

In the Senate of the United States,

September 25 (legislative day, September 17), 2008.

Resolved, That the bill from the House of Representatives (H.R. 6063) entitled “An Act to authorize the programs of the National Aeronautics and Space Administration, and for other purposes.”, do pass with the following

AMENDMENT:

Strike out all after the enacting clause and insert:

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 2008”.*

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—AUTHORIZATION OF APPROPRIATIONS FOR FISCAL YEAR
2009

Sec. 101. Fiscal year 2009.

TITLE II—EARTH SCIENCE

Sec. 201. Goal.

- Sec. 202. Governance of United States Earth Observations activities.*
- Sec. 203. Decadal survey missions.*
- Sec. 204. Transitioning experimental research into operational services.*
- Sec. 205. Landsat thermal infrared data continuity.*
- Sec. 206. Reauthorization of Glory Mission.*
- Sec. 207. Plan for disposition of Deep Space Climate Observatory.*
- Sec. 208. Tornadoes and other severe storms.*

TITLE III—AERONAUTICS

- Sec. 301. Sense of Congress.*
- Sec. 302. Environmentally friendly aircraft research and development initiative.*
- Sec. 303. Research alignment.*
- Sec. 304. Research program to determine perceived impact of sonic booms.*
- Sec. 305. External review of NASA's aviation safety-related research programs.*
- Sec. 306. Aviation weather research plan.*
- Sec. 307. Funding for research and development activities in support of other mission directorates.*
- Sec. 308. Enhancement of grant program on establishment of university-based centers for research on aviation training.*

TITLE IV—EXPLORATION INITIATIVE

- Sec. 401. Sense of Congress.*
- Sec. 402. Reaffirmation of exploration policy.*
- Sec. 403. Stepping stone approach to exploration.*
- Sec. 404. Lunar outpost.*
- Sec. 405. Exploration technology development.*
- Sec. 406. Exploration risk mitigation plan.*
- Sec. 407. Exploration crew rescue.*
- Sec. 408. Participatory exploration.*
- Sec. 409. Science and exploration.*
- Sec. 410. Congressional Budget Office report update.*

TITLE V—SPACE SCIENCE

- Sec. 501. Technology development.*
- Sec. 502. Provision for future servicing of observatory-class scientific spacecraft.*
- Sec. 503. Mars exploration.*
- Sec. 504. Importance of a balanced science program.*
- Sec. 505. Suborbital research activities.*
- Sec. 506. Restoration of radioisotope thermoelectric generator material production.*
- Sec. 507. Assessment of impediments to interagency cooperation on space and Earth science missions.*
- Sec. 508. Assessment of cost growth.*
- Sec. 509. Outer planets exploration.*

TITLE VI—SPACE OPERATIONS

Subtitle A—International Space Station

- Sec. 601. Plan to support operation and utilization of the ISS beyond fiscal year 2015.*
- Sec. 602. International Space Station National Laboratory Advisory Committee.*
- Sec. 603. Contingency plan for cargo resupply.*

Sec. 604. Sense of Congress on use of Space Life Sciences Laboratory at Kennedy Space Center.

Subtitle B—Space Shuttle

Sec. 611. Space Shuttle flight requirements.
Sec. 612. United States commercial cargo capability status.
Sec. 613. Space Shuttle transition.
Sec. 614. Aerospace skills retention and investment reutilization report.
Sec. 615. Temporary continuation of coverage of health benefits.
Sec. 616. Accounting report.

Subtitle C—Launch Services

Sec. 621. Launch services strategy.

TITLE VII—EDUCATION

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TITLE VIII—NEAR-EARTH OBJECTS

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Sec. 802. Findings.
Sec. 803. Requests for information.
Sec. 804. Establishment of policy with respect to threats posed by near-earth objects.
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Sec. 901. Sense of Congress.
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- Sec. 1109. Protection of scientific credibility, integrity, and communication within NASA.*
- Sec. 1110. Sense of Congress regarding the need for a robust workforce.*
- Sec. 1111. Methane inventory.*
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- Sec. 1113. Sense of Congress on the importance of the NASA Office of Program Analysis and Evaluation.*
- Sec. 1114. Sense of Congress on elevating the importance of space and aeronautics within the Executive Office of the President.*
- Sec. 1115. Study on leasing practices of field centers.*
- Sec. 1116. Cooperative unmanned aerial vehicle activities.*
- Sec. 1117. Development of enhanced-use lease policy.*
- Sec. 1118. Sense of Congress with respect to the Michoud Assembly Facility and NASA's other centers and facilities.*
- Sec. 1119. Report on U.S. industrial base for launch vehicle engines.*
- Sec. 1120. Sense of Congress on precursor International Space Station research.*
- Sec. 1121. Limitation on funding for conferences.*
- Sec. 1122. Report on NASA efficiency and performance.*

1 **SEC. 2. FINDINGS.**

2 *The Congress finds, on this, the 50th anniversary of*
 3 *the establishment of the National Aeronautics and Space*
 4 *Administration, the following:*

5 *(1) NASA is and should remain a multimission*
 6 *agency with a balanced and robust set of core mis-*
 7 *sions in science, aeronautics, and human space flight*
 8 *and exploration.*

9 *(2) Investment in NASA's programs will pro-*
 10 *mote innovation through research and development,*
 11 *and will improve the competitiveness of the United*
 12 *States.*

13 *(3) Investment in NASA's programs, like invest-*
 14 *ments in other Federal science and technology activi-*
 15 *ties, is an investment in our future.*

16 *(4) Properly structured, NASA's activities can*
 17 *contribute to an improved quality of life, economic vi-*

1 *tality, United States leadership in peaceful coopera-*
2 *tion with other nations on challenging undertakings*
3 *in science and technology, national security, and the*
4 *advancement of knowledge.*

5 (5) *NASA should assume a leadership role in a*
6 *cooperative international Earth observations and re-*
7 *search effort to address key research issues associated*
8 *with climate change and its impacts on the Earth*
9 *system.*

10 (6) *NASA should undertake a program of aero-*
11 *nautical research, development, and where appro-*
12 *priate demonstration activities with the overarching*
13 *goals of—*

14 (A) *ensuring that the Nation's future air*
15 *transportation system can handle up to 3 times*
16 *the current travel demand and incorporate new*
17 *vehicle types with no degradation in safety or*
18 *adverse environmental impact on local commu-*
19 *nities;*

20 (B) *protecting the environment;*

21 (C) *promoting the security of the Nation;*

22 *and*

23 (D) *retaining the leadership of the United*
24 *States in global aviation.*

1 (7) *Human and robotic exploration of the solar*
2 *system will be a significant long-term undertaking of*
3 *humanity in the 21st century and beyond, and it is*
4 *in the national interest that the United States should*
5 *assume a leadership role in a cooperative inter-*
6 *national exploration initiative.*

7 (8) *Developing United States human space flight*
8 *capabilities to allow independent American access to*
9 *the International Space Station, and to explore be-*
10 *yond low Earth orbit, is a strategically important*
11 *national imperative, and all prudent steps should*
12 *thus be taken to bring the Orion Crew Exploration*
13 *Vehicle and Ares I Crew Launch Vehicle to full oper-*
14 *ational capability as soon as possible and to ensure*
15 *the effective development of a United States heavy lift*
16 *launch capability for missions beyond low Earth*
17 *orbit.*

18 (9) *NASA's scientific research activities have*
19 *contributed much to the advancement of knowledge,*
20 *provided societal benefits, and helped train the next*
21 *generation of scientists and engineers, and those ac-*
22 *tivities should continue to be an important priority.*

23 (10) *NASA should make a sustained commit-*
24 *ment to a robust long-term technology development*
25 *activity. Such investments represent the critically im-*

1 portant “seed corn” on which NASA’s ability to carry
 2 out challenging and productive missions in the future
 3 will depend.

4 (11) NASA, through its pursuit of challenging
 5 and relevant activities, can provide an important
 6 stimulus to the next generation to pursue careers in
 7 science, technology, engineering, and mathematics.

8 (12) Commercial activities have substantially
 9 contributed to the strength of both the United States
 10 space program and the national economy, and the de-
 11 velopment of a healthy and robust United States com-
 12 mercial space sector should continue to be encouraged.

13 (13) It is in the national interest for the United
 14 States to have an export control policy that protects
 15 the national security while also enabling the United
 16 States aerospace industry to compete effectively in the
 17 global market place and the United States to under-
 18 take cooperative programs in science and human
 19 space flight in an effective and efficient manner.

20 **SEC. 3. DEFINITIONS.**

21 *In this Act:*

22 (1) ADMINISTRATOR.—The term “Adminis-
 23 trator” means the Administrator of NASA.

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

1 (3) NOAA.—*The term “NOAA” means the Na-*
 2 *tional Oceanic and Atmospheric Administration.*

3 (4) OSTP.—*The term “OSTP” means the Office*
 4 *of Science and Technology Policy.*

5 ***TITLE I—AUTHORIZATION OF AP-***
 6 ***PROPRIATIONS FOR FISCAL***
 7 ***YEAR 2009***

8 ***SEC. 101. FISCAL YEAR 2009.***

9 *There are authorized to be appropriated to NASA for*
 10 *fiscal year 2009 \$20,210,000,000, as follows:*

11 (1) *For Science, \$4,932,200,000, of which—*

12 (A) *\$1,518,000,000 shall be for Earth*
 13 *Science, including \$29,200,000 for suborbital ac-*
 14 *tivities and \$2,500,000 for carrying out section*
 15 *313 of the National Aeronautics and Space Ad-*
 16 *ministration Authorization Act of 2005 (Public*
 17 *Law 109–155);*

18 (B) *\$1,483,000,000 shall be for Planetary*
 19 *Science, including \$486,500,000 for the Mars*
 20 *Exploration program, \$2,000,000 to continue*
 21 *planetary radar operations at the Arecibo Ob-*
 22 *servatory in support of the Near-Earth Object*
 23 *program, and \$5,000,000 for radioisotope mate-*
 24 *rial production, to remain available until ex-*
 25 *pendended;*

1 (C) \$1,290,400,000 shall be for Astro-
 2 physics, including \$27,300,000 for suborbital ac-
 3 tivities;

4 (D) \$640,800,000 shall be for Heliophysics,
 5 including \$50,000,000 for suborbital activities;
 6 and

7 (E) \$75,000,000 shall be for Intra-Science
 8 Mission Directorate Technology Development, to
 9 be taken on a proportional basis from the fund-
 10 ing subtotals under subparagraphs (A), (B), (C),
 11 and (D).

12 (2) For Aeronautics, \$853,400,000, of which
 13 \$406,900,000 shall be for system-level research, devel-
 14 opment, and demonstration activities related to—

15 (A) aviation safety;

16 (B) environmental impact mitigation, in-
 17 cluding noise, energy efficiency, and emissions;

18 (C) support of the Next Generation Air
 19 Transportation System initiative; and

20 (D) investigation of new vehicle concepts
 21 and flight regimes.

22 (3) For Exploration, \$4,886,000,000, of which—

23 (A) \$3,886,000,000 shall be for baseline ex-
 24 ploration activities, of which \$100,000,000 shall
 25 be for the activities under sections 902(a)(4) and

1 902(d), such funds to remain available until ex-
2 pended; no less than \$1,101,400,000 shall be for
3 the Orion Crew Exploration Vehicle; no less than
4 \$1,018,500,000 shall be for Ares I Crew Launch
5 Vehicle; and \$737,800,000 shall be for Advanced
6 Capabilities, including \$106,300,000 for the
7 Lunar Precursor Robotic Program (of which
8 \$30,000,000 shall be for the lunar lander mis-
9 sion), \$276,500,000 shall be for International
10 Space Station-related research and development
11 activities, and \$355,000,000 shall be for research
12 and development activities not related to the
13 International Space Station; and

14 (B) \$1,000,000,000 shall be available to be
15 used to accelerate the initial operating capability
16 of the Orion Crew Exploration Vehicle and the
17 Ares I Crew Launch Vehicle, to remain available
18 until expended.

19 (4) For Education, \$128,300,000, of which
20 \$14,200,000 shall be for the Experimental Program to
21 Stimulate Competitive Research and \$32,000,000
22 shall be for the Space Grant program.

23 (5) For Space Operations, \$6,074,700,000, of
24 which—

1 (A) \$150,000,000 shall be for an additional
2 Space Shuttle flight to deliver the Alpha Mag-
3 netic Spectrometer to the International Space
4 Station;

5 (B) \$100,000,000 shall be to augment fund-
6 ing for research utilization of the International
7 Space Station National Laboratory, to remain
8 available until expended; and

9 (C) \$50,000,000 shall be to augment fund-
10 ing for Space Operations Mission Directorate re-
11 serves and Shuttle Transition and Retirement
12 activities.

13 (6) For Cross-Agency Support Programs,
14 \$3,299,900,000, of which \$4,000,000 shall be for the
15 program established under section 1107(a), to remain
16 available until expended.

17 (7) For Inspector General, \$35,500,000.

18 **TITLE II—EARTH SCIENCE**

19 **SEC. 201. GOAL.**

20 The goal for NASA's Earth Science program shall be
21 to pursue a program of Earth observations, research, and
22 applications activities to better understand the Earth, how
23 it supports life, and how human activities affect its ability
24 to do so in the future. In pursuit of this goal, NASA's Earth
25 Science program shall ensure that securing practical bene-

1 *fits for society will be an important measure of its success*
 2 *in addition to securing new knowledge about the Earth sys-*
 3 *tem and climate change. In further pursuit of this goal,*
 4 *NASA shall, together with NOAA and other relevant agen-*
 5 *cies, provide United States leadership in developing and*
 6 *carrying out a cooperative international Earth observa-*
 7 *tions-based research program.*

8 **SEC. 202. GOVERNANCE OF UNITED STATES EARTH OBSER-**
 9 **VATIONS ACTIVITIES.**

10 (a) *STUDY.*—*The Director of OSTP shall consult with*
 11 *NASA, NOAA, and other relevant agencies with an interest*
 12 *in Earth observations and enter into an arrangement with*
 13 *the National Academies for a study to determine the most*
 14 *appropriate governance structure for United States Earth*
 15 *Observations programs in order to meet evolving United*
 16 *States Earth information needs and facilitate United States*
 17 *participation in global Earth Observations initiatives.*

18 (b) *REPORT.*—*The Director shall transmit the study*
 19 *to the Committee on Science and Technology of the House*
 20 *of Representatives and the Committee on Commerce,*
 21 *Science, and Transportation of the Senate not later than*
 22 *18 months after the date of enactment of this Act, and shall*
 23 *provide OSTP's plan for implementing the study's rec-*
 24 *ommendations not later than 24 months after the date of*
 25 *enactment of this Act.*

1 **SEC. 203. DECADAL SURVEY MISSIONS.**

2 (a) *IN GENERAL.*—*The missions recommended in the*
3 *National Academies’ decadal survey “Earth Science and*
4 *Applications from Space” provide the basis for a compel-*
5 *ling and relevant program of research and applications,*
6 *and the Administrator should work to establish an inter-*
7 *national cooperative effort to pursue those missions.*

8 (b) *PLAN.*—*The Administrator shall consult with all*
9 *agencies referenced in the survey as responsible for space-*
10 *craft missions and prepare a plan for submission to Con-*
11 *gress not later than 270 days after the date of enactment*
12 *of this Act that shall describe how NASA intends to imple-*
13 *ment the missions recommended for NASA to conduct as*
14 *described in subsection (a), whether by means of dedicated*
15 *NASA missions, multi-agency missions, international coop-*
16 *erative missions, data sharing, or commercial data buys,*
17 *or by means of long-term technology development to deter-*
18 *mine whether specific missions would be executable at a rea-*
19 *sonable cost and within a reasonable schedule.*

20 **SEC. 204. TRANSITIONING EXPERIMENTAL RESEARCH INTO**
21 **OPERATIONAL SERVICES.**

22 (a) *SENSE OF CONGRESS.*—*It is the sense of the Con-*
23 *gress that experimental NASA sensors and missions that*
24 *have the potential to benefit society if transitioned into*
25 *operational monitoring systems be transitioned into oper-*
26 *ational status whenever possible.*

1 (b) *INTERAGENCY PROCESS.*—*The Director of OSTP,*
 2 *in consultation with the Administrator, the Administrator*
 3 *of NOAA, and other relevant stakeholders, shall develop a*
 4 *process to transition, when appropriate, NASA Earth*
 5 *science and space weather missions or sensors into oper-*
 6 *ational status. The process shall include coordination of an-*
 7 *nual agency budget requests as required to execute the tran-*
 8 *sitions.*

9 (c) *RESPONSIBLE AGENCY OFFICIAL.*—*The Adminis-*
 10 *trator and the Administrator of NOAA shall each designate*
 11 *an agency official who shall have the responsibility for and*
 12 *authority to lead NASA’s and NOAA’s transition activities*
 13 *and interagency coordination.*

14 (d) *PLAN.*—*For each mission or sensor that is deter-*
 15 *mined to be appropriate for transition under subsection (b),*
 16 *NASA and NOAA shall transmit to Congress a joint plan*
 17 *for conducting the transition. The plan shall include the*
 18 *strategy, milestones, and budget required to execute the*
 19 *transition. The transition plan shall be transmitted to Con-*
 20 *gress not later than 60 days after the successful completion*
 21 *of the mission or sensor critical design review.*

22 **SEC. 205. LANDSAT THERMAL INFRARED DATA CON-**
 23 **TINUITY.**

24 (a) *PLAN.*—*In view of the importance of Landsat ther-*
 25 *mal infrared data for both scientific research and water*

1 *management applications, the Administrator shall prepare*
 2 *a plan for ensuring the continuity of Landsat thermal in-*
 3 *frared data or its equivalent, including allocation of costs*
 4 *and responsibility for the collection and distribution of the*
 5 *data, and a budget plan. As part of the plan, the Adminis-*
 6 *trator shall provide an option for developing a thermal in-*
 7 *frared sensor at minimum cost to be flown on the Landsat*
 8 *Data Continuity Mission with minimum delay to the sched-*
 9 *ule of the Landsat Data Continuity Mission.*

10 (b) *DEADLINE.*—*The plan shall be provided to Con-*
 11 *gress not later than 60 days after the date of enactment*
 12 *of this Act.*

13 **SEC. 206. REAUTHORIZATION OF GLORY MISSION.**

14 (a) *REAUTHORIZATION.*—*Congress reauthorizes NASA*
 15 *to continue with development of the Glory Mission, which*
 16 *will examine how aerosols and solar energy affect the*
 17 *Earth's climate.*

18 (b) *BASELINE REPORT.*—*Pursuant to the National*
 19 *Aeronautics and Space Administration Authorization Act*
 20 *of 2005 (Public Law 109–155), not later than 90 days after*
 21 *the date of enactment of this Act, the Administrator shall*
 22 *transmit a new baseline report consistent with section*
 23 *103(b)(2) of such Act. The report shall include an analysis*
 24 *of the factors contributing to cost growth and the steps taken*
 25 *to address them.*

1 **SEC. 207. PLAN FOR DISPOSITION OF DEEP SPACE CLIMATE**
2 **OBSERVATORY.**

3 (a) *PLAN.*—NASA shall develop a plan for the Deep
4 Space Climate Observatory (DSCOVR), including such op-
5 tions as using the parts of the spacecraft in the development
6 and assembly of other science missions, transferring the
7 spacecraft to another agency, reconfiguring the spacecraft
8 for another Earth science mission, establishing a public-pri-
9 vate partnership for the mission, and entering into an
10 international cooperative partnership to use the spacecraft
11 for its primary or other purposes. The plan shall include
12 an estimate of budgetary resources and schedules required
13 to implement each of the options.

14 (b) *CONSULTATION.*—NASA shall consult, as nec-
15 essary, with NOAA and other Federal agencies, industry,
16 academic institutions, and international space agencies in
17 developing the plan.

18 (c) *REPORT.*—The Administrator shall transmit the
19 plan required under subsection (a) to the Committee on
20 Science and Technology of the House of Representatives and
21 the Committee on Commerce, Science, and Transportation
22 of the Senate not later than 180 days after the date of enact-
23 ment of this Act.

24 **SEC. 208. TORNADOES AND OTHER SEVERE STORMS.**

25 The Administrator shall ensure that NASA gives high
26 priority to those parts of its existing cooperative activities

1 *with NOAA that are related to the study of tornadoes and*
 2 *other severe storms, tornado-force winds, and other factors*
 3 *determined to influence the development of tornadoes and*
 4 *other severe storms, with the goal of improving the Nation's*
 5 *ability to predict tornados and other severe storms. Further,*
 6 *the Administrator shall examine whether there are addi-*
 7 *tional cooperative activities with NOAA that should be un-*
 8 *dertaken in the area of tornado and severe storm research.*

9 ***TITLE III—AERONAUTICS***

10 ***SEC. 301. SENSE OF CONGRESS.***

11 *It is the sense of Congress that—*

12 *(1) aeronautics research continues to be an im-*
 13 *portant core element of NASA's mission and should be*
 14 *supported;*

15 *(2) NASA aeronautics research should be guided*
 16 *by and consistent with the national policy to guide*
 17 *aeronautics research and development programs of the*
 18 *United States developed in accordance with section*
 19 *101(c) of the National Aeronautics and Space Admin-*
 20 *istration Authorization Act of 2005 (42 U.S.C.*
 21 *16611); and*

22 *(3) technologies developed by NASA as described*
 23 *in paragraph (2) would help to secure the leadership*
 24 *role of the United States in global aviation and great-*

1 *ly enhance competitiveness of the United States in*
 2 *aeronautics in the future.*

3 **SEC. 302. ENVIRONMENTALLY FRIENDLY AIRCRAFT RE-**
 4 **SEARCH AND DEVELOPMENT INITIATIVE.**

5 *The Administrator shall establish an initiative involv-*
 6 *ing NASA, universities, industry, and other research orga-*
 7 *nizations as appropriate, of research, development, and*
 8 *demonstration, in a relevant environment, of technologies*
 9 *to enable the following commercial aircraft performance*
 10 *characteristics:*

11 (1) *Noise levels on takeoff and on airport ap-*
 12 *proach and landing that do not exceed ambient noise*
 13 *levels in the absence of flight operations in the vicin-*
 14 *ity of airports from which such commercial aircraft*
 15 *would normally operate, without increasing energy*
 16 *consumption or nitrogen oxide emissions compared to*
 17 *aircraft in commercial service as of the date of enact-*
 18 *ment of this Act.*

19 (2) *Significant reductions in greenhouse gas*
 20 *emissions compared to aircraft in commercial services*
 21 *as of the date of enactment of this Act.*

22 **SEC. 303. RESEARCH ALIGNMENT.**

23 *In addition to pursuing the research and development*
 24 *initiative described in section 302, the Administrator shall,*
 25 *to the maximum extent practicable within available fund-*

1 *ing, align the fundamental aeronautics research program*
 2 *to address high priority technology challenges of the Na-*
 3 *tional Academies' Decadal Survey of Civil Aeronautics, and*
 4 *shall work to increase the degree of involvement of external*
 5 *organizations, and especially of universities, in the funda-*
 6 *mental aeronautics research program.*

7 **SEC. 304. RESEARCH PROGRAM TO DETERMINE PERCEIVED**
 8 **IMPACT OF SONIC BOOMS.**

9 (a) *IN GENERAL.*—*The ability to fly commercial air-*
 10 *craft over land at supersonic speeds without adverse im-*
 11 *pacts on the environment or on local communities would*
 12 *open new markets and enable new transportation capabili-*
 13 *ties. In order to have the basis for establishing appropriate*
 14 *sonic boom standards for such flight operations, a research*
 15 *program is needed to assess the impact in a relevant envi-*
 16 *ronment of commercial supersonic flight operations.*

17 (b) *ESTABLISHMENT.*—*The Administrator shall estab-*
 18 *lish a cooperative research program with industry, includ-*
 19 *ing the conduct of flight demonstrations in a relevant envi-*
 20 *ronment, to collect data on the perceived impact of sonic*
 21 *booms. The data could enable the promulgation of appro-*
 22 *priate standards for overland commercial supersonic flight*
 23 *operations.*

24 (c) *COORDINATION.*—*The Administrator shall ensure*
 25 *that sonic boom research is coordinated as appropriate with*

1 *the Administrator of the Federal Aviation Administration,*
 2 *and as appropriate make use of the expertise of the Partner-*
 3 *ship for Air Transportation Noise and Emissions Reduc-*
 4 *tion Center of Excellence sponsored by NASA and the Fed-*
 5 *eral Aviation Administration.*

6 **SEC. 305. EXTERNAL REVIEW OF NASA'S AVIATION SAFETY-**
 7 **RELATED RESEARCH PROGRAMS.**

8 (a) *REVIEW.*—*The Administrator shall enter into an*
 9 *arrangement with the National Research Council for an*
 10 *independent review of NASA's aviation safety-related re-*
 11 *search programs. The review shall assess whether—*

12 (1) *the programs have well-defined, prioritized,*
 13 *and appropriate research objectives;*

14 (2) *the programs are properly coordinated with*
 15 *the safety research programs of the Federal Aviation*
 16 *Administration and other relevant Federal agencies;*

17 (3) *the programs have allocated appropriate re-*
 18 *sources to each of the research objectives; and*

19 (4) *suitable mechanisms exist for transitioning*
 20 *the research results from the programs into oper-*
 21 *ational technologies and procedures and certification*
 22 *activities in a timely manner.*

23 (b) *REPORT.*—*Not later than 18 months after the date*
 24 *of enactment of this Act, the Administrator shall submit*
 25 *to the Committee on Science and Technology of the House*

1 of Representatives and the Committee on Commerce,
2 Science, and Transportation of the Senate a report on the
3 results of the review required in subsection (a).

4 **SEC. 306. AVIATION WEATHER RESEARCH PLAN.**

5 *The Administrator and the Administrator of NOAA*
6 *shall develop a collaborative research plan on convective*
7 *weather events. The goal of the research is to significantly*
8 *improve the reliability of 2-hour to 6-hour aviation weather*
9 *forecasts. Within 270 days after the date of enactment of*
10 *this Act, the Administrator and the Administrator of NOAA*
11 *shall submit this plan to the Committee on Commerce,*
12 *Science, and Transportation of the Senate and the Com-*
13 *mittee on Science and Technology of the House of Rep-*
14 *resentatives.*

15 **SEC. 307. FUNDING FOR RESEARCH AND DEVELOPMENT AC-**
16 **TIVITIES IN SUPPORT OF OTHER MISSION DI-**
17 **RECTORATES.**

18 *Research and development activities performed by the*
19 *Aeronautics Research Mission Directorate with the primary*
20 *objective of assisting in the development of a flight project*
21 *in another Mission Directorate shall be funded by the Mis-*
22 *sion Directorate seeking assistance.*

1 **SEC. 308. ENHANCEMENT OF GRANT PROGRAM ON ESTAB-**
 2 **LISHMENT OF UNIVERSITY-BASED CENTERS**
 3 **FOR RESEARCH ON AVIATION TRAINING.**

4 *Section 427(a) of the National Aeronautics and Space*
 5 *Administration Authorization Act of 2005 (Public Law*
 6 *109–155) is amended by striking “may” and inserting*
 7 *“shall”.*

8 **TITLE IV—EXPLORATION**
 9 **INITIATIVE**

10 **SEC. 401. SENSE OF CONGRESS.**

11 *It is the sense of Congress that the President of the*
 12 *United States should invite America’s friends and allies to*
 13 *participate in a long-term international initiative under*
 14 *the leadership of the United States to expand human and*
 15 *robotic presence into the solar system, including the explo-*
 16 *ration and utilization of the Moon, near Earth asteroids,*
 17 *Lagrangian points, and eventually Mars and its moons,*
 18 *among other exploration and utilization goals. When appro-*
 19 *priate, the United States should lead confidence building*
 20 *measures that advance the long-term initiative for inter-*
 21 *national cooperation.*

22 **SEC. 402. REAFFIRMATION OF EXPLORATION POLICY.**

23 *Congress hereby affirms its support for—*

24 *(1) the broad goals of the space exploration pol-*
 25 *icy of the United States, including the eventual re-*
 26 *turn to and exploration of the Moon and other des-*

1 *tinations in the solar system and the important na-*
 2 *tional imperative of independent access to space;*

3 *(2) the development of technologies and oper-*
 4 *ational approaches that will enable a sustainable*
 5 *long-term program of human and robotic exploration*
 6 *of the solar system;*

7 *(3) activity related to Mars exploration, particu-*
 8 *larly for the development and testing of technologies*
 9 *and mission concepts needed for eventual consider-*
 10 *ation of optional mission architectures, pursuant to*
 11 *future authority to proceed with the consideration*
 12 *and implementation of such architectures; and*

13 *(4) international participation and cooperation,*
 14 *as well as commercial involvement in space explo-*
 15 *ration activities.*

16 **SEC. 403. STEPPING STONE APPROACH TO EXPLORATION.**

17 *In order to maximize the cost-effectiveness of the long-*
 18 *term exploration and utilization activities of the United*
 19 *States, the Administrator shall take all necessary steps, in-*
 20 *cluding engaging international partners, to ensure that ac-*
 21 *tivities in its lunar exploration program shall be designed*
 22 *and implemented in a manner that gives strong consider-*
 23 *ation to how those activities might also help meet the re-*
 24 *quirements of future exploration and utilization activities*
 25 *beyond the Moon. The timetable of the lunar phase of the*

1 *long-term international exploration initiative shall be de-*
 2 *termined by the availability of funding. However, once an*
 3 *exploration-related project enters its development phase, the*
 4 *Administrator shall seek, to the maximum extent prac-*
 5 *ticable, to complete that project without undue delays.*

6 **SEC. 404. LUNAR OUTPOST.**

7 (a) *ESTABLISHMENT.*—*As NASA works toward the es-*
 8 *tablishment of a lunar outpost, NASA shall make no plans*
 9 *that would require a lunar outpost to be occupied to main-*
 10 *tain its viability. Any such outpost shall be operable as a*
 11 *human-tended facility capable of remote or autonomous op-*
 12 *eration for extended periods.*

13 (b) *DESIGNATION.*—*The United States portion of the*
 14 *first human-tended outpost established on the surface of the*
 15 *Moon shall be designated the “Neil A. Armstrong Lunar*
 16 *Outpost”.*

17 (c) *SENSE OF CONGRESS.*—*It is the sense of Congress*
 18 *that NASA should make use of commercial services to the*
 19 *maximum extent practicable in support of its lunar outpost*
 20 *activities.*

21 **SEC. 405. EXPLORATION TECHNOLOGY DEVELOPMENT.**

22 (a) *IN GENERAL.*—*A robust program of long-term ex-*
 23 *ploration-related technology research and development will*
 24 *be essential for the success and sustainability of any endur-*

1 *ing initiative of human and robotic exploration of the solar*
2 *system.*

3 (b) *ESTABLISHMENT.*—*The Administrator shall carry*
4 *out a program of long-term exploration-related technology*
5 *research and development, including such things as in-space*
6 *propulsion, power systems, life support, and advanced avi-*
7 *onics, that is not tied to specific flight projects. The pro-*
8 *gram shall have the funding goal of ensuring that the tech-*
9 *nology research and development can be completed in a*
10 *timely manner in order to support the safe, successful, and*
11 *sustainable exploration of the solar system. In addition, in*
12 *order to ensure that the broadest range of innovative con-*
13 *cepts and technologies are captured, the long-term tech-*
14 *nology program shall have the goal of having a significant*
15 *portion of its funding available for external grants and con-*
16 *tracts with universities, research institutions, and industry.*

17 **SEC. 406. EXPLORATION RISK MITIGATION PLAN.**

18 (a) *PLAN.*—*The Administrator shall prepare a plan*
19 *that identifies and prioritizes the human and technical*
20 *risks that will need to be addressed in carrying out human*
21 *exploration beyond low Earth orbit and the research and*
22 *development activities required to address those risks. The*
23 *plan shall address the role of the International Space Sta-*
24 *tion in exploration risk mitigation and include a detailed*

1 *description of the specific steps being taken to utilize the*
 2 *International Space Station for that purpose.*

3 **(b) REPORT.**—*The Administrator shall transmit to the*
 4 *Committee on Science and Technology of the House of Rep-*
 5 *resentatives and the Committee on Commerce, Science, and*
 6 *Transportation of the Senate the plan described in sub-*
 7 *section (a) not later than one year after the date of enact-*
 8 *ment of this Act.*

9 **SEC. 407. EXPLORATION CREW RESCUE.**

10 *In order to maximize the ability to rescue astronauts*
 11 *whose space vehicles have become disabled, the Adminis-*
 12 *trator shall enter into discussions with the appropriate rep-*
 13 *resentatives of spacefaring nations who have or plan to have*
 14 *crew transportation systems capable of orbital flight or*
 15 *flight beyond low Earth orbit for the purpose of agreeing*
 16 *on a common docking system standard.*

17 **SEC. 408. PARTICIPATORY EXPLORATION.**

18 **(a) IN GENERAL.**—*The Administrator shall develop a*
 19 *technology plan to enable dissemination of information to*
 20 *the public to allow the public to experience missions to the*
 21 *Moon, Mars, or other bodies within our solar system by*
 22 *leveraging advanced exploration technologies. The plan*
 23 *shall identify opportunities to leverage technologies in*
 24 *NASA's Constellation systems that deliver a rich, multi-*
 25 *media experience to the public, and that facilitate partici-*

1 pation by the public, the private sector, nongovernmental
2 organizations, and international partners. Technologies for
3 collecting high-definition video, 3-dimensional images, and
4 scientific data, along with the means to rapidly deliver this
5 content through extended high bandwidth communications
6 networks, shall be considered as part of this plan. It shall
7 include a review of high bandwidth radio and laser commu-
8 nications, high-definition video, stereo imagery, 3-dimen-
9 sional scene cameras, and Internet routers in space, from
10 orbit, and on the lunar surface. The plan shall also consider
11 secondary cargo capability for technology validation and
12 science mission opportunities. In addition, the plan shall
13 identify opportunities to develop and demonstrate these
14 technologies on the International Space Station and robotic
15 missions to the Moon, Mars, and other solar system bodies.
16 As part of the technology plan, the Administrator shall ex-
17 amine the feasibility of having NASA enter into contracts
18 and other agreements with appropriate public, private sec-
19 tor, and international partners to broadcast electronically,
20 including via the Internet, images and multimedia records
21 delivered from its missions in space to the public, and shall
22 identify issues associated with such contracts and other
23 agreements. In any such contracts and other agreements,
24 NASA shall adhere to a transparent bidding process to
25 award such contracts and other agreements, pursuant to

1 *United States law. As part of this plan, the Administrator*
 2 *shall include estimates of associated costs.*

3 *(b) REPORT.—Not later than 270 days after the date*
 4 *of enactment of this Act, the Administrator shall submit*
 5 *the plan to the Committee on Science and Technology of*
 6 *the House of Representatives and the Committee on Com-*
 7 *merce, Science, and Transportation of the Senate.*

8 **SEC. 409. SCIENCE AND EXPLORATION.**

9 *It is the sense of Congress that NASA’s scientific and*
 10 *human exploration activities are synergistic; science enables*
 11 *exploration and human exploration enables science. The*
 12 *Congress encourages the Administrator to coordinate, where*
 13 *practical, NASA’s science and exploration activities with*
 14 *the goal of maximizing the success of human exploration*
 15 *initiatives and furthering our understanding of the Uni-*
 16 *verse that we explore.*

17 **SEC. 410. CONGRESSIONAL BUDGET OFFICE REPORT UP-**
 18 **DATE.**

19 *Not later than 6 months after the date of enactment*
 20 *of this Act, the Congressional Budget Office shall update*
 21 *its report from 2004 on the budgetary analysis of NASA’s*
 22 *Vision for the Nation’s Space Exploration Program, includ-*
 23 *ing new estimates for Project Constellation, NASA’s new*
 24 *generation of spacecraft designed for human space flight*
 25 *that will replace the Space Shuttle program.*

1 ***TITLE V—SPACE SCIENCE***

2 ***SEC. 501. TECHNOLOGY DEVELOPMENT.***

3 *The Administrator shall establish an intra-Directorate*
 4 *long-term technology development program for space and*
 5 *Earth science within the Science Mission Directorate for*
 6 *the development of new technology. The program shall be*
 7 *independent of the flight projects under development. NASA*
 8 *shall have a goal of funding the intra-Directorate tech-*
 9 *nology development program at a level of 5 percent of the*
 10 *total Science Mission Directorate annual budget. The pro-*
 11 *gram shall be structured to include competitively awarded*
 12 *grants and contracts.*

13 ***SEC. 502. PROVISION FOR FUTURE SERVICING OF OBSERV-*** 14 ***ATORY-CLASS SCIENTIFIC SPACECRAFT.***

15 *The Administrator shall take all necessary steps to en-*
 16 *sure that provision is made in the design and construction*
 17 *of all future observatory-class scientific spacecraft intended*
 18 *to be deployed in Earth orbit or at a Lagrangian point*
 19 *in space for robotic or human servicing and repair to the*
 20 *extent practicable and appropriate.*

21 ***SEC. 503. MARS EXPLORATION.***

22 *Congress reaffirms its support for a systematic, inte-*
 23 *grated program of exploration of the Martian surface to ex-*
 24 *amine the planet whose surface is most like Earth's, to*
 25 *search for evidence of past or present life, and to examine*

1 *Mars for future habitability and as a long-term goal for*
 2 *future human exploration. To the extent affordable and*
 3 *practical, the program should pursue the goal of launches*
 4 *at every Mars launch opportunity, leading to an eventual*
 5 *robotic sample return.*

6 **SEC. 504. IMPORTANCE OF A BALANCED SCIENCE PRO-**
 7 **GRAM.**

8 *It is the sense of Congress that a balanced and ade-*
 9 *quately funded set of activities, consisting of NASA's re-*
 10 *search and analysis grants programs, technology develop-*
 11 *ment, small-, medium-, and large-sized space science mis-*
 12 *sions, and suborbital research activities, contributes to a ro-*
 13 *bust and productive science program and serves as a cata-*
 14 *lyst for innovation.*

15 **SEC. 505. SUBORBITAL RESEARCH ACTIVITIES.**

16 *(a) SENSE OF CONGRESS.—It is the sense of Congress*
 17 *that suborbital flight activities, including the use of sound-*
 18 *ing rockets, aircraft, and high-altitude balloons, and sub-*
 19 *orbital reusable launch vehicles, offer valuable opportunities*
 20 *to advance science, train the next generation of scientists*
 21 *and engineers, and provide opportunities for participants*
 22 *in the programs to acquire skills in systems engineering*
 23 *and systems integration that are critical to maintaining*
 24 *the Nation's leadership in space programs. The Congress*
 25 *believes that it is in the national interest to expand the size*

1 of NASA's suborbital research program. It is further the
 2 sense of Congress that funding for suborbital research ac-
 3 tivities should be considered part of the contribution of
 4 NASA to United States competitive and educational en-
 5 hancement and should represent increased funding as con-
 6 templated in section 2001 of the America COMPETES Act
 7 (42 U.S.C. 16611(a)).

8 (b) REVIEW OF SUBORBITAL MISSION CAPABILI-
 9 TIES.—

10 (1) IN GENERAL.—Not later than 120 days after
 11 the date of enactment of this Act, the Administrator
 12 shall enter into an arrangement with the National
 13 Academies to conduct a review of the suborbital mis-
 14 sion capabilities of NASA.

15 (2) MATTERS REVIEWED.—The review required
 16 by paragraph (1) shall include a review of the fol-
 17 lowing:

18 (A) Existing programs that make use of
 19 suborbital flights.

20 (B) The status, capability, and availability
 21 of suborbital platforms, and the infrastructure
 22 and workforce necessary to support them.

23 (C) Existing or planned launch facilities for
 24 suborbital missions.

1 (D) *Opportunities for scientific research,*
2 *training, and educational collaboration in the*
3 *conduct of suborbital missions by NASA, espe-*
4 *cially as they relate to the findings and rec-*
5 *ommendations of the National Academies*
6 *decadal surveys and report on “Building a Bet-*
7 *ter NASA Workforce: Meeting the Workforce*
8 *Needs for the National Vision for Space Explo-*
9 *ration”.*

10 (3) *REPORT.—*

11 (A) *IN GENERAL.—Not later than 15*
12 *months after the date of enactment of this Act,*
13 *the Administrator shall submit to the Committee*
14 *on Science and Technology of the House of Rep-*
15 *resentatives and the Committee on Commerce,*
16 *Science, and Transportation of the Senate a re-*
17 *port on the review required by this subsection.*

18 (B) *CONTENTS.—The report required by*
19 *this paragraph shall include a summary of the*
20 *review; the findings of the Administrator with*
21 *respect to such review; recommendations regard-*
22 *ing the growth of suborbital launch programs*
23 *conducted by NASA; and the steps necessary to*
24 *ensure such programs are conducted using do-*
25 *mestic launch facilities to the maximum extent*

1 *practicable, including any rationale and jus-*
 2 *tification for using non-domestic facilities for*
 3 *such missions.*

4 **SEC. 506. RESTORATION OF RADIOISOTOPE THERMO-**
 5 **ELECTRIC GENERATOR MATERIAL PRODUC-**
 6 **TION.**

7 *(a) PLAN.—The Director of OSTP shall develop a plan*
 8 *for restarting and sustaining the domestic production of ra-*
 9 *dioisotope thermoelectric generator material for deep space*
 10 *and other space science missions.*

11 *(b) REPORT.—The plan developed under subsection (a)*
 12 *shall be transmitted to Congress not later than 270 days*
 13 *after the date of enactment of this Act.*

14 **SEC. 507. ASSESSMENT OF IMPEDIMENTS TO INTERAGENCY**
 15 **COOPERATION ON SPACE AND EARTH**
 16 **SCIENCE MISSIONS.**

17 *(a) ASSESSMENTS.—The Administrator, in consulta-*
 18 *tion with other agencies with space science programs, shall*
 19 *enter into an arrangement with the National Academies to*
 20 *assess impediments, including cost growth, to the successful*
 21 *conduct of interagency cooperation on space science mis-*
 22 *sions, to provide lessons learned and best practices, and to*
 23 *recommend steps to help facilitate successful interagency*
 24 *collaborations on space science missions. As part of the*
 25 *same arrangement with the National Academies, the Ad-*

1 *ministrator, in consultation with NOAA and other agencies*
 2 *with civil Earth observation systems, shall have the Na-*
 3 *tional Academies assess impediments, including cost*
 4 *growth, to the successful conduct of interagency cooperation*
 5 *on Earth science missions, to provide lessons learned and*
 6 *best practices, and to recommend steps to help facilitate suc-*
 7 *cessful interagency collaborations on Earth science mis-*
 8 *sions.*

9 **(b) REPORT.**—*The report of the assessments carried*
 10 *out under subsection (a) shall be transmitted to the Com-*
 11 *mittee on Science and Technology of the House of Rep-*
 12 *resentatives and the Committee on Commerce, Science, and*
 13 *Transportation of the Senate not later than 15 months after*
 14 *the date of enactment of this Act.*

15 **SEC. 508. ASSESSMENT OF COST GROWTH.**

16 **(a) STUDY.**—*The Administrator shall enter into an ar-*
 17 *rangement for an independent external assessment to iden-*
 18 *tify the primary causes of cost growth in the large-, me-*
 19 *dium-, and small-sized space and Earth science spacecraft*
 20 *mission classes, and make recommendations as to what*
 21 *changes, if any, should be made to contain costs and ensure*
 22 *frequent mission opportunities in NASA’s science spacecraft*
 23 *mission programs.*

1 (b) *REPORT.*—*The report of the assessment conducted*
 2 *under subsection (a) shall be submitted to Congress not later*
 3 *than 15 months after the date of enactment of this Act.*

4 **SEC. 509. OUTER PLANETS EXPLORATION.**

5 *It is the sense of Congress that the outer solar system*
 6 *planets and their satellites can offer important knowledge*
 7 *about the formation and evolution of the solar system, the*
 8 *nature and diversity of these solar system bodies, and the*
 9 *potential for conditions conducive to life beyond Earth.*
 10 *NASA should move forward with plans for an Outer Plan-*
 11 *ets flagship mission to the Europa-Jupiter system or the*
 12 *Titan-Saturn system as soon as practicable within a bal-*
 13 *anced Planetary Science program.*

14 **TITLE VI—SPACE OPERATIONS**
 15 **Subtitle A—International Space**
 16 **Station**

17 **SEC. 601. PLAN TO SUPPORT OPERATION AND UTILIZATION**
 18 **OF THE ISS BEYOND FISCAL YEAR 2015.**

19 (a) *IN GENERAL.*—*The Administrator shall take all*
 20 *necessary steps to ensure that the International Space Sta-*
 21 *tion remains a viable and productive facility capable of po-*
 22 *tential United States utilization through at least 2020 and*
 23 *shall take no steps that would preclude its continued oper-*
 24 *ation and utilization by the United States after 2015.*

1 (b) *PLAN TO SUPPORT OPERATIONS AND UTILIZATION*
2 *OF THE INTERNATIONAL SPACE STATION BEYOND FISCAL*
3 *YEAR 2015.*—

4 (1) *IN GENERAL.*—Not later than 9 months after
5 the date of enactment of this Act, the Administrator
6 shall submit to the Committee on Science and Tech-
7 nology of the House of Representatives and the Com-
8 mittee on Commerce, Science, and Transportation of
9 the Senate a plan to support the operations and utili-
10 zation of the International Space Station beyond fis-
11 cal year 2015 for a period of not less than 5 years.
12 The plan shall be an update and expansion of the op-
13 eration plan of the International Space Station Na-
14 tional Laboratory submitted to Congress in May 2007
15 under section 507 of the National Aeronautics and
16 Space Administration Authorization Act of 2005 (42
17 U.S.C. 16767).

18 (2) *CONTENT.*—

19 (A) *REQUIREMENTS TO SUPPORT OPER-*
20 *ATION AND UTILIZATION OF THE ISS BEYOND*
21 *FISCAL YEAR 2015.*—As part of the plan required
22 in paragraph (1), the Administrator shall pro-
23 vide each of the following:

1 (i) *A list of critical hardware nec-*
2 *essary to support International Space Sta-*
3 *tion operations through the year 2020.*

4 (ii) *Specific known or anticipated*
5 *maintenance actions that would need to be*
6 *performed to support International Space*
7 *Station operations and research through the*
8 *year 2020.*

9 (iii) *Annual upmass and downmass*
10 *requirements, including potential vehicles*
11 *that will deliver such upmass and*
12 *downmass, to support the International*
13 *Space Station after the retirement of the*
14 *Space Shuttle Orbiter and through the year*
15 *2020.*

16 (B) *ISS NATIONAL LABORATORY RESEARCH*
17 *MANAGEMENT PLAN.—As part of the plan re-*
18 *quired in paragraph (1), the Administrator shall*
19 *develop a Research Management Plan for the*
20 *International Space Station. Such Plan shall in-*
21 *clude a process for selecting and prioritizing re-*
22 *search activities (including fundamental, ap-*
23 *plied, commercial, and other research) for flight*
24 *on the International Space Station. Such Plan*
25 *shall be used to prioritize resources such as crew*

1 *time, racks and equipment, and United States*
2 *access to international research facilities and*
3 *equipment. Such Plan shall also identify the or-*
4 *ganization to be responsible for managing*
5 *United States research on the International*
6 *Space Station, including a description of the re-*
7 *lationship of the management institution with*
8 *NASA (e.g., internal NASA office, contract, coop-*
9 *erative agreement, or grant), the estimated length*
10 *of time for the arrangement, and the budget re-*
11 *quired to support the management institution.*
12 *Such Plan shall be developed in consultation*
13 *with other Federal agencies, academia, industry,*
14 *and other relevant stakeholders. The Adminis-*
15 *trator may request the support of the National*
16 *Academy of Sciences or other appropriate inde-*
17 *pendent entity, including an external consultant,*
18 *in developing the Plan.*

19 *(C) ESTABLISHMENT OF PROCESS FOR AC-*
20 *CESS TO NATIONAL LABORATORY.—As part of the*
21 *plan required in paragraph (1), the Adminis-*
22 *trator shall—*

23 *(i) establish a process by which to sup-*
24 *port International Space Station National*
25 *Laboratory users in identifying their re-*

quirements for transportation of research supplies to and from the International Space Station, and for communicating those requirements to NASA and International Space Station transportation services providers; and

(ii) develop an estimate of the transportation requirements needed to support users of the International Space Station National Laboratory and develop a plan for satisfying those requirements by dedicating a portion of volume on NASA supply missions to the International Space Station.

(D) ASSESSMENT OF EQUIPMENT TO SUPPORT RESEARCH.—As part of the plan required in paragraph (1), the Administrator shall—

(i) provide a list of critical hardware that is anticipated to be necessary to support nonexploration-related and exploration-related research through the year 2020;

(ii) identify existing research equipment and racks and support equipment that are manifested for flight; and

(iii) provide a detailed description of the status of research equipment and facilities that were completed or in development prior to being cancelled, and provide the budget and milestones for completing and preparing the equipment for flight on the International Space Station.

(E) *BUDGET PLAN*.—As part of the plan required in paragraph (1), the Administrator shall provide a budget plan that reflects the anticipated use of such activities and the projected amounts to be required for fiscal years 2010 through 2020 to accomplish the objectives of the activities described in subparagraphs (A) through (D).

SEC. 602. INTERNATIONAL SPACE STATION NATIONAL LABORATORY ADVISORY COMMITTEE.

(a) *ESTABLISHMENT*.—Not later than 1 year after the date of enactment of this Act, the Administrator shall establish under the Federal Advisory Committee Act a committee to be known as the “International Space Station National Laboratory Advisory Committee” (hereafter in this section referred to as the “Committee”).

(b) *MEMBERSHIP*.—

1 (1) *COMPOSITION.*—*The Committee shall be com-*
 2 *posed of individuals representing organizations who*
 3 *have formal agreements with NASA to utilize the*
 4 *United States portion of the International Space Sta-*
 5 *tion, including allocations within partner elements.*

6 (2) *CHAIR.*—*The Administrator shall appoint a*
 7 *chair from among the members of the Committee, who*
 8 *shall serve for a 2-year term.*

9 (c) *DUTIES OF THE COMMITTEE.*—

10 (1) *IN GENERAL.*—*The Committee shall monitor,*
 11 *assess, and make recommendations regarding effective*
 12 *utilization of the International Space Station as a*
 13 *national laboratory and platform for research.*

14 (2) *ANNUAL REPORT.*—*The Committee shall sub-*
 15 *mit to the Administrator, on an annual basis or more*
 16 *frequently as considered necessary by a majority of*
 17 *the members of the Committee, a report containing*
 18 *the assessments and recommendations required by*
 19 *paragraph (1).*

20 (d) *DURATION.*—*The Committee shall exist for the life*
 21 *of the International Space Station.*

22 **SEC. 603. CONTINGENCY PLAN FOR CARGO RESUPPLY.**

23 (a) *IN GENERAL.*—*The International Space Station*
 24 *represents a significant investment of national resources,*
 25 *and it is a facility that embodies a cooperative inter-*

1 national approach to the exploration and utilization of
2 space. As such, it is important that its continued viability
3 and productivity be ensured, to the maximum extent pos-
4 sible, after the Space Shuttle is retired.

5 (b) CONTINGENCY PLAN.—The Administrator shall de-
6 velop a contingency plan and arrangements, including use
7 of International Space Station international partner cargo
8 resupply capabilities, to ensure the continued viability and
9 productivity of the International Space Station in the event
10 that United States commercial cargo resupply services are
11 not available during any extended period after the date that
12 the Space Shuttle is retired. The plan shall be delivered to
13 the Committee on Science and Technology of the House of
14 Representatives and the Committee on Commerce, Science,
15 and Transportation of the Senate not later than one year
16 after the date of enactment of this Act.

17 **SEC. 604. SENSE OF CONGRESS ON USE OF SPACE LIFE**
18 **SCIENCES LABORATORY AT KENNEDY SPACE**
19 **CENTER.**

20 It is the sense of Congress that the Space Life Sciences
21 Laboratory at Kennedy Space Center represents a key in-
22 vestment and asset in the International Space Station Na-
23 tional Laboratory capability. The laboratory is specifically
24 designed to provide pre-flight, in-flight, and post-flight sup-

1 port services for International Space Station end-users, and
 2 should be utilized in this manner when appropriate.

3 ***Subtitle B—Space Shuttle***

4 ***SEC. 611. SPACE SHUTTLE FLIGHT REQUIREMENTS.***

5 (a) *REPORT ON U.S. HUMAN SPACEFLIGHT CAPABILI-*
 6 *TIES.*—Section 501(c) of the National Aeronautics and
 7 Space Administration Authorization Act of 2005 (42 U.S.C.
 8 16761(c)) is amended by striking the matter before para-
 9 graph (1) and inserting the following: “Not later than 90
 10 days after the date of enactment of the National Aeronautics
 11 and Space Administration Authorization Act of 2008, the
 12 Administrator shall submit to the Committee on Commerce,
 13 Science, and Transportation of the Senate and the Com-
 14 mittee on Science and Technology of the House of Rep-
 15 resentatives a report on the lack of a United States human
 16 space flight system to replace the Space Shuttle upon its
 17 planned retirement, currently scheduled for 2010, and the
 18 ability of the United States to uphold the policy described
 19 in subsection (a), including a description of—”.

20 (b) *BASELINE MANIFEST.*—In addition to the Space
 21 Shuttle flights listed as part of the baseline flight manifest
 22 as of January 1, 2008, the Utilization flights ULF-4 and
 23 ULF-5 shall be considered part of the Space Shuttle base-
 24 line flight manifest and shall be flown prior to the retire-
 25 ment of the Space Shuttle, currently scheduled for 2010.

1 (c) *ADDITIONAL FLIGHT TO DELIVER THE ALPHA*
2 *MAGNETIC SPECTROMETER AND OTHER SCIENTIFIC*
3 *EQUIPMENT AND PAYLOADS TO THE INTERNATIONAL SPACE*
4 *STATION.*—

5 (1) *IN GENERAL.*—*In addition to the flying of*
6 *the baseline manifest as described in subsection (b),*
7 *the Administrator shall take all necessary steps to fly*
8 *one additional Space Shuttle flight to deliver the*
9 *Alpha Magnetic Spectrometer and other scientific*
10 *equipment and payloads to the International Space*
11 *Station prior to the retirement of the Space Shuttle.*
12 *The purpose of the mission required to be planned*
13 *under this subsection shall be to ensure the active use*
14 *of the United States portion of the International*
15 *Space Station as a National Laboratory by the deliv-*
16 *ery of the Alpha Magnetic Spectrometer, and to the*
17 *extent practicable, the delivery of flight-ready research*
18 *experiments prepared under the Memoranda of Un-*
19 *derstanding between NASA and other entities to fa-*
20 *cilitate the utilization of the International Space Sta-*
21 *tion National Laboratory, as well as other funda-*
22 *mental and applied life sciences and other micro-*
23 *gravity research experiments to the International*
24 *Space Station as soon as the assembly of the Inter-*
25 *national Space Station is completed.*

1 (2) *FLIGHT SCHEDULE*.—If the Administrator,
2 *within 12 months before the scheduled date of the ad-*
3 *ditional Space Shuttle flight authorized by paragraph*
4 *(1), determines that—*

5 (A) *NASA will be unable to meet that*
6 *launch date before the end of calendar year 2010,*
7 *unless the President decides to extend Shuttle op-*
8 *erations beyond 2010, or*

9 (B) *implementation of the additional flight*
10 *requirement would, in and of itself, result in—*

11 (i) *significant increased costs to NASA*
12 *over the cost estimate of the additional*
13 *flight as determined by the Independent*
14 *Program Assessment Office, or*

15 (ii) *unacceptable safety risks associated*
16 *with making the flight before termination of*
17 *the Space Shuttle program,*

18 *the Administrator shall notify the Senate Committee*
19 *on Commerce, Science, and Transportation and the*
20 *House of Representatives Committee on Science and*
21 *Technology of the determination, and provide a de-*
22 *tailed explanation of the basis for that determination.*
23 *After the notification is provided to the Committees,*
24 *the Administrator shall remove the flight from the*
25 *Space Shuttle schedule unless the Congress by law re-*

1 *authorizes the flight or the President certifies that it*
 2 *is in the national interest to fly the mission.*

3 *(d) TERMINATION OR SUSPENSION OF ACTIVITIES*
 4 *THAT WOULD PRECLUDE CONTINUED FLIGHT OF SPACE*
 5 *SHUTTLE PRIOR TO REVIEW BY THE INCOMING 2009 PRESI-*
 6 *DENTIAL ADMINISTRATION.—*

7 *(1) IN GENERAL.—The Administrator shall ter-*
 8 *minate or suspend any activity of the Agency that, if*
 9 *continued between the date of enactment of this Act*
 10 *and April 30, 2009, would preclude the continued safe*
 11 *and effective flight of the Space Shuttle after fiscal*
 12 *year 2010 if the first President inaugurated on Janu-*
 13 *ary 20, 2009, were to make a determination to delay*
 14 *the Space Shuttle’s scheduled retirement.*

15 *(2) REPORT ON IMPACT OF COMPLIANCE.—With-*
 16 *in 90 days after the date of enactment of this Act, the*
 17 *Administrator shall provide a report to the Congress*
 18 *describing the expected budgetary and programmatic*
 19 *impacts from compliance with paragraph (1). The re-*
 20 *port shall include—*

21 *(A) a summary of the actions taken to en-*
 22 *sure the option to continue space shuttle flights*
 23 *beyond the end of fiscal year 2010 is not pre-*
 24 *cluded before April 30, 2009;*

1 (B) an estimate of additional costs incurred
2 by each specific action identified in the sum-
3 mary provided under subparagraph (A);

4 (C) a description of the proposed plan for
5 allocating those costs among anticipated fiscal
6 year 2009 appropriations or existing budget au-
7 thority;

8 (D) a description of any programmatic im-
9 pacts within the Space Operations Mission Di-
10 rectorate that would result from reallocations of
11 funds to meet the requirements of paragraph (1);

12 (E) a description of any additional author-
13 ity needed to enable compliance with the require-
14 ments of paragraph (1); and

15 (F) a description of any potential disrup-
16 tion to the timely progress of development mile-
17 stones in the preparation of infrastructure or
18 work-force requirements for shuttle follow-on
19 launch systems.

20 (e) *REPORT ON IMPACTS OF SPACE SHUTTLE EXTEN-*
21 *SION.*—Within 120 days after the date of enactment of this
22 Act, the Administrator shall provide a report to the Con-
23 gress outlining options, impacts, and associated costs of en-
24 suring the safe and effective operation of the Space Shuttle
25 at the minimum rate necessary to support International

1 *Space Station operations and resupply, including for both*
2 *a near-term, 1-to-2 year extension of Space Shuttle oper-*
3 *ations and for a longer term, 3-to-6 year extension. The*
4 *report shall include an assessment of—*

5 (1) *annual fixed and marginal costs, including*
6 *identification and cost impacts of options for cost-*
7 *sharing with the Constellation program and includ-*
8 *ing the impact of those cost-sharing options on the*
9 *Constellation program;*

10 (2) *the safety of continuing the use of the Space*
11 *Shuttle beyond 2010, including a probability risk as-*
12 *essment of a catastrophic accident before completion*
13 *of the extended Space Shuttle flight program, the un-*
14 *derlying assumptions used in calculating that prob-*
15 *ability, and comparing the associated safety risks*
16 *with those of other existing and planned human-rated*
17 *launch systems, including the Soyuz and Constella-*
18 *tion vehicles;*

19 (3) *a description of the activities and an esti-*
20 *mate of the associated costs that would be needed to*
21 *maintain or improve Space Shuttle safety throughout*
22 *the periods described in the first sentence of this sub-*
23 *section were the President inaugurated on January*
24 *20, 2009, to extend Space Shuttle operations beyond*

1 *2010, the correctly anticipated date of Space Shuttle*
2 *retirement;*

3 *(4) the impacts on facilities, workforce, and re-*
4 *sources for the Constellation program and on the cost*
5 *and schedule of that program;*

6 *(5) assumptions regarding workforce, skill mix,*
7 *launch and processing infrastructure, training,*
8 *ground support, orbiter maintenance and vehicle uti-*
9 *lization, and other relevant factors, as appropriate,*
10 *used in deriving the cost and schedule estimates for*
11 *the options studied;*

12 *(6) the extent to which program management,*
13 *processes, and workforce and contractor assignments*
14 *can be integrated and streamlined for maximum effi-*
15 *ciency to support continued shuttle flights while*
16 *transitioning to the Constellation program, including*
17 *identification of associated cost impacts on both the*
18 *Space Shuttle and the Constellation program;*

19 *(7) the impact of a Space Shuttle flight program*
20 *extention on the United States' dependence on Russia*
21 *for International Space Station crew rescue services;*
22 *and*

23 *(8) the potential for enhancements of Inter-*
24 *national Space Station research, logistics, and main-*
25 *tenance capabilities resulting from extended Shuttle*

1 *flight operations and the costs associated with imple-*
 2 *menting any such enhancements.*

3 **SEC. 612. UNITED STATES COMMERCIAL CARGO CAPABILITY**
 4 **STATUS.**

5 *The Administrator shall determine the degree to which*
 6 *an increase in the amounts authorized to be appropriated*
 7 *under section 101(3) for the Commercial Orbital Transpor-*
 8 *tation Services project to be used by Phase One team mem-*
 9 *bers of such project in fiscal year 2009 would reasonably*
 10 *be expected to accelerate development of Capabilities A, B,*
 11 *and C of such project to an effective operations capability*
 12 *as close to 2010 as possible.*

13 **SEC. 613. SPACE SHUTTLE TRANSITION.**

14 (a) *DISPOSITION OF SHUTTLE-RELATED ASSETS.—*

15 (1) *IN GENERAL.—Not later than 90 days after*
 16 *the date of enactment of this Act, the Administrator*
 17 *shall submit to Congress a plan describing the process*
 18 *for the disposition of the remaining Space Shuttle Or-*
 19 *biters and other Space Shuttle program-related hard-*
 20 *ware after the retirement of the Space Shuttle fleet.*

21 (2) *PLAN REQUIREMENTS.—The plan submitted*
 22 *under paragraph (1) shall include a description of a*
 23 *process by which educational institutions, science mu-*
 24 *seums, and other appropriate organizations may ac-*

1 *quire, through loan or disposal by the Federal Gov-*
2 *ernment, Space Shuttle program hardware.*

3 (3) *PROHIBITION ON DISPOSITION BEFORE COM-*
4 *PLETION OF PLAN.—The Administrator shall not dis-*
5 *pose of any Space Shuttle program hardware before*
6 *the plan required by paragraph (1) is submitted to*
7 *Congress.*

8 (b) *SPACE SHUTTLE TRANSITION LIAISON OFFICE.—*

9 (1) *ESTABLISHMENT.—The Administrator shall*
10 *develop a plan and establish a Space Shuttle Transi-*
11 *tion Liaison Office within the Office of Human Cap-*
12 *ital Management of NASA to assist local communities*
13 *affected by the termination of the Space Shuttle pro-*
14 *gram in mitigating the negative impacts on such*
15 *communities caused by such termination. The plan*
16 *shall define the size of the affected local community*
17 *that would receive assistance described in paragraph*
18 *(2).*

19 (2) *MANNER OF ASSISTANCE.—In providing as-*
20 *sistance under paragraph (1), the office established*
21 *under such paragraph shall—*

22 (A) *offer nonfinancial, technical assistance*
23 *to communities described in such paragraph to*
24 *assist in the mitigation described in such para-*
25 *graph; and*

1 (B) serve as a clearinghouse to assist such
 2 communities in identifying services available
 3 from other Federal, State, and local agencies to
 4 assist in such mitigation.

5 (3) *TERMINATION OF OFFICE.*—The office estab-
 6 lished under paragraph (1) shall terminate 2 years
 7 after the completion of the last Space Shuttle flight.

8 (4) *SUBMISSION.*—Not later than 180 days after
 9 the date of enactment of this Act, NASA shall provide
 10 a copy of the plan required by paragraph (1) to the
 11 Congress.

12 **SEC. 614. AEROSPACE SKILLS RETENTION AND INVEST-**
 13 **MENT REUTILIZATION REPORT.**

14 (a) *IN GENERAL.*—The Administrator shall, in con-
 15 sultation with other Federal agencies, as appropriate—

16 (1) carry out an analysis of the facilities and
 17 human capital resources that will become available as
 18 a result of the retirement of the Space Shuttle pro-
 19 gram; and

20 (2) identify on-going or future Federal programs
 21 and projects that could use such facilities and re-
 22 sources.

23 (b) *REPORT.*—Not later than 180 days after the date
 24 of enactment of this Act, the Administrator shall submit
 25 to the Committee on Science and Technology of the House

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

3 (1) on the analysis required by paragraph (1) of
4 subsection (a), including the findings of the Adminis-
5 trator with respect to such analysis; and

6 (2) describing the programs and projects identi-
7 fied under paragraph (2) of such subsection.

8 **SEC. 615. TEMPORARY CONTINUATION OF COVERAGE OF**
9 **HEALTH BENEFITS.**

10 (a) *IN GENERAL.*—Section 8905a(d) of title 5, United
11 States Code, is amended by adding at the end the following
12 new paragraph:

13 “(6)(A) *If the basis for continued coverage under*
14 *this section is, as a result of the termination of the*
15 *Space Shuttle Program, an involuntary separation*
16 *from a position due to a reduction-in-force or declina-*
17 *tion of a directed reassignment or transfer of func-*
18 *tion, or a voluntary separation from a surplus posi-*
19 *tion in the National Aeronautics and Space*
20 *Administration—*

21 “(i) *the individual shall be liable for not*
22 *more than the employee contributions referred to*
23 *in paragraph (1)(A)(i); and*

1 “(ii) the National Aeronautics and Space
2 Administration shall pay the remaining portion
3 of the amount required under paragraph (1)(A).

4 “(B) This paragraph shall only apply with re-
5 spect to individuals whose continued coverage is based
6 on a separation occurring on or after the date of en-
7 actment of this paragraph and before December 31,
8 2010.

9 “(C) For purposes of this paragraph, ‘surplus
10 position’ means a position which is—

11 “(i) identified in pre-reduction-in-force
12 planning as no longer required, and which is ex-
13 pected to be eliminated under formal reduction-
14 in-force procedures as a result of the termination
15 of the Space Shuttle Program; or

16 “(ii) encumbered by an employee who has
17 received official certification from the National
18 Aeronautics and Space Administration con-
19 sistent with the Administration’s career transi-
20 tion assistance program regulations that the po-
21 sition is being abolished as a result of the termi-
22 nation of the Space Shuttle Program.”.

23 (b) CONFORMING AMENDMENT.—Paragraph (1)(A) of
24 such subsection (d) is amended by striking “(4) and (5)”
25 and inserting “(4), (5), and (6)”.

1 **SEC. 616. ACCOUNTING REPORT.**

2 *Within 180 days after the date of enactment of this*
 3 *Act, the Administrator shall provide to the Committee on*
 4 *Science and Technology of the House of Representatives and*
 5 *the Committee on Commerce, Science, and Transportation*
 6 *of the Senate a report that will summarize any actions*
 7 *taken or planned to be taken during fiscal years 2008 and*
 8 *2009 to begin reductions in expenditures and activities re-*
 9 *lated to the Space Shuttle program. The report shall include*
 10 *a summary of any actual or anticipated cost savings to*
 11 *the Space Shuttle program relative to the FY 2008 and FY*
 12 *2009 Space Shuttle program budgets and runout projec-*
 13 *tions as a result of such actions, as well as a summary*
 14 *of any actual or anticipated liens or budgetary challenges*
 15 *to the Space Shuttle program during fiscal years 2008 and*
 16 *2009.*

17 ***Subtitle C—Launch Services***

18 **SEC. 621. LAUNCH SERVICES STRATEGY.**

19 *(a) IN GENERAL.—In preparation for the award of*
 20 *contracts to follow up on the current NASA Launch Serv-*
 21 *ices (NLS) contracts, the Administrator shall develop a*
 22 *strategy for providing domestic commercial launch services*
 23 *in support of NASA’s small and medium-sized Science,*
 24 *Space Operations, and Exploration missions, consistent*
 25 *with current law and policy.*

1 (b) *REPORT.*—*The Administrator shall transmit a re-*
 2 *port to the Committee on Science and Technology of the*
 3 *House of Representatives and the Committee on Commerce,*
 4 *Science, and Transportation of the Senate describing the*
 5 *strategy developed under subsection (a) not later than 90*
 6 *days after the date of enactment of this Act. The report shall*
 7 *provide, at a minimum—*

8 (1) *the results of the Request for Information on*
 9 *small to medium-sized launch services released on*
 10 *April 22, 2008;*

11 (2) *an analysis of possible alternatives to main-*
 12 *tain small and medium-sized lift capabilities after*
 13 *June 30, 2010, including the use of the Department*
 14 *of Defense’s Evolved Expendable Launch Vehicle*
 15 *(EELV);*

16 (3) *the recommended alternatives, and associated*
 17 *5-year budget plans starting in October 2010 that*
 18 *would enable their implementation; and*

19 (4) *a contingency plan in the event the rec-*
 20 *ommended alternatives described in paragraph (3)*
 21 *are not available when needed.*

22 ***TITLE VII—EDUCATION***

23 ***SEC. 701. RESPONSE TO REVIEW.***

24 (a) *PLAN.*—*The Administrator shall prepare a plan*
 25 *identifying actions taken or planned in response to the rec-*

1 *ommendations of the National Academies report, “NASA’s*
 2 *Elementary and Secondary Education Program: Review*
 3 *and Critique”.* *For those actions that have not been imple-*
 4 *mented, the plan shall include a schedule and budget re-*
 5 *quired to support the actions.*

6 **(b) REPORT.**—*The plan prepared under subsection (a)*
 7 *shall be transmitted to the Committee on Science and Tech-*
 8 *nology of the House of Representatives and the Committee*
 9 *on Commerce, Science, and Transportation of the Senate*
 10 *not later than 1 year after the date of enactment of this*
 11 *Act.*

12 **SEC. 702. EXTERNAL REVIEW OF EXPLORER SCHOOLS PRO-**
 13 **GRAM.**

14 **(a) REVIEW.**—*The Administrator shall make arrange-*
 15 *ments for an independent external review of the Explorer*
 16 *Schools program to evaluate its goals, status, plans, and*
 17 *accomplishments.*

18 **(b) REPORT.**—*The report of the independent external*
 19 *review shall be transmitted to the Committee on Science*
 20 *and Technology of the House of Representatives and the*
 21 *Committee on Commerce, Science, and Transportation of*
 22 *the Senate not later than 1 year after the date of enactment*
 23 *of this Act.*

1 **SEC. 703. SENSE OF CONGRESS ON EARTHKAM AND ROBOT-**
 2 **ICS COMPETITIONS.**

3 *It is the sense of Congress that NASA's educational*
 4 *programs are important sources of inspiration and hands-*
 5 *on learning for the next generation of engineers and sci-*
 6 *entists and should be supported. In that regard, programs*
 7 *such as EarthKAM, which brings NASA directly into Amer-*
 8 *ican classrooms by enabling students to talk directly with*
 9 *astronauts aboard the International Space Station and to*
 10 *take photographs of Earth from space, and NASA involve-*
 11 *ment in robotics competitions for students of all levels, are*
 12 *particularly worthy undertakings and NASA should sup-*
 13 *port them and look for additional opportunities to engage*
 14 *students through NASA's space and aeronautics activities.*

15 **SEC. 704. ENHANCEMENT OF EDUCATIONAL ROLE OF NASA.**

16 (a) *SENSE OF CONGRESS.—It is the sense of Congress*
 17 *that the International Space Station offers a unique oppor-*
 18 *tunity for Federal agencies to engage students in science,*
 19 *technology, engineering, and mathematics education. Con-*
 20 *gress encourages NASA to include other Federal agencies*
 21 *in its planning efforts to use the International Space Sta-*
 22 *tion National Laboratory for science, technology, engineer-*
 23 *ing, and mathematics educational activities.*

24 (b) *EXPERIMENTAL PROGRAM TO STIMULATE COM-*
 25 *PETITIVE RESEARCH.—In order to ensure that research ex-*
 26 *pertise and talent throughout the Nation is developed and*

1 *engaged in NASA research and education activities, NASA*
 2 *shall, as part of its annual budget submission, detail addi-*
 3 *tional steps that can be taken to further integrate the par-*
 4 *ticipating EPSCoR States in both existing and new or*
 5 *emerging NASA research programs and center activities.*

6 (c) *NATIONAL SPACE GRANT COLLEGE AND FELLOW-*
 7 *SHIP PROGRAM.*—*NASA shall continue its emphasis on the*
 8 *importance of education to expand opportunities for Ameri-*
 9 *cans to understand and participate in NASA’s aeronautics*
 10 *and space projects by supporting and enhancing science*
 11 *and engineering education, research, and public outreach*
 12 *efforts.*

13 ***TITLE VIII—NEAR-EARTH*** 14 ***OBJECTS***

15 ***SEC. 801. REAFFIRMATION OF POLICY.***

16 (a) *REAFFIRMATION OF POLICY ON SURVEYING NEAR-*
 17 *EARTH ASTEROIDS AND COMETS.*—*Congress reaffirms the*
 18 *policy set forth in section 102(g) of the National Aero-*
 19 *nautics and Space Act of 1958 (42 U.S.C. 2451(g)) (relat-*
 20 *ing to surveying near-Earth asteroids and comets).*

21 (b) *SENSE OF CONGRESS ON BENEFITS OF NEAR-*
 22 *EARTH OBJECT PROGRAM ACTIVITIES.*—*It is the sense of*
 23 *Congress that the near-Earth object program activities of*
 24 *NASA will provide benefits to the scientific and exploration*
 25 *activities of NASA.*

1 **SEC. 802. FINDINGS.**

2 *Congress makes the following findings:*

3 *(1) Near-Earth objects pose a serious and cred-*
4 *ible threat to humankind, as many scientists believe*
5 *that a major asteroid or comet was responsible for the*
6 *mass extinction of the majority of the Earth's species,*
7 *including the dinosaurs, nearly 65,000,000 years ago.*

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

13 *(3) Asteroid and comet collisions rank as one of*
14 *the most costly natural disasters that can occur.*

15 *(4) The time needed to eliminate or mitigate the*
16 *threat of a collision of a potentially hazardous near-*
17 *Earth object with Earth is measured in decades.*

18 *(5) Unlike earthquakes and hurricanes, asteroids*
19 *and comets can provide adequate collision informa-*
20 *tion, enabling the United States to include both aster-*
21 *oid-collision and comet-collision disaster recovery and*
22 *disaster avoidance in its public-safety structure.*

23 *(6) Basic information is needed for technical*
24 *and policy decisionmaking for the United States to*
25 *create a comprehensive program in order to be ready*
26 *to eliminate and mitigate the serious and credible*

1 *threats to humankind posed by potentially hazardous*
 2 *near-Earth asteroids and comets.*

3 *(7) As a first step to eliminate and to mitigate*
 4 *the risk of such collisions, situation and decision*
 5 *analysis processes, as well as procedures and system*
 6 *resources, must be in place well before a collision*
 7 *threat becomes known.*

8 **SEC. 803. REQUESTS FOR INFORMATION.**

9 *The Administrator shall issue requests for information*
 10 *on—*

11 *(1) a low-cost space mission with the purpose of*
 12 *rendezvousing with, attaching a tracking device, and*
 13 *characterizing the Apophis asteroid; and*

14 *(2) a medium-sized space mission with the pur-*
 15 *pose of detecting near-Earth objects equal to or great-*
 16 *er than 140 meters in diameter.*

17 **SEC. 804. ESTABLISHMENT OF POLICY WITH RESPECT TO**
 18 **THREATS POSED BY NEAR-EARTH OBJECTS.**

19 *Within 2 years after the date of enactment of this Act,*
 20 *the Director of the OSTP shall—*

21 *(1) develop a policy for notifying Federal agen-*
 22 *cies and relevant emergency response institutions of*
 23 *an impending near-Earth object threat, if near-term*
 24 *public safety is at risk; and*

1 (2) *recommend a Federal agency or agencies to*
2 *be responsible for—*

3 (A) *protecting the United States from a*
4 *near-Earth object that is expected to collide with*
5 *Earth; and*

6 (B) *implementing a deflection campaign, in*
7 *consultation with international bodies, should*
8 *one be necessary.*

9 **SEC. 805. PLANETARY RADAR CAPABILITY.**

10 *The Administrator shall maintain a planetary radar*
11 *that is comparable to the capability provided through the*
12 *Deep Space Network Goldstone facility of NASA.*

13 **SEC. 806. ARECIBO OBSERVATORY.**

14 *Congress reiterates its support for the use of the Are-*
15 *cibo Observatory for NASA-funded near-Earth object-re-*
16 *lated activities. The Administrator, using funds authorized*
17 *in section 101(a)(1)(B), shall ensure the availability of the*
18 *Arecibo Observatory's planetary radar to support these ac-*
19 *tivities until the National Academies' review of NASA's ap-*
20 *proach for the survey and deflection of near-Earth objects,*
21 *including a determination of the role of Arecibo, that was*
22 *directed to be undertaken by the Fiscal Year 2008 Omnibus*
23 *Appropriations Act, is completed.*

1 **SEC. 807. INTERNATIONAL RESOURCES.**

2 *It is the sense of Congress that, since an estimated*
 3 *25,000 asteroids of concern have yet to be discovered and*
 4 *monitored, the United States should seek to obtain commit-*
 5 *ments for cooperation from other nations with significant*
 6 *resources for contributing to a thorough and timely search*
 7 *for such objects and an identification of their characteris-*
 8 *tics.*

9 **TITLE IX—COMMERCIAL**
 10 **INITIATIVES**

11 **SEC. 901. SENSE OF CONGRESS.**

12 *It is the sense of Congress that a healthy and robust*
 13 *commercial sector can make significant contributions to the*
 14 *successful conduct of NASA's space exploration program.*
 15 *While some activities are inherently governmental in na-*
 16 *ture, there are many other activities, such as routine supply*
 17 *of water, fuel, and other consumables to low Earth orbit*
 18 *or to destinations beyond low Earth orbit, and provision*
 19 *of power or communications services to lunar outposts, that*
 20 *potentially could be carried out effectively and efficiently*
 21 *by the commercial sector at some point in the future. Con-*
 22 *gress encourages NASA to look for such service opportuni-*
 23 *ties and, to the maximum extent practicable, make use of*
 24 *the commercial sector to provide those services. It is further*
 25 *the sense of Congress that United States entrepreneurial*
 26 *space companies have the potential to develop and deliver*

1 *innovative technology solutions at affordable costs. NASA*
2 *is encouraged to use United States entrepreneurial space*
3 *companies to conduct appropriate research and develop-*
4 *ment activities. NASA is further encouraged to seek ways*
5 *to ensure that firms that rely on fixed-price proposals are*
6 *not disadvantaged when NASA seeks to procure technology*
7 *development.*

8 **SEC. 902. COMMERCIAL CREW INITIATIVE.**

9 (a) *IN GENERAL.*—*In order to stimulate commercial*
10 *use of space, help maximize the utility and productivity*
11 *of the International Space Station, and enable a commer-*
12 *cial means of providing crew transfer and crew rescue serv-*
13 *ices for the International Space Station, NASA shall—*

14 (1) *make use of United States commercially pro-*
15 *vided International Space Station crew transfer and*
16 *crew rescue services to the maximum extent prac-*
17 *ticable, if those commercial services have dem-*
18 *onstrated the capability to meet NASA-specified as-*
19 *cent, entry, and International Space Station prox-*
20 *imity operations safety requirements;*

21 (2) *limit, to the maximum extent practicable, the*
22 *use of the Crew Exploration Vehicle to missions car-*
23 *rying astronauts beyond low Earth orbit once com-*
24 *mercial crew transfer and crew rescue services that*
25 *meet safety requirements become operational;*

1 (3) *facilitate, to the maximum extent practicable,*
2 *the transfer of NASA-developed technologies to poten-*
3 *tial United States commercial crew transfer and res-*
4 *cue service providers, consistent with United States*
5 *law; and*

6 (4) *issue a notice of intent, not later than 180*
7 *days after the date of enactment of this Act, to enter*
8 *into a funded, competitively awarded Space Act*
9 *Agreement with 2 or more commercial entities for a*
10 *Phase 1 Commercial Orbital Transportation Services*
11 *crewed vehicle demonstration program.*

12 (b) *CONGRESSIONAL INTENT.—It is the intent of Con-*
13 *gress that funding for the program described in subsection*
14 (i)(4) *shall not come at the expense of full funding of the*
15 *amounts authorized under section 101(3)(A), and for future*
16 *fiscal years, for Orion Crew Exploration Vehicle develop-*
17 *ment, Ares I Crew Launch Vehicle development, or Inter-*
18 *national Space Station cargo delivery.*

19 (c) *ADDITIONAL TECHNOLOGIES.—NASA shall make*
20 *International Space Station-compatible docking adaptors*
21 *and other relevant technologies available to the commercial*
22 *crew providers selected to service the International Space*
23 *Station.*

24 (d) *CREW TRANSFER AND CREW RESCUE SERVICES*
25 *CONTRACT.—If a commercial provider demonstrates the ca-*

1 *pability to provide International Space Station crew trans-*
 2 *fer and crew rescue services and to satisfy NASA ascent,*
 3 *entry, and International Space Station proximity oper-*
 4 *ations safety requirements, NASA shall enter into an Inter-*
 5 *national Space Station crew transfer and crew rescue serv-*
 6 *ices contract with that commercial provider for a portion*
 7 *of NASA's anticipated International Space Station crew*
 8 *transfer and crew rescue requirements from the time the*
 9 *commercial provider commences operations under contract*
 10 *with NASA through calendar year 2016, with an option*
 11 *to extend the period of performance through calendar year*
 12 *2020.*

13 ***TITLE X—REVITALIZATION OF***
 14 ***NASA INSTITUTIONAL CAPA-***
 15 ***BILITIES***

16 ***SEC. 1001. REVIEW OF INFORMATION SECURITY CONTROLS.***

17 *(a) REPORT ON CONTROLS.—Not later than one year*
 18 *after the date of enactment of this Act, the Comptroller Gen-*
 19 *eral shall transmit to the Committee on Science and Tech-*
 20 *nology of the House of Representatives and the Committee*
 21 *on Commerce, Science, and Transportation of the Senate*
 22 *a review of information security controls that protect*
 23 *NASA's information technology resources and information*
 24 *from inadvertent or deliberate misuse, fraudulent use, dis-*
 25 *closure, modification, or destruction. The review shall focus*

1 *on networks servicing NASA's mission directorates. In as-*
2 *sessing these controls, the review shall evaluate—*

3 *(1) the network's ability to limit, detect, and*
4 *monitor access to resources and information, thereby*
5 *safeguarding and protecting them from unauthorized*
6 *access;*

7 *(2) the physical access to network resources; and*

8 *(3) the extent to which sensitive research and*
9 *mission data is encrypted.*

10 *(b) RESTRICTED REPORT ON INTRUSIONS.—Not later*
11 *than one year after the date of enactment of this Act, and*
12 *in conjunction with the report described in subsection (a),*
13 *the Comptroller General shall transmit to the Committee*
14 *on Science and Technology of the House of Representatives*
15 *and the Committee on Commerce, Science, and Transpor-*
16 *tation of the Senate a restricted report detailing results of*
17 *vulnerability assessments conducted by the Government Ac-*
18 *countability Office on NASA's network resources. Intrusion*
19 *attempts during such vulnerability assessments shall be di-*
20 *vulged to NASA senior management prior to their applica-*
21 *tion. The report shall put vulnerability assessment results*
22 *in the context of unauthorized accesses or attempts during*
23 *the prior two years and the corrective actions, recent or on-*
24 *going, that NASA has implemented in conjunction with*
25 *other Federal authorities to prevent such intrusions.*

1 **SEC. 1002. MAINTENANCE AND UPGRADE OF CENTER FA-**
2 **CILITIES.**

3 (a) *IN GENERAL.*—*In order to sustain healthy Centers*
4 *that are capable of carrying out NASA’s missions, the Ad-*
5 *ministrator shall ensure that adequate maintenance and*
6 *upgrading of those Center facilities is performed on a reg-*
7 *ular basis.*

8 (b) *REVIEW.*—*The Administrator shall determine and*
9 *prioritize the maintenance and upgrade backlog at each of*
10 *NASA’s Centers and associated facilities, and shall develop*
11 *a strategy and budget plan to reduce that maintenance and*
12 *upgrade backlog by 50 percent over the next five years.*

13 (c) *REPORT.*—*The Administrator shall deliver a report*
14 *to Congress on the results of the activities undertaken in*
15 *subsection (b) concurrently with the delivery of the fiscal*
16 *year 2011 budget request.*

17 **SEC. 1003. ASSESSMENT OF NASA LABORATORY CAPABILI-**
18 **TIES.**

19 (a) *IN GENERAL.*—*NASA’s laboratories are a critical*
20 *component of NASA’s research capabilities, and the Admin-*
21 *istrator shall ensure that those laboratories remain produc-*
22 *tive.*

23 (b) *REVIEW.*—*The Administrator shall enter into an*
24 *arrangement for an independent external review of NASA’s*
25 *laboratories, including laboratory equipment, facilities, and*
26 *support services, to determine whether they are equipped*

1 *and maintained at a level adequate to support NASA's re-*
 2 *search activities. The assessment shall also include an as-*
 3 *essment of the relative quality of NASA's in-house labora-*
 4 *tory equipment and facilities compared to comparable lab-*
 5 *oratories elsewhere. The results of the review shall be pro-*
 6 *vided to the Committee on Science and Technology of the*
 7 *House of Representatives and the Committee on Commerce,*
 8 *Science, and Transportation of the Senate not later than*
 9 *18 months after the date of enactment of this Act.*

10 **SEC. 1004. STUDY AND REPORT ON PROJECT ASSIGNMENT**
 11 **AND WORK ALLOCATION OF FIELD CENTERS.**

12 (a) *STUDY.*—

13 (1) *IN GENERAL.*—Not later than 180 days after
 14 the date of enactment of this Act, the Administrator
 15 shall complete a study of all field centers of NASA,
 16 including the Michoud Assembly Facility.

17 (2) *MATTERS STUDIED.*—The study required by
 18 paragraph (1) shall include the mission and future
 19 roles and responsibilities of the field centers, includ-
 20 ing the Michoud Assembly Facility, described in
 21 paragraph (1).

22 (b) *REPORT.*—

23 (1) *IN GENERAL.*—Not later than 180 days after
 24 the date of enactment of this Act, the Administrator
 25 shall submit to the appropriate congressional commit-

1 *tees a report on the study required by subsection*
 2 *(a)(1).*

3 *(2) CONTENT.—The report required by para-*
 4 *graph (1) shall include the following:*

5 *(A) A comprehensive analysis of the work*
 6 *allocation of all field centers of NASA, including*
 7 *the Michoud Assembly Facility.*

8 *(B) A description of the program and*
 9 *project roles, functions, and activities assigned to*
 10 *each field center, including the Michoud Assem-*
 11 *bly Facility.*

12 *(C) Details on how field centers, including*
 13 *the Michoud Assembly Facility, are selected and*
 14 *designated for lead and support role work as-*
 15 *signments (including program and contract*
 16 *management assignments).*

17 ***TITLE XI—OTHER PROVISIONS***

18 ***SEC. 1101. SPACE WEATHER.***

19 *(a) PLAN FOR REPLACEMENT OF ADVANCED COMPOSI-*
 20 *TION EXPLORER AT L–1 LAGRANGIAN POINT.—*

21 *(1) PLAN.—The Director of OSTP shall develop*
 22 *a plan for sustaining space-based measurements of*
 23 *solar wind from the L–1 Lagrangian point in space*
 24 *and for the dissemination of the data for operational*
 25 *purposes. OSTP shall consult with NASA, NOAA,*

1 *and other Federal agencies, and with industry, in de-*
 2 *veloping the plan.*

3 (2) *REPORT.—The Director shall transmit the*
 4 *plan to Congress not later than 1 year after the date*
 5 *of enactment of this Act.*

6 (b) *ASSESSMENT OF THE IMPACT OF SPACE WEATHER*
 7 *ON AVIATION.—*

8 (1) *STUDY.—The Director of OSTP shall enter*
 9 *into an arrangement with the National Research*
 10 *Council for a study of the impacts of space weather*
 11 *on the current and future United States aviation in-*
 12 *dustry, and in particular to examine the risks for*
 13 *Over-The-Pole (OTP) and Ultra-Long-Range (ULR)*
 14 *operations. The study shall—*

15 (A) *examine space weather impacts on, at a*
 16 *minimum, communications, navigation, avi-*
 17 *onics, and human health in flight;*

18 (B) *assess the benefits of space weather in-*
 19 *formation and services to reduce aviation costs*
 20 *and maintain safety; and*

21 (C) *provide recommendations on how*
 22 *NOAA, the National Science Foundation, and*
 23 *other relevant agencies, can most effectively*
 24 *carry out research and monitoring activities re-*
 25 *lated to space weather and aviation.*

1 (2) *REPORT.*—A report containing the results of
 2 the study shall be provided to the Committee on
 3 Science and Technology of the House of Representa-
 4 tives and the Committee on Commerce, Science, and
 5 Transportation of the Senate not later than 1 year
 6 after the date of enactment of this Act.

7 **SEC. 1102. INITIATION OF DISCUSSIONS ON DEVELOPMENT**
 8 **OF FRAMEWORK FOR SPACE TRAFFIC MAN-**
 9 **AGEMENT.**

10 (a) *FINDING.*—Congress finds that as more countries
 11 acquire the capability for launching payloads into outer
 12 space, there is an increasing need for a framework under
 13 which information intended to promote safe access into
 14 outer space, operations in outer space, and return from
 15 outer space to Earth free from physical or radio-frequency
 16 interference can be shared among those countries.

17 (b) *DISCUSSIONS.*—The Administrator shall, in con-
 18 sultation with such other agencies of the Federal Govern-
 19 ment as the Administrator considers appropriate, initiate
 20 discussions with the appropriate representatives of other
 21 space-faring countries to determine an appropriate frame-
 22 work under which information intended to promote safe ac-
 23 cess into outer space, operations in outer space, and return
 24 from outer space to Earth free from physical or radio-fre-
 25 quency interference can be shared among those nations.

1 **SEC. 1103. ASTRONAUT HEALTH CARE.**

2 (a) *SURVEY.*—*The Administrator shall administer an*
 3 *anonymous survey of astronauts and flight surgeons to*
 4 *evaluate communication, relationships, and the effectiveness*
 5 *of policies. The survey questions and the analysis of results*
 6 *shall be evaluated by experts independent of NASA. The*
 7 *survey shall be administered on at least a biennial basis.*

8 (b) *REPORT.*—*The Administrator shall transmit a re-*
 9 *port of the results of the survey to Congress not later than*
 10 *90 days following completion of the survey.*

11 **SEC. 1104. NATIONAL ACADEMIES DECADAL SURVEYS.**

12 (a) *IN GENERAL.*—*The Administrator shall enter into*
 13 *agreements on a periodic basis with the National Academies*
 14 *for independent assessments, also known as decadal surveys,*
 15 *to take stock of the status and opportunities for Earth and*
 16 *space science discipline fields and Aeronautics research and*
 17 *to recommend priorities for research and programmatic*
 18 *areas over the next decade.*

19 (b) *INDEPENDENT COST ESTIMATES.*—*The agreements*
 20 *described in subsection(a) shall include independent esti-*
 21 *mates of the life cycle costs and technical readiness of mis-*
 22 *sions assessed in the decadal surveys whenever possible.*

23 (c) *REEXAMINATION.*—*The Administrator shall request*
 24 *that each National Academies decadal survey committee*
 25 *identify any conditions or events, such as significant cost*
 26 *growth or scientific or technological advances, that would*

1 *warrant NASA asking the National Academies to reexam-*
 2 *ine the priorities that the decadal survey had established.*

3 **SEC. 1105. INNOVATION PRIZES.**

4 (a) *IN GENERAL.*—Prizes can play a useful role in en-
 5 couraging innovation in the development of technologies
 6 and products that can assist NASA in its aeronautics and
 7 space activities, and the use of such prizes by NASA should
 8 be encouraged.

9 (b) *AMENDMENTS.*—Section 314 of the National Aero-
 10 nautics and Space Act of 1958 is amended—

11 (1) *by amending subsection (b) to read as fol-*
 12 *lows:*

13 “(b) *TOPICS.*—In selecting topics for prize competi-
 14 tions, the Administrator shall consult widely both within
 15 and outside the Federal Government, and may empanel ad-
 16 visory committees. The Administrator shall give consider-
 17 ation to prize goals such as the demonstration of the ability
 18 to provide energy to the lunar surface from space-based
 19 solar power systems, demonstration of innovative near-
 20 Earth object survey and deflection strategies, and innova-
 21 tive approaches to improving the safety and efficiency of
 22 aviation systems.”; and

23 (2) *in subsection (i)(4) by striking*
 24 *“\$10,000,000” and inserting “\$50,000,000”.*

1 **SEC. 1106. COMMERCIAL SPACE LAUNCH RANGE STUDY.**

2 (a) *STUDY BY INTERAGENCY COMMITTEE.*—The Direc-
3 tor of OSTP shall work with other appropriate Federal
4 agencies to establish an interagency committee to conduct
5 a study to—

6 (1) *identify the issues and challenges associated*
7 *with establishing space launch ranges and facilities*
8 *that are fully dedicated to commercial space missions*
9 *in close proximity to Federal launch ranges or other*
10 *Federal facilities; and*

11 (2) *develop a coordinating mechanism such that*
12 *States seeking to establish such commercial space*
13 *launch ranges will be able to effectively and efficiently*
14 *interface with the Federal Government concerning*
15 *issues related to the establishment of such commercial*
16 *launch ranges in close proximity to Federal launch*
17 *ranges or other Federal facilities.*

18 (b) *REPORT.*—The Director shall, not later than May
19 31, 2010, submit to the Committee on Science and Tech-
20 nology of the House of Representatives and the Committee
21 on Commerce, Science, and Transportation of the Senate
22 a report on the results of the study conducted under sub-
23 section (a).

24 **SEC. 1107. NASA OUTREACH PROGRAM.**

25 (a) *ESTABLISHMENT.*—NASA shall competitively se-
26 lect an organization to partner with NASA centers, aero-

1 *space contractors, and academic institutions to carry out*
2 *a program to help promote the competitiveness of small, mi-*
3 *nority-owned, and women-owned businesses in communities*
4 *across the United States through enhanced insight into the*
5 *technologies of NASA's space and aeronautics programs.*
6 *The program shall support the mission of NASA's Innova-*
7 *tive Partnerships Program with its emphasis on joint part-*
8 *nerships with industry, academia, government agencies,*
9 *and national laboratories.*

10 **(b) PROGRAM STRUCTURE.**—*In carrying out the pro-*
11 *gram described in subsection (a), the organization shall*
12 *support the mission of NASA's Innovative Partnerships*
13 *Program by undertaking the following activities:*

14 **(1)** *Facilitating the enhanced insight of the pri-*
15 *rate sector into NASA's technologies in order to in-*
16 *crease the competitiveness of the private sector in pro-*
17 *ducing viable commercial products.*

18 **(2)** *Creating a network of academic institutions,*
19 *aerospace contractors, and NASA centers that will*
20 *commit to donating appropriate technical assistance*
21 *to small businesses, giving preference to socially and*
22 *economically disadvantaged small business concerns,*
23 *small business concerns owned and controlled by serv-*
24 *ice-disabled veterans, and HUBZone small business*

1 *concerns. This paragraph shall not apply to any con-*
2 *tracting actions entered into or taken by NASA.*

3 *(3) Creating a network of economic development*
4 *organizations to increase the awareness and enhance*
5 *the effectiveness of the program nationwide.*

6 *(c) REPORT.—Not later than 1 year after the date of*
7 *enactment of this Act, and annually thereafter, the Admin-*
8 *istrator shall submit a report to the Committee on Science*
9 *and Technology of the House of Representatives and the*
10 *Committee on Commerce, Science, and Transportation of*
11 *the Senate describing the efforts and accomplishments of the*
12 *program established under subsection (a) in support of*
13 *NASA’s Innovative Partnerships Program. As part of the*
14 *report, the Administrator shall provide—*

15 *(1) data on the number of small businesses re-*
16 *ceiving assistance, jobs created and retained, and vol-*
17 *unteer hours donated by NASA, contractors, and aca-*
18 *demic institutions nationwide;*

19 *(2) an estimate of the total dollar value of the*
20 *economic impact made by small businesses that re-*
21 *ceived technical assistance through the program; and*

22 *(3) an accounting of the use of funds appro-*
23 *priated for the program.*

1 **SEC. 1108. REDUCTION-IN-FORCE MORATORIUM.**

2 *NASA shall not initiate or implement a reduction-in-*
 3 *force, or conduct any other involuntary separations of per-*
 4 *manent, non-Senior Executive Service, civil servant em-*
 5 *ployees before December 31, 2010, except for cause on*
 6 *charges of misconduct, delinquency, or inefficiency.*

7 **SEC. 1109. PROTECTION OF SCIENTIFIC CREDIBILITY, IN-**
 8 **TEGRITY, AND COMMUNICATION WITHIN**
 9 **NASA.**

10 *(a) SENSE OF THE CONGRESS.—It is the sense of Con-*
 11 *gress that NASA should not dilute, distort, suppress, or im-*
 12 *pede scientific research or the dissemination thereof.*

13 *(b) STUDY.—Within 60 days after the date of enact-*
 14 *ment of this Act, the Comptroller General shall—*

15 *(1) initiate a study to be completed within 270*
 16 *days to determine whether the regulations set forth in*
 17 *part 1213 of title 14, Code of Federal Regulations, are*
 18 *being implemented in a clear and consistent manner*
 19 *by NASA to ensure the dissemination of research; and*

20 *(2) transmit a report to the Congress setting*
 21 *forth the Comptroller General's findings, conclusions,*
 22 *and recommendations.*

23 *(c) RESEARCH.—The Administrator shall work to en-*
 24 *sure that NASA's policies on the sharing of climate related*
 25 *data respond to the recommendations of the Government Ac-*
 26 *countability Office's report on climate change research and*

1 *data-sharing policies and to the recommendations on the*
 2 *processing, distribution, and archiving of data by the Na-*
 3 *tional Academies Earth Science Decadal Survey, “Earth*
 4 *Science and Applications from Space”, and other relevant*
 5 *National Academies reports, to enhance and facilitate their*
 6 *availability and widest possible use to ensure public access*
 7 *to accurate and current data on global warming.*

8 **SEC. 1110. SENSE OF CONGRESS REGARDING THE NEED**
 9 **FOR A ROBUST WORKFORCE.**

10 *It is the sense of Congress that—*

11 *(1) a robust and highly skilled workforce is crit-*
 12 *ical to the success of NASA’s programs;*

13 *(2) voluntary attrition, the retirement of many*
 14 *senior workers, and difficulties in recruiting could*
 15 *leave NASA without access to the intellectual capital*
 16 *necessary to compete with its global competitors; and*

17 *(3) NASA should work cooperatively with other*
 18 *agencies of the United States Government responsible*
 19 *for programs related to space and the aerospace in-*
 20 *dustry to develop and implement policies, including*
 21 *those with an emphasis on improving science, tech-*
 22 *nology, engineering, and mathematics education at*
 23 *all levels, to sustain and expand the diverse workforce*
 24 *available to NASA.*

1 **SEC. 1111. METHANE INVENTORY.**

2 *Within 12 months after the date of enactment of this*
3 *Act, the Director of OSTP, in conjunction with the Admin-*
4 *istrator, the Administrator of NOAA, and other appropriate*
5 *Federal agencies and academic institutions, shall develop*
6 *a plan, including a cost estimate and timetable, and ini-*
7 *tiate an inventory of natural methane stocks and fluxes in*
8 *the polar region of the United States.*

9 **SEC. 1112. EXCEPTION TO ALTERNATIVE FUEL PROCURE-**
10 **MENT REQUIREMENT.**

11 *Section 526(a) of the Energy Independence and Secu-*
12 *rity Act of 2007 (42 U.S.C. 17142(a)) does not prohibit*
13 *NASA from entering into a contract to purchase a generally*
14 *available fuel that is not an alternative or synthetic fuel*
15 *or predominantly produced from a nonconventional petro-*
16 *leum source, if—*

17 *(1) the contract does not specifically require the*
18 *contractor to provide an alternative or synthetic fuel*
19 *or fuel from a nonconventional petroleum source;*

20 *(2) the purpose of the contract is not to obtain*
21 *an alternative or synthetic fuel or fuel from a non-*
22 *conventional petroleum source; and*

23 *(3) the contract does not provide incentives for a*
24 *refinery upgrade or expansion to allow a refinery to*
25 *use or increase its use of fuel from a nonconventional*
26 *petroleum source.*

1 **SEC. 1113. SENSE OF CONGRESS ON THE IMPORTANCE OF**
2 **THE NASA OFFICE OF PROGRAM ANALYSIS**
3 **AND EVALUATION.**

4 (a) *OFFICE OF PROGRAM ANALYSIS AND EVALUA-*
5 *TION.—It is the sense of Congress that it is important for*
6 *NASA to maintain an Office of Program Analysis and*
7 *Evaluation that has as its mission:*

8 (1) *To develop strategic plans for NASA in ac-*
9 *cordance with section 306 of title 5, United States*
10 *Code.*

11 (2) *To develop annual performance plans for*
12 *NASA in accordance with section 1115 of title 31,*
13 *United States Code.*

14 (3) *To provide analysis and recommendations to*
15 *the Administrator on matters relating to the planning*
16 *and programming phases of the Planning, Program-*
17 *ming, Budgeting, and Execution system of NASA.*

18 (4) *To provide analysis and recommendations to*
19 *the Administrator on matters relating to acquisition*
20 *management and program oversight, including cost-*
21 *estimating processes, contractor cost reporting proc-*
22 *esses, and contract performance assessments.*

23 (b) *OBJECTIVES.—It is further the sense of Congress*
24 *that in performing those functions, the objectives of the Of-*
25 *fice should be the following:*

1 (1) *To align NASA’s mission, strategic plan,*
2 *budget, and performance plan with strategic goals*
3 *and institutional requirements of NASA.*

4 (2) *To provide objective analysis of programs*
5 *and institutions of NASA—*

6 (A) *to generate investment options for*
7 *NASA; and*

8 (B) *to inform strategic decision making in*
9 *NASA.*

10 (3) *To enable cost-effective, strategically aligned*
11 *execution of programs and projects by NASA.*

12 (4) *To perform independent cost estimation in*
13 *support of NASA decision making and establishment*
14 *of standards for agency cost analysis.*

15 (5) *To ensure that budget formulation and execu-*
16 *tion are consistent with strategic investment decisions*
17 *of NASA.*

18 (6) *To provide independent program and project*
19 *reviews that address the credibility of technical, cost,*
20 *schedule, risk, and management approaches with re-*
21 *spect to available resources.*

22 (7) *To facilitate progress by NASA toward meet-*
23 *ing the commitments of NASA.*

1 **SEC. 1114. SENSE OF CONGRESS ON ELEVATING THE IM-**
 2 **PORTANCE OF SPACE AND AERONAUTICS**
 3 **WITHIN THE EXECUTIVE OFFICE OF THE**
 4 **PRESIDENT.**

5 *It is the sense of Congress that the President should*
 6 *elevate the importance of space and aeronautics within the*
 7 *Executive Office of the President by organizing the inter-*
 8 *agency focus on space and aeronautics matters in as effec-*
 9 *tive a manner as possible, such as by means of the National*
 10 *Space Council authorized by section 501 of the National*
 11 *Aeronautics and Space Administration Authorization Act,*
 12 *Fiscal Year 1989 (42 U.S.C. 2471) or other appropriate*
 13 *mechanisms.*

14 **SEC. 1115. STUDY ON LEASING PRACTICES OF FIELD CEN-**
 15 **TERS.**

16 *(a) STUDY.—Not later than 180 days after the date*
 17 *of enactment of this Act, the Administrator shall complete*
 18 *a study on the leasing practices of all field centers of NASA,*
 19 *including the Michoud Assembly Facility. Such study shall*
 20 *include the following:*

21 *(1) The method by which overhead maintenance*
 22 *expenses are distributed among tenants of such field*
 23 *centers.*

24 *(2) Identification of the impacts of such method*
 25 *on attracting businesses and partnerships to such*
 26 *field centers.*

1 (3) *Identification of the steps that can be taken*
 2 *to mitigate any adverse impacts identified under*
 3 *paragraph (2).*

4 (b) *REPORT.*—*Not later than 180 days after the date*
 5 *of enactment of this Act, the Administrator shall submit*
 6 *to the Committee on Science and Technology of the House*
 7 *of Representatives and the Committee on Commerce,*
 8 *Science, and Transportation of the Senate a report on the*
 9 *study required by subsection (a), including the following:*

10 (1) *The findings of the Administrator with re-*
 11 *spect to such study.*

12 (2) *A description of the impacts identified under*
 13 *subsection (a)(2).*

14 (3) *The steps identified under subsection (a)(3).*

15 **SEC. 1116. COOPERATIVE UNMANNED AERIAL VEHICLE AC-**
 16 **TIVITIES.**

17 *The Administrator, in cooperation with the Adminis-*
 18 *trator of NOAA and in coordination with other agencies*
 19 *that have existing civil capabilities, shall continue to utilize*
 20 *the capabilities of unmanned aerial vehicles as appropriate*
 21 *in support of NASA and interagency cooperative missions.*
 22 *The Administrator may enter into cooperative agreements*
 23 *with universities with unmanned aerial vehicle programs*
 24 *and related assets to conduct collaborative research and de-*
 25 *velopment activities, including development of appropriate*

1 *applications of small unmanned aerial vehicle technologies*
2 *and systems in remote areas.*

3 **SEC. 1117. DEVELOPMENT OF ENHANCED-USE LEASE POL-**
4 **ICY.**

5 (a) *IN GENERAL.*—*The Administrator shall develop an*
6 *agency-wide enhanced-use lease policy that—*

7 (1) *is based upon sound business practices and*
8 *lessons learned from the demonstration centers; and*

9 (2) *establishes controls and procedures to ensure*
10 *accountability and protect the interests of the Govern-*
11 *ment.*

12 (b) *CONTENTS.*—*The policy required by subsection (a)*
13 *shall include the following:*

14 (1) *Criteria for determining whether enhanced-*
15 *use lease provides better economic value to the Gov-*
16 *ernment than other options, such as—*

17 (A) *Federal financing through appropria-*
18 *tions; or*

19 (B) *sale of the property.*

20 (2) *Requirement for the identification of pro-*
21 *posed physical and procedural changes needed to en-*
22 *sure security and restrict access to specified areas, co-*
23 *ordination of proposed changes with existing site ten-*
24 *ants, and development of estimated costs of such*
25 *changes.*

1 (3) *Measures of effectiveness for the enhanced-use*
2 *lease program.*

3 (4) *Accounting controls and procedures to ensure*
4 *accountability, such as an audit trail and docu-*
5 *mentation to readily support financial transactions.*

6 (c) *ANNUAL REPORT.*—*Section 315(f) of the National*
7 *Aeronautics and Space Administration Act of 1958 (42*
8 *U.S.C. 2459j(f)) is amended to read as follows:*

9 “(f) *REPORTING REQUIREMENTS.*—*The Administrator*
10 *shall submit an annual report by January 31st of each*
11 *year. Such report shall include the following:*

12 “(1) *Information that identifies and quantifies*
13 *the value of the arrangements and expenditures of*
14 *revenues received under this section.*

15 “(2) *The availability and use of funds received*
16 *under this section for the Agency’s operating plan.”.*

17 (d) *DISTRIBUTION OF CASH CONSIDERATION RE-*
18 *CEIVED.*—

19 (1) *IN GENERAL.*—*Section 315(b)(3)(B) of such*
20 *Act (42 U.S.C. 2459j(b)(3)(B)) is amended to read as*
21 *follows:*

22 “(B) *Of any amounts of cash consideration*
23 *received under this subsection that are not uti-*
24 *lized in accordance with subparagraph (A)—*

1 “(i) 35 percent shall be deposited in a
2 capital asset account to be established by the
3 Administrator, shall be available for main-
4 tenance, capital revitalization, and im-
5 provements of the real property assets and
6 related personal property under the juris-
7 diction of the Administrator, and shall re-
8 main available until expended; and

9 “(ii) the remaining 65 percent shall be
10 available to the respective center or facility
11 of the Administration engaged in the lease
12 of nonexcess real property, and shall remain
13 available until expended for maintenance,
14 capital revitalization, and improvements of
15 the real property assets and related personal
16 property at the respective center or facility
17 subject to the concurrence of the Adminis-
18 trator.”.

19 (2) CONFORMING AMENDMENTS.—Section 533 of
20 the Consolidated Appropriations Act, 2008 (Public
21 Law 110–161; 121 Stat. 1931) is amended—

22 (A) by amending subsection (b)(4) to read
23 as follows:

1 “(4) in paragraph (2), as redesignated by para-
 2 graph (3) of this subsection, by adding at the end the
 3 following new subparagraph:

4 ““(C) Amounts utilized under subparagraph (B)
 5 may not be utilized for daily operating costs.’.”; and
 6 (B) in subsection (d)—

7 (i) by striking “the following new sub-
 8 section (f)” and inserting “the following
 9 new subsection”; and

10 (ii) in the quoted matter, by redesign-
 11 nating subsection (f) as subsection (g).

12 **SEC. 1118. SENSE OF CONGRESS WITH RESPECT TO THE**
 13 **MICHOUD ASSEMBLY FACILITY AND NASA’S**
 14 **OTHER CENTERS AND FACILITIES.**

15 *It is the sense of Congress that the Michoud Assembly*
 16 *Facility represents a unique resource in the facilitation of*
 17 *the Nation’s exploration programs and that every effort*
 18 *should be made to ensure the effective utilization of that*
 19 *resource, as well as NASA’s other centers and facilities.*

20 **SEC. 1119. REPORT ON U.S. INDUSTRIAL BASE FOR LAUNCH**
 21 **VEHICLE ENGINES.**

22 *Not later than 180 days after the date of Enactment*
 23 *of this Act, the Director of the Office of Science and Tech-*
 24 *nology Policy shall submit to Congress a report setting forth*
 25 *the assessment of the Director as to the capacity of the*

1 *United States industrial base for development and produc-*
 2 *tion of engines to meet United States Government and com-*
 3 *mercial requirements for space launch vehicles. The Report*
 4 *required by this section shall include information regarding*
 5 *existing, pending, and planned engine developments across*
 6 *a broad spectrum of thrust capabilities, including propul-*
 7 *sion for sub-orbital, small, medium, and heavy-lift space*
 8 *launch vehicles.*

9 **SEC. 1120. SENSE OF CONGRESS ON PRECURSOR INTER-**
 10 **NATIONAL SPACE STATION RESEARCH.**

11 *It is the Sense of Congress that NASA is taking posi-*
 12 *tive steps to utilize the Space Shuttle as a platform for pre-*
 13 *cursor International Space Station research by maximizing*
 14 *to the extent practicable the use of middeck accommoda-*
 15 *tions, including soft stowage, for near-term scientific and*
 16 *commercial applications on remaining Space Shuttle*
 17 *flights, and the Administrator is strongly encouraged to*
 18 *continue to promote the effective utilization of the Space*
 19 *Shuttle for precursor research within the constraints of the*
 20 *International Space Station assembly requirements.*

21 **SEC. 1121. LIMITATION ON FUNDING FOR CONFERENCES.**

22 *(a) IN GENERAL.—There are authorized to be appro-*
 23 *priated not more than \$5,000,000 for any expenses related*
 24 *to conferences, including conference programs, travel costs,*
 25 *and related expenses. No funds authorized under this Act*

1 *may be used to support a Space Flight Awareness Launch*
 2 *Honoree Event conference. The total amount of the funds*
 3 *available under this Act for other Space Flight Awareness*
 4 *Honoree-related activities in fiscal year 2009 may not ex-*
 5 *ceed 1/2 of the total amount of funds from all sources obli-*
 6 *gated or expended on such activities in fiscal year 2008.*

7 (b) *QUARTERLY REPORTS.—The Administrator shall*
 8 *submit quarterly reports to the Inspector General of NASA*
 9 *regarding the costs and contracting procedures relating to*
 10 *each conference held by NASA during fiscal year 2009 for*
 11 *which the cost to the Government is more than \$20,000.*
 12 *Each report shall include, for each conference described in*
 13 *that subsection held during the applicable quarter—*

14 (1) *a description of the subject of and number of*
 15 *participants attending, the conference, including the*
 16 *number of NASA employees attending and the num-*
 17 *ber of contractors attending at agency expense;*

18 (2) *a detailed statement of the costs to the Gov-*
 19 *ernment relating to the conference, including—*

20 (A) *the cost of any food or beverages;*

21 (B) *the cost of any audio-visual services;*

22 *and*

23 (C) *a discussion of the methodology used to*
 24 *determine which costs relate to the conference;*

25 *and*

1 *D) cost of any room, board, travel, and per*
2 *diem expenses; and*

3 *(3) a description of the contracting procedures*
4 *relating to the conference, including—*

5 *(A) whether contracts were awarded on a*
6 *competitive basis for that conference; and*

7 *(B) a discussion of any cost comparison*
8 *conducted by NASA in evaluating potential con-*
9 *tractors for that conference.*

10 **SEC. 1122. REPORT ON NASA EFFICIENCY AND PERFORM-**
11 **ANCE.**

12 *(a) IN GENERAL.—Not later than 1 year after the date*
13 *of enactment of this Act, the Comptroller General of the*
14 *United States shall submit to Congress a report that con-*
15 *tains a review of NASA programs and associated activities*
16 *with an annual funding level of more than \$50,000,000 that*
17 *appear to be similar in scope and purpose to other activities*
18 *within the Federal government, that includes—*

19 *(1) a brief description of each NASA program*
20 *reviewed and its subordinate activities;*

21 *(2) the annual and cumulative appropriation*
22 *amounts expended for each program reviewed and its*
23 *subordinate activities since fiscal year 2005;*

1 (3) *a brief description of each Federal program*
2 *and its subordinate activities that appears to have a*
3 *similar scope and purpose to a NASA program; and*

4 (4) *a review of the formal and informal processes*
5 *by which NASA coordinates with other Federal agen-*
6 *cies to ensure that its programs and activities are not*
7 *duplicative of similar efforts within the Federal gov-*
8 *ernment and that the programs and activities meet*
9 *the core mission of NASA, and the degree of trans-*
10 *parency and accountability afforded by those proc-*
11 *esses.*

12 (b) *DUPLICATIVE PROGRAMS.—If the Comptroller*
13 *General determines, under subsection (a)(4), that any defi-*
14 *ciency exists in the NASA procedures intended to avoid or*
15 *eliminate conflict or duplication with other Federal agency*
16 *activities, the Comptroller General shall include a rec-*
17 *ommendation as to how such procedures should be modified*
18 *to ensure similar programs and associated activities can*
19 *be consolidated, eliminated, or streamlined within NASA*
20 *or within other Federal agencies to improve efficiency.*

Attest:

Secretary.

110TH CONGRESS
2D SESSION

H.R. 6063

AMENDMENT