *Committee on Science of the House of Representatives and*
7 *the Committee on Commerce, Science, and Transportation*
8 *of the Senate an assessment of the milestones and estimated*
9 *costs of the plans submitted under section 102(a)(7).*

10 **TITLE VI—OTHER PROGRAM**
11 **AREAS**

12 **Subtitle A—Space and Flight**
13 **Support**

14 **SEC. 601. ORBITAL DEBRIS.**

15 *The Administrator, in conjunction with the heads of*
16 *other Federal agencies, shall take steps to develop or acquire*
17 *technologies that will enable NASA to decrease the risks as-*
18 *sociated with orbital debris.*

19 **SEC. 602. SECONDARY PAYLOAD CAPABILITY.**

20 *The Administrator is encouraged to provide the capa-*
21 *bilities to support secondary payloads on United States*
22 *launch vehicles, including freeflyers, for satellites or sci-*
23 *entific payloads.*

1 **Subtitle B—Education**

2 **SEC. 611. INSTITUTIONS IN NASA’S MINORITY INSTITU-**
 3 **TIONS PROGRAM.**

4 *The matter appearing under the heading “**NATIONAL***
 5 **AERONAUTICS AND SPACE ADMINISTRATION—SMALL**
 6 **AND DISADVANTAGED BUSINESS”** in title III of the Depart-
 7 *ments of Veterans Affairs and Housing and Urban Develop-*
 8 *ment, and Independent Agencies Appropriations Act, 1990*
 9 *(42 U.S.C. 2473b; 103 Stat. 863) is amended by striking*
 10 *“Historically Black Colleges and Universities and” and in-*
 11 *serting “Historically Black Colleges and Universities that*
 12 *are part B institutions (as defined in section 322(2) of the*
 13 *Higher Education Act of 1965 (20 U.S.C. 1061(2))), His-*
 14 *panic-serving institutions (as defined in section 502(a)(5)*
 15 *of that Act (20 U.S.C. 1101a(a)(5))), Tribal Colleges or*
 16 *Universities (as defined in section 316(b)(3) of that Act (20*
 17 *U.S.C. 1059c(b)(3))), Alaskan Native-serving institutions*
 18 *(as defined in section 317(b)(2) of that Act (20 U.S.C.*
 19 *1059d)(b)(2))), Native Hawaiian-serving institutions (as*
 20 *defined in section 317(b)(4) of that Act (20 U.S.C.*
 21 *1059d)(b)(4))), and”.*

22 **SEC. 612. PROGRAM TO EXPAND DISTANCE LEARNING IN**
 23 **RURAL UNDERSERVED AREAS.**

24 *(a) IN GENERAL.—The Administrator shall develop or*
 25 *expand programs to extend science and space educational*

1 *outreach to rural communities and schools through video*
2 *conferencing, interpretive exhibits, teacher education, class-*
3 *room presentations, and student field trips.*

4 (b) *PRIORITIES.—In carrying out subsection (a), the*
5 *Administrator shall give priority to existing programs—*

6 (1) *that utilize community-based partnerships in*
7 *the field;*

8 (2) *that build and maintain video conference*
9 *and exhibit capacity;*

10 (3) *that travel directly to rural communities and*
11 *serve low-income populations; and*

12 (4) *with a special emphasis on increasing the*
13 *number of women and minorities in the science and*
14 *engineering professions.*

15 **SEC. 613. CHARLES “PETE” CONRAD ASTRONOMY AWARDS.**

16 (a) *SHORT TITLE.—This section may be cited as the*
17 *“Charles ‘Pete’ Conrad Astronomy Awards Act”.*

18 (b) *DEFINITIONS.—For the purposes of this section—*

19 (1) *the term “amateur astronomer” means an*
20 *individual whose employer does not provide any*
21 *funding, payment, or compensation to the individual*
22 *for the observation of asteroids and other celestial bod-*
23 *ies, and does not include any individual employed as*
24 *a professional astronomer;*

1 (2) *the term “Minor Planet Center” means the*
2 *Minor Planet Center of the Smithsonian Astro-*
3 *physical Observatory;*

4 (3) *the term “near-Earth asteroid” means an as-*
5 *teroid with a perihelion distance of less than 1.3 As-*
6 *tronomical Units from the Sun; and*

7 (4) *the term “Program” means the Charles*
8 *“Pete” Conrad Astronomy Awards Program estab-*
9 *lished under subsection (c).*

10 *(c) PETE CONRAD ASTRONOMY AWARD PROGRAM.—*

11 (1) *IN GENERAL.—The Administrator shall es-*
12 *tablish the Charles “Pete” Conrad Astronomy Awards*
13 *Program.*

14 (2) *AWARDS.—The Administrator shall make*
15 *awards under the Program based on the recommenda-*
16 *tions of the Minor Planet Center.*

17 (3) *AWARD CATEGORIES.—The Administrator*
18 *shall make one annual award, unless there are no eli-*
19 *gible discoveries or contributions, for each of the fol-*
20 *lowing categories:*

21 (A) *The amateur astronomer or group of*
22 *amateur astronomers who in the preceding cal-*
23 *endar year discovered the intrinsically brightest*
24 *near-Earth asteroid among the near-Earth aster-*
25 *oids that were discovered during that year by*

1 *amateur astronomers or groups of amateur as-*
2 *tronomers.*

3 *(B) The amateur astronomer or group of*
4 *amateur astronomers who made the greatest con-*
5 *tribution to the Minor Planet Center's mission of*
6 *cataloguing near-Earth asteroids during the pre-*
7 *ceding year.*

8 *(4) AWARD AMOUNT.—An award under the Pro-*
9 *gram shall be in the amount of \$3,000.*

10 *(5) GUIDELINES.—(A) No individual who is not*
11 *a citizen or permanent resident of the United States*
12 *at the time of his discovery or contribution may re-*
13 *ceive an award under this section.*

14 *(B) The decisions of the Administrator in mak-*
15 *ing awards under this section are final.*

16 **SEC. 614. REVIEW OF EDUCATION PROGRAMS.**

17 *(a) IN GENERAL.—The Administrator shall enter into*
18 *an arrangement with the National Research Council of the*
19 *National Academy of Sciences to conduct a review and eval-*
20 *uation of NASA's science, technology, engineering, and*
21 *mathematics education program. The review and evalua-*
22 *tion shall be documented in a report to the Administrator*
23 *and shall include such recommendations as the National*
24 *Research Council determines will improve the effectiveness*
25 *of the program.*

1 (b) *REVIEW.*—*The review and evaluation under sub-*
2 *section (a) shall include—*

3 (1) *an evaluation of the effectiveness of the over-*
4 *all program in meeting its defined goals and objec-*
5 *tives;*

6 (2) *an assessment of the quality and educational*
7 *effectiveness of the major components of the program,*
8 *including an evaluation of the adequacy of assessment*
9 *metrics and data collection requirements available for*
10 *determining the effectiveness of individual projects;*

11 (3) *an evaluation of the funding priorities in the*
12 *program, including a review of the funding level and*
13 *funding trend for each major component of the pro-*
14 *gram and an assessment of whether the resources*
15 *made available are consistent with meeting identified*
16 *goals and priorities; and*

17 (4) *a determination of the extent and the effec-*
18 *tiveness of coordination and collaboration between*
19 *NASA and other Federal agencies that sponsor*
20 *science, technology, engineering, and mathematics*
21 *education activities.*

22 (c) *REPORT TO CONGRESS.*—*Not later than 18 months*
23 *after the date of enactment of this Act, the Administrator*
24 *shall transmit to the Committee on Science of the House*
25 *of Representatives and the Committee on Commerce,*

1 *Science, and Transportation of the Senate the report re-*
2 *quired under subsection (a).*

3 **SEC. 615. EQUAL ACCESS TO NASA'S EDUCATION PRO-**
4 **GRAMS.**

5 *The Administrator shall strive to ensure equal access*
6 *for minority and economically disadvantaged students to*
7 *NASA's Education programs. Not later than 1 year after*
8 *the date of enactment of this Act, and every 2 years there-*
9 *after, the Administrator shall submit a report to the Com-*
10 *mittee on Science of the House of Representatives and the*
11 *Committee on Commerce, Science, and Transportation of*
12 *the Senate describing the efforts by the Administrator to*
13 *ensure equal access for minority and economically dis-*
14 *advantaged students under this section, and the results of*
15 *such efforts.*

16 **TITLE VII—MISCELLANEOUS**
17 **AMENDMENTS**

18 **SEC. 701. RETROCESSION OF JURISDICTION.**

19 *The National Aeronautics and Space Act of 1958 (42*
20 *U.S.C. 2451 et seq.) is amended by adding at the end of*
21 *title III the following new section:*

22 **“RETROCESSION OF JURISDICTION**

23 **“SEC. 316. (a) Notwithstanding any other provision**
24 **of law, the Administrator may relinquish to a State all or**
25 **part of the legislative jurisdiction of the United States over**

1 *lands or interests under the control of the Administrator*
2 *in that State.*

3 “(b) *For purposes of this section, the term ‘State’*
4 *means any of the several States, the District of Columbia,*
5 *the Commonwealth of Puerto Rico, the United States Virgin*
6 *Islands, Guam, American Samoa, the Northern Mariana*
7 *Islands, and any other commonwealth, territory, or posses-*
8 *sion of the United States.’”.*

9 **SEC. 702. EXTENSION OF INDEMNIFICATION.**

10 *Section 309 of the National Aeronautics and Space Act*
11 *of 1958 (42 U.S.C. 458c) is amended in subsection (f)(1)*
12 *by striking “December 31, 2002” through “September 30,*
13 *2005” and inserting, “December 31, 2010, except that the*
14 *Administrator may extend the termination date to a date*
15 *not later than September 30, 2015, if the Administrator has*
16 *entered into an arrangement with the National Academy*
17 *of Public Administration to determine the impact on pri-*
18 *vate parties and the Federal Government of eliminating*
19 *this section”.*

20 **SEC. 703. NASA SCHOLARSHIPS.**

21 (a) *AMENDMENTS.*—*Section 9809 of title 5, United*
22 *States Code, is amended—*

23 (1) *in subsection (a)(2) by striking “Act.” and*
24 *inserting “Act (42 U.S.C. 1885a or 1885b).”;*

1 (2) *in subsection (c) by striking “require.” and*
2 *inserting “require to carry out this section.”;*

3 (3) *in subsection (f)(1) by striking the last sen-*
4 *tence; and*

5 (4) *in subsection (g)(2) by striking “Treasurer of*
6 *the” and all that follows through “by 3” and insert-*
7 *ing “Treasurer of the United States”.*

8 (b) *REPEAL.—The Vision 100—Century of Aviation*
9 *Reauthorization Act is amended by striking section 703 (42*
10 *U.S.C. 2473e).*

11 **SEC. 704. INDEPENDENT COST ANALYSIS.**

12 *Section 301 of the National Aeronautics and Space*
13 *Administration Authorization Act of 2000 (42 U.S.C.*
14 *2459g) is amended—*

15 (1) *by striking “Phase B” in subsection (a) and*
16 *inserting “implementation”;*

17 (2) *by striking “\$150,000,000” in subsection (a)*
18 *and inserting “\$250,000,000”;*

19 (3) *by striking “Chief Financial Officer” each*
20 *place it appears in subsection (a) and inserting “Ad-*
21 *ministrator”;*

22 (4) *by inserting “and consider” in subsection (a)*
23 *after “shall conduct”; and*

24 (5) *by striking subsection (b) and inserting the*
25 *following:*

1 “(b) *IMPLEMENTATION DEFINED.*—*In this section, the*
2 *term ‘implementation’ means all activity in the life cycle*
3 *of a project after preliminary design, independent assess-*
4 *ment of the preliminary design, and approval to proceed*
5 *into implementation, including critical design, develop-*
6 *ment, certification, launch, operations, disposal of assets,*
7 *and, for technology programs, development, testing, anal-*
8 *ysis and communication of the results.”.*

9 **SEC. 705. LIMITATIONS ON OFF-SHORE PERFORMANCE OF**
10 **CONTRACTS FOR THE PROCUREMENT OF**
11 **GOODS AND SERVICES.**

12 (a) *CONVERSIONS TO CONTRACTOR PERFORMANCE OF*
13 *ADMINISTRATION ACTIVITIES.*—*Except as provided in sub-*
14 *section (c), an activity or function of the Administration*
15 *that is converted to contractor performance under Office of*
16 *Management and Budget Circular A-76 may not be per-*
17 *formed by the contractor or any subcontractor at a location*
18 *outside the United States.*

19 (b) *CONTRACTS FOR THE PROCUREMENT OF SERV-*
20 *ICES.*—(1) *Except as provided in subsection (c), a contract*
21 *for the procurement of goods or services that is entered into*
22 *by the Administrator may not be performed outside the*
23 *United States unless it is to meet a requirement of the Ad-*
24 *ministration for goods or services specifically at a location*
25 *outside the United States.*

1 (2) *The President may waive the prohibition in para-*
2 *graph (1) in the case of any contract for which the Presi-*
3 *dent determines in writing that it is necessary in the na-*
4 *tional security interests of the United States for goods or*
5 *services under the contract to be performed outside the*
6 *United States.*

7 (3) *The Administrator may waive the prohibition in*
8 *paragraph (1) in the case of any contract for which the*
9 *Administrator determines in writing that essential goods*
10 *or services under the contract are only available from a*
11 *source outside the United States.*

12 (c) *EXCEPTION.—Subsections (a) and (b)(1) shall not*
13 *apply to the extent that the activity or function under the*
14 *contract was previously performed by Federal Government*
15 *employees outside the United States.*

16 (d) *CONSISTENCY WITH INTERNATIONAL AGREE-*
17 *MENTS.—The provisions of this section shall not apply to*
18 *the extent that they are inconsistent with obligations of the*
19 *United States under international agreements.*

20 (e) *ANNUAL REPORT.—The Administrator shall sub-*
21 *mit to Congress, not later than 120 days after the end of*
22 *each fiscal year, a report on the contracts performed over-*
23 *seas and amount of purchases by NASA from foreign enti-*
24 *ties in that fiscal year. Such report shall separately indicate*
25 *the dollar value of contracts for which the provisions of this*

1 *section were waived and the dollar value of items for which*
2 *the Buy American Act was waived pursuant to obligations*
3 *of the United States under international agreements.*

4 **TITLE VIII—INDEPENDENT**
5 **COMMISSIONS**

6 **SEC. 1. DEFINITIONS.**

7 *For purposes of this title—*

8 (1) *the term “Commission” means a Commission*
9 *established under this title; and*

10 (2) *the term “incident” means either an accident*
11 *or a deliberate act.*

12 **Subtitle A—International Space**
13 **Station Independent Safety Com-**
14 **mission**

15 **SEC. 811. ESTABLISHMENT OF COMMISSION.**

16 (a) *ESTABLISHMENT.—The President shall establish*
17 *an independent, nonpartisan Commission within the execu-*
18 *tive branch to discover and assess any vulnerabilities of the*
19 *International Space Station that could lead to its destruc-*
20 *tion, compromise the health of its crew, or necessitate its*
21 *premature abandonment.*

22 (b) *DEADLINE FOR ESTABLISHMENT.—The President*
23 *shall issue an executive order establishing a Commission*
24 *within 30 days after the date of enactment of this Act.*

1 **SEC. 812. TASKS OF THE COMMISSION.**

2 *The Commission established under section 811 shall,*
3 *to the extent possible, undertake the following tasks:*

4 (1) *Catalog threats to and vulnerabilities of the*
5 *ISS, including design flaws, natural phenomena,*
6 *computer software or hardware flaws, sabotage or ter-*
7 *rorist attack, number of crewmembers, and inability*
8 *to adequately deliver replacement parts and supplies,*
9 *and management or procedural deficiencies.*

10 (2) *Make recommendations for corrective actions.*

11 (3) *Provide any additional findings or rec-*
12 *ommendations related to ISS safety.*

13 (4) *Prepare a report to Congress, the President,*
14 *and the public.*

15 **SEC. 813. SUNSET.**

16 *The Commission established under this subtitle shall*
17 *expire not later than one year after the date on which the*
18 *full Commission membership is appointed.*

19 ***Subtitle B—Human Space Flight***
20 ***Independent Investigation Com-***
21 ***mission***

22 **SEC. 821. ESTABLISHMENT OF COMMISSION.**

23 (a) *ESTABLISHMENT.*—*The President shall establish*
24 *an independent, nonpartisan Commission within the execu-*
25 *tive branch to investigate any incident that results in the*
26 *loss of—*

- 1 (1) *a Space Shuttle;*
- 2 (2) *the International Space Station or its oper-*
3 *ational viability;*
- 4 (3) *any other United States space vehicle car-*
5 *rying humans that is being used pursuant to a con-*
6 *tract with the Federal Government; or*
- 7 (4) *a crew member or passenger of any space ve-*
8 *hicle described in this subsection.*

9 (b) *DEADLINE FOR ESTABLISHMENT.*—*The President*
10 *shall issue an executive order establishing a Commission*
11 *within 7 days after an incident specified in subsection (a).*

12 **SEC. 822. TASKS OF THE COMMISSION.**

13 *A Commission established pursuant to this subtitle*
14 *shall, to the extent possible, undertake the following tasks:*

- 15 (1) *Investigate the incident.*
- 16 (2) *Determine the cause of the incident.*
- 17 (3) *Identify all contributing factors to the cause*
18 *of the incident.*
- 19 (4) *Make recommendations for corrective actions.*
- 20 (5) *Provide any additional findings or rec-*
21 *ommendations deemed by the Commission to be im-*
22 *portant, whether or not they are related to the specific*
23 *incident under investigation.*
- 24 (6) *Prepare a report to Congress, the President,*
25 *and the public.*

1 **Subtitle C—Organization and**
2 **Operation of Commissions**

3 **SEC. 831. COMPOSITION OF COMMISSIONS.**

4 (a) *NUMBER OF COMMISSIONERS.*—A Commission es-
5 *tablished pursuant to this title shall consist of 15 members.*

6 (b) *SELECTION.*—*The members of a Commission shall*
7 *be chosen in the following manner:*

8 (1) *The President shall appoint the members,*
9 *and shall designate the Chairman and Vice Chairman*
10 *of the Commission from among its members.*

11 (2) *Four of the 15 members appointed by the*
12 *President shall be selected by the President in the fol-*
13 *lowing manner:*

14 (A) *The majority leader of the Senate, the*
15 *minority leader of the Senate, the Speaker of the*
16 *House of Representatives, and the minority lead-*
17 *er of the House of Representatives shall each pro-*
18 *vide to the President a list of candidates for*
19 *membership on the Commission.*

20 (B) *The President shall select one of the*
21 *candidates from each of the 4 lists for member-*
22 *ship on the Commission.*

23 (3) *In the case of a Commission established*
24 *under subtitle A, the President shall select one can-*
25 *didate from a list of candidates for membership on*

1 *the Commission provided by the President of the col-*
2 *lective-bargaining organization including the largest*
3 *member of NASA engineers.*

4 (4) *No officer or employee of the Federal Govern-*
5 *ment shall serve as a member of the Commission.*

6 (5) *No member of the Commission shall have, or*
7 *have pending, a contractual relationship with NASA.*

8 (6) *The President shall not appoint any indi-*
9 *vidual as a member of a Commission under this sec-*
10 *tion who has a current or former relationship with*
11 *the Administrator that the President determines*
12 *would constitute a conflict of interest.*

13 (7) *To the extent practicable, the President shall*
14 *ensure that the members of the Commission include*
15 *some individuals with experience relative to human*
16 *carrying spacecraft, as well as some individuals with*
17 *investigative experience and some individuals with*
18 *legal experience.*

19 (8) *To the extent practicable, the President shall*
20 *seek diversity in the membership of the Commission.*

21 (9) *The President may waive the prohibitions in*
22 *paragraphs (5) and (6) with respect to the selection*
23 *of not more than 2 members of a Commission estab-*
24 *lished under subtitle A.*

1 (c) *DEADLINE FOR APPOINTMENT.*—All members of a
2 Commission established under subtitle A shall be appointed
3 no later than 60 days after issuance of the executive order
4 establishing the Commission. All members of a Commission
5 established under subtitle B shall be appointed no later than
6 30 days after the incident.

7 (d) *INITIAL MEETING.*—A Commission shall meet and
8 begin operations as soon as practicable.

9 (e) *QUORUM; VACANCIES.*—After its initial meeting, a
10 Commission shall meet upon the call of the Chairman or
11 a majority of its members. Eight members of a Commission
12 shall constitute a quorum. Any vacancy in a Commission
13 shall not affect its powers, but shall be filled in the same
14 manner in which the original appointment was made.

15 **SEC. 832. POWERS OF COMMISSION.**

16 (a) *HEARINGS AND EVIDENCE.*—A Commission or, on
17 the authority of the Commission, any subcommittee or
18 member thereof, may, for the purpose of carrying out this
19 title—

20 (1) hold such hearings and sit and act at such
21 times and places, take such testimony, receive such
22 evidence, administer such oaths; and

23 (2) require, by subpoena or otherwise, the attend-
24 ance and testimony of such witnesses and the produc-

1 *tion of such books, records, correspondence, memo-*
2 *randa, papers, and documents,*
3 *as the Commission or such designated subcommittee or des-*
4 *ignated member may determine advisable.*

5 *(b) CONTRACTING.—A Commission may, to such extent*
6 *and in such amounts as are provided in appropriation*
7 *Acts, enter into contracts to enable the Commission to dis-*
8 *charge its duties under this title.*

9 *(c) INFORMATION FROM FEDERAL AGENCIES.—*

10 *(1) IN GENERAL.—A Commission may secure di-*
11 *rectly from any executive department, bureau, agency,*
12 *board, commission, office, independent establishment,*
13 *or instrumentality of the Government, information,*
14 *suggestions, estimates, and statistics for the purposes*
15 *of this title. Each department, bureau, agency, board,*
16 *commission, office, independent establishment, or in-*
17 *strumentality shall, to the extent authorized by law,*
18 *furnish such information, suggestions, estimates, and*
19 *statistics directly to the Commission, upon request*
20 *made by the Chairman, the chairman of any sub-*
21 *committee created by a majority of the Commission,*
22 *or any member designated by a majority of the Com-*
23 *mission.*

24 *(2) RECEIPT, HANDLING, STORAGE, AND DIS-*
25 *SEMINATION.—Information shall only be received,*

1 *handled, stored, and disseminated by members of the*
2 *Commission and its staff consistent with all applica-*
3 *ble statutes, regulations, and Executive orders.*

4 *(d) ASSISTANCE FROM FEDERAL AGENCIES.—*

5 *(1) GENERAL SERVICES ADMINISTRATION.—The*
6 *Administrator of General Services shall provide to a*
7 *Commission on a reimbursable basis administrative*
8 *support and other services for the performance of the*
9 *Commission’s tasks.*

10 *(2) OTHER DEPARTMENTS AND AGENCIES.—In*
11 *addition to the assistance prescribed in paragraph*
12 *(1), departments and agencies of the United States*
13 *may provide to the Commission such services, funds,*
14 *facilities, staff, and other support services as they*
15 *may determine advisable and as may be authorized*
16 *by law.*

17 *(3) NASA ENGINEERING AND SAFETY CENTER.—*
18 *The NASA Engineering and Safety Center shall pro-*
19 *vide data and technical support as requested by a*
20 *Commission.*

21 **SEC. 833. PUBLIC MEETINGS, INFORMATION, AND HEAR-**
22 **INGS.**

23 *(a) PUBLIC MEETINGS AND RELEASE OF PUBLIC*
24 *VERSIONS OF REPORTS.—A Commission shall—*

1 (1) *hold public hearings and meetings to the extent appropriate; and*

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3 (2) *release public versions of the reports required under this Act.*

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5 (b) *PUBLIC HEARINGS.*—*Any public hearings of a Commission shall be conducted in a manner consistent with the protection of information provided to or developed for or by the Commission as required by any applicable statute, regulation, or Executive order.*

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10 **SEC. 834. STAFF OF COMMISSION.**

11 (a) *APPOINTMENT AND COMPENSATION.*—*The Chairman, in consultation with Vice Chairman, in accordance with rules agreed upon by a Commission, may appoint and fix the compensation of a staff director and such other personnel as may be necessary to enable the Commission to carry out its functions.*

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17 (b) *DETAILEES.*—*Any Federal Government employee, except for an employee of NASA, may be detailed to a Commission without reimbursement from the Commission, and such detailee shall retain the rights, status, and privileges of his or her regular employment without interruption.*

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22 (c) *CONSULTANT SERVICES.*—*A Commission may procure the services of experts and consultants in accordance with section 3109 of title 5, United States Code, but at rates not to exceed the daily rate paid a person occupying a posi-*

1 *tion at level IV of the Executive Schedule under section*
2 *5315 of title 5, United States Code. Any consultant or ex-*
3 *pert whose services are procured under this subsection shall*
4 *disclose any contract or association it has with NASA or*
5 *any NASA contractor.*

6 **SEC. 835. COMPENSATION AND TRAVEL EXPENSES.**

7 (a) *COMPENSATION.*—*Each member of a Commission*
8 *may be compensated at not to exceed the daily equivalent*
9 *of the annual rate of basic pay in effect for a position at*
10 *level IV of the Executive Schedule under section 5315 of title*
11 *5, United States Code, for each day during which that mem-*
12 *ber is engaged in the actual performance of the duties of*
13 *the Commission.*

14 (b) *TRAVEL EXPENSES.*—*While away from their*
15 *homes or regular places of business in the performance of*
16 *services for the Commission, members of a Commission shall*
17 *be allowed travel expenses, including per diem in lieu of*
18 *subsistence, in the same manner as persons employed inter-*
19 *mittently in the Government service are allowed expenses*
20 *under section 5703(b) of title 5, United States Code.*

21 **SEC. 836. SECURITY CLEARANCES FOR COMMISSION MEM-**
22 **BERS AND STAFF.**

23 *The appropriate Federal agencies or departments shall*
24 *cooperate with a Commission in expeditiously providing to*
25 *the Commission members and staff appropriate security*

1 *clearances to the extent possible pursuant to existing proce-*
2 *dures and requirements. No person shall be provided with*
3 *access to classified information under this title without the*
4 *appropriate security clearances.*

5 **SEC. 837. REPORTING REQUIREMENTS AND TERMINATION.**

6 (a) *INTERIM REPORTS.*—A Commission may submit
7 to the President and Congress interim reports containing
8 such findings, conclusions, and recommendations for correc-
9 tive actions as have been agreed to by a majority of Com-
10 mission members.

11 (b) *FINAL REPORT.*—A Commission shall submit to
12 the President and Congress, and make concurrently avail-
13 able to the public, a final report containing such findings,
14 conclusions, and recommendations for corrective actions as
15 have been agreed to by a majority of Commission members.
16 Such report shall include any minority views or opinions
17 not reflected in the majority report.

18 (c) *TERMINATION.*—

19 (1) *IN GENERAL.*—A Commission, and all the
20 authorities of this title with respect to that Commis-
21 sion, shall terminate 60 days after the date on which
22 the final report is submitted under subsection (b).

23 (2) *ADMINISTRATIVE ACTIVITIES BEFORE TERMI-*
24 *NATION.*—A Commission may use the 60-day period
25 referred to in paragraph (1) for the purpose of con-

- 1 *cluding its activities, including providing testimony*
- 2 *to committees of Congress concerning its reports and*
- 3 *disseminating the final report.*

Union Calendar No. 108

109TH CONGRESS
1ST Session

H. R. 3070

[Report No. 109-173]

A BILL

To reauthorize the human space flight, aeronautics, and science programs of the National Aeronautics and Space Administration, and for other purposes.

JULY 18, 2005

Reported with an amendment, committed to the Committee of the Whole House on the State of the Union, and ordered to be printed