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HOUSE OF REPRESENTATIVES
REPORT
105–65

CIVILIAN SPACE AUTHORIZATION ACT, FISCAL YEARS 1998 AND 1999

APRIL 21, 1997.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

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Mr. SENSENBRENNER, from the Committee on Science, submitted the following

R E P O R T

together with

MINORITY, SUPPLEMENTAL AND ADDITIONAL VIEWS

[To accompany H.R. 1275]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science, to whom was referred the bill (H.R. 1275) to authorize appropriations for the National Aeronautics and Space Administration for fiscal years 1998 and 1999, and for other purposes, having considered the same, reports favorably thereon with an amendment and recommends that the bill as amended do pass.

CONTENTS

I. AMENDMENT

The amendment is as follows:

Strike out all after the enacting clause and insert in lieu thereof the following:

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "Civilian Space Authorization Act, Fiscal Years 1998 and 1999".

(b) TABLE OF CONTENTS.—

SEC. 2. FINDINGS.

The Congress makes the following findings:

(1) The National Aeronautics and Space Administration should aggressively pursue actions and reforms directed at reducing institutional costs, including management restructuring, facility consolidation, procurement reform, personnel base downsizing, and convergence with other defense and commercial sector systems.

(2) The National Aeronautics and Space Administration must reverse its current trend toward becoming an operational agency, and return to its proud history as the Nation's leader in basic scientific, air, and space research.

(3) The United States is on the verge of creating and using new technologies in microsatellites, information processing, and space launches that could radically alter the manner in which the Federal Government approaches its space mission.

(4) The overwhelming preponderance of the Federal Government's requirements for routine, nonemergency manned and unmanned space transportation can be met most effectively, efficiently, and economically by a free and competitive market in privately developed and operated space transportation services.

(5) In formulating a national space transportation service policy, the National Aeronautics and Space Administration should aggressively promote the pursuit by commercial providers of development of advanced space transportation technologies including reusable space vehicles, single-stage-to-orbit vehicles, and human space systems.

(6) The Federal Government should invest in the types of research and innovative technology in which United States commercial providers do not invest, while avoiding competition with the activities in which United States commercial providers do invest.

(7) International cooperation in space exploration and science activities serves the United States national interest—

(A) when it—

(i) reduces the cost of undertaking missions the United States Government would pursue unilaterally;

(ii) enables the United States to pursue missions that it could not otherwise afford to pursue unilaterally; or

(iii) enhances United States capabilities to use and develop space for the benefit of United States citizens; and

(B) when it does not—

(i) otherwise harm or interfere with the ability of United States commercial providers to develop or explore space commercially;

(ii) interfere with the ability of Federal agencies to use space to complete their missions;

(iii) undermine the ability of United States commercial providers to compete favorably with foreign entities in the commercial space arena; or

(iv) transfer sensitive or commercially advantageous technologies or knowledge from the United States to other countries or foreign entities except as required by those countries or entities to make their contribution to a multilateral space project in partnership with the United States, or on a quid pro quo basis.

(8) The National Aeronautics and Space Administration and the Department of Defense can cooperate more effectively in leveraging their mutual capa-

bilities to conduct joint space missions that improve United States space capabilities and reduce the cost of conducting space missions.

SEC. 3. DEFINITIONS.

For purposes of this Act—

(1) the term "Administrator" means the Administrator of the National Aeronautics and Space Administration;

(2) the term "commercial provider" means any person providing space transportation services or other space-related activities, primary control of which is held by persons other than Federal, State, local, and foreign governments;

(3) the term "institution of higher education" has the meaning given such term in section 1201(a) of the Higher Education Act of 1965 (20 U.S.C. 1141(a));

(4) the term "State" means each of the several States of the Union, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, and any other commonwealth, territory, or possession of the United States; and

(5) the term "United States commercial provider" means a commercial provider, organized under the laws of the United States or of a State, which is—

(A) more than 50 percent owned by United States nationals; or

(B) a subsidiary of a foreign company and the Secretary of Transportation finds that—

(i) such subsidiary has in the past evidenced a substantial commitment to the United States market through—

(I) investments in the United States in long-term research, development, and manufacturing (including the manufacture of major components and subassemblies); and

(II) significant contributions to employment in the United States; and

(ii) the country or countries in which such foreign company is incorporated or organized, and, if appropriate, in which it principally conducts its business, affords reciprocal treatment to companies described in subparagraph (A) comparable to that afforded to such foreign company's subsidiary in the United States, as evidenced by—

(I) providing comparable opportunities for companies described in subparagraph (A) to participate in Government sponsored research and development similar to that authorized under this Act;

(II) providing no barriers to companies described in subparagraph (A) with respect to local investment opportunities that are not provided to foreign companies in the United States; and

(III) providing adequate and effective protection for the intellectual property rights of companies described in subparagraph (A).

TITLE I—AUTHORIZATION OF APPROPRIATIONS

Subtitle A—Authorizations

SEC. 101. HUMAN SPACE FLIGHT.

There are authorized to be appropriated to the National Aeronautics and Space Administration for Human Space Flight the following amounts:

(1) For the Space Station—

(A) for fiscal year 1998, $2,121,300,000, of which $400,500,000, notwithstanding section 121(a)—

(i) shall only be for Space Station research or for the purposes described in section 102(2); and

(ii) shall be administered by the Office of Life and Microgravity Sciences and Applications; and

(B) for fiscal year 1999, $2,109,200,000, of which $496,200,000, notwithstanding section 121(a)—

(i) shall only be for Space Station research or for the purposes described in section 102(2); and

(ii) shall be administered by the Office of Life and Microgravity Sciences and Applications.

(2) For Space Shuttle Operations—

(A) for fiscal year 1998, $2,494,400,000; and
(B) for fiscal year 1999, $2,625,600,000.
(3) For Space Shuttle Safety and Performance Upgrades—
(A) for fiscal year 1998, $483,400,000, including related Construction of Facilities for—
(i) Repair of Payload Changeout Room Wall in Ceiling, Pad A, Kennedy Space Center, $2,200,000;
(ii) Restoration of Pad Surface and Slope, Kennedy Space Center, $1,800,000; and
(iii) Rehabilitation of 480V Electrical Distribution System, Kennedy Space Center, $2,800,000; and
(B) for fiscal year 1999, $392,900,000.
(4) For Payload and Utilization Operations—
(A) for fiscal year 1998, $247,400,000; and
(B) for fiscal year 1999, $178,600,000.

SEC. 102. SCIENCE, AERONAUTICS, AND TECHNOLOGY.

There are authorized to be appropriated to the National Aeronautics and Space Administration for Science, Aeronautics, and Technology the following amounts:
(1) For Space Science—
(A) for fiscal year 1998, $2,079,800,000, of which—
(i) $47,600,000 shall be for the Gravity Probe B;
(ii) $5,000,000 shall be for participation in Clementine 2 (Air Force Program Element 0603401F "Advanced Spacecraft Technology");
(iii) $3,400,000 shall be for the Near Earth Object Survey;
(iv) $529,400,000 shall be for Mission Operations and Data Analysis, of which $150,000,000 shall be for data analysis; and
(v) $5,000,000 shall be for the Solar B program; and
(B) for fiscal year 1999, $2,085,400,000, of which—
(i) $5,000,000 shall be for participation in Clementine 2 (Air Force Program Element 0603401F "Advanced Spacecraft Technology");
(ii) $3,400,000 shall be for the Near Earth Object Survey;
(iii) $561,100,000 shall be for Mission Operations and Data Analysis, of which $184,400,000 shall be for data analysis; and
(iv) $15,000,000 shall be for the Solar B program.
(2) For Life and Microgravity Sciences and Applications—
(A) for fiscal year 1998, $234,200,000, of which—
(i) $2,000,000 shall be for research and early detection systems for breast and ovarian cancer and other women's health issues; and
(ii) $2,000,000, shall be for modifications for the installation of the Bio-Plex, Johnson Space Center; and
(B) for fiscal year 1999, $249,800,000, of which $2,000,000 shall be for research and early detection systems for breast and ovarian cancer and other women's health issues.
(3) For Mission to Planet Earth, subject to the limitations set forth in section 127—
(A) for fiscal year 1998, $1,417,300,000, of which—
(i) $50,000,000 shall be for commercial Earth science data purchases under section 308(a);
(ii) $8,000,000 shall be for continuing operations of the Midcourse Space Experiment spacecraft constructed for the Ballistic Missile Defense Organization, except that such funds may not be obligated unless the Administrator receives independent validation of the scientific requirements for Midcourse Space Experiment data; and
(iii) $10,000,000 shall be for the lightning mapper, except that such funds may not be obligated unless the Administrator receives independent validation of the scientific requirements for lightning mapper data; and
(B) for fiscal year 1999, $1,446,300,000, of which—
(i) $50,000,000 shall be for commercial Earth science data purchases under section 308(a); and
(ii) $10,000,000 shall be for the lightning mapper, except that such funds may not be obligated unless the Administrator receives independent validation of the scientific requirements for lightning mapper data.
(4) For Aeronautics and Space Transportation Technology—
(A) for fiscal year 1998, $1,769,500,000, of which—

(i) $915,100,000 shall be for Aeronautical Research and Technology, of which not more than $35,700,000 shall be for High Performance Computing and Communications;

(ii) $696,600,000 shall be for Advanced Space Transportation Technology, including—

(I) $333,500,000, which shall only be for the X–33 advanced technology demonstration vehicle program, including $3,700,000 for rehabilitation and modification of the B2 test stand, Stennis Space Center;

(II) $150,000,000, which shall only be for a program of focused technology demonstrations to support the competitive awarding of a contract to develop, build, and flight test an experimental single-stage-to-orbit demonstration vehicle, which will be a complementary follow-on to the X–33, and which uses design concepts different from, and technologies more advanced than, the design concepts and technologies used for the X–33 program; and

(III) $150,000,000, which shall only be for the procurement of an experimental vehicle described in subclause (II), after the expiration of 30 days after the Administrator has transmitted to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a written report including a plan for the experimental vehicle program and the projected costs thereof; and

(iii) $157,800,000 shall be for Commercial Technology, of which $10,000,000 shall be for business facilitators, selected by a National Aeronautics and Space Administration Center with an existing State partnership for the purpose of developing business facilitators, from among candidates who receive at least 40 percent State matching funds and who obtain significant participation from local community colleges; and

(B) for fiscal year 1999, $1,816,400,000, of which—

(i) $832,400,000 shall be for Aeronautical Research and Technology;

(ii) $818,600,000 shall be for Advanced Space Transportation Technology, including—

(I) $313,900,000, which shall only be for the X–33 advanced technology demonstration vehicle program;

(II) $425,000,000, which shall only be for the procurement of an experimental vehicle described in subparagraph (A)(ii)(II); and

(III) $40,770,000, which shall only be for the Advanced Space Transportation program; and

(iii) $165,400,000 shall be for Commercial Technology, of which $10,000,000 shall be for business facilitators, selected by a National Aeronautics and Space Administration Center with an existing State partnership for the purpose of developing business facilitators, from among candidates who receive at least 40 percent State matching funds and who obtain significant participation from local community colleges.

(5) For Mission Communication Services—

(A) for fiscal year 1998, $400,800,000; and

(B) for fiscal year 1999, $436,100,000.

(6) For Academic Programs—

(A) for fiscal year 1998, $102,200,000, of which—

(i) $15,300,000 shall be for the National Space Grant College and Fellowship Program; and

(ii) $46,700,000 shall be for minority university research and education, including $31,300,000 for Historically Black Colleges and Universities; and

(B) for fiscal year 1999, $108,000,000, of which $51,700,000 shall be for minority university research and education, including $33,800,000 for Historically Black Colleges and Universities.

SEC. 103. MISSION SUPPORT.

There are authorized to be appropriated to the National Aeronautics and Space Administration for Mission Support the following amounts:

(1) For Safety, Reliability, and Quality Assurance—

(A) for fiscal year 1998, $37,800,000; and

(B) for fiscal year 1999, $43,000,000.

(2) For Space Communication Services—

(A) for fiscal year 1998, $245,700,000; and
(B) for fiscal year 1999, $204,400,000.

(3)(A) For Construction of Facilities, including land acquisition, for fiscal year 1998, $159,400,000, including the following:

(i) Modernization of Process Cooling System, Numerical Aerodynamic Simulation Facility, Ames Research Center, $2,700,000.

(ii) Rehabilitation and Modification of Hangar and Shop, Dryden Flight Research Center, $2,800,000.

(iii) Restoration of Chilled Water Distribution System, Goddard Space Flight Center, $2,400,000.

(iv) Restoration of Space/Terrestrial Application Facility, Goddard Space Flight Center, $4,600,000.

(v) Construction of Emergency Services Facility, Jet Propulsion Laboratory, $4,800,000.

(vi) Upgrade of Utility Annex Chilled Water Plant, Kennedy Space Center, $5,900,000.

(vii) Rehabilitation of High-Voltage System, Lewis Research Center, $9,400,000.

(viii) Modification of Chilled Water System, Marshall Space Flight Center, $7,000,000.

(ix) Minor Revitalization of Facilities at Various Locations, not in excess of $1,500,000 per project, $65,700,000.

(x) Minor construction of new facilities and additions to existing facilities at various locations, $1,100,000.

(xi) Facility planning and design, not otherwise provided for, $19,000,000.

(xii) Environmental compliance and restoration, $34,000,000.

(B) For Construction of Facilities, including land acquisition, for fiscal year 1999, $188,900,000.

(4) For Research and Program Management, including personnel and related costs, travel, and research operations support—

(A) for fiscal year 1998, $2,070,300,000; and
(B) for fiscal year 1999, $2,022,600,000.

SEC. 104. INSPECTOR GENERAL.

There are authorized to be appropriated to the National Aeronautics and Space Administration for Inspector General—

(1) for fiscal year 1998, $18,300,000; and
(2) for fiscal year 1999, $18,600,000.

SEC. 105. TOTAL AUTHORIZATION.

Notwithstanding any other provision of this title, the total amount authorized to be appropriated to the National Aeronautics and Space Administration under this Act shall not exceed—

(1) for fiscal year 1998, $13,881,800,000; and
(2) for fiscal year 1999, $13,925,800,000.

SEC. 106. OFFICE OF COMMERCIAL SPACE TRANSPORTATION AUTHORIZATION.

There are authorized to be appropriated to the Secretary of Transportation for the activities of the Office of Commercial Space Transportation—

(1) for fiscal year 1998, $6,000,000; and
(2) for fiscal year 1999, $6,000,000.

SEC. 107. OFFICE OF SPACE COMMERCE.

There are authorized to be appropriated to the Secretary of Commerce for the activities of the Office of Space Commerce established by section 303 of this Act—

(1) for fiscal year 1998, $500,000; and
(2) for fiscal year 1999, $500,000.

SEC. 108. UNITED STATES-MEXICO FOUNDATION FOR SCIENCE.

There are authorized to be appropriated to the National Aeronautics and Space Administration for the United States-Mexico Foundation for Science—

(1) $1,000,000 for fiscal year 1998; and
(2) $1,000,000 for fiscal year 1999.

Subtitle B—Restructuring the National Aeronautics and Space Administration

SEC. 111. FINDINGS.

The Congress finds that—

(1) the restructuring of the National Aeronautics and Space Administration is essential to accomplishing the space missions of the United States while simultaneously balancing the Federal budget;

(2) to restructure the National Aeronautics and Space Administration rapidly without reducing mission content and safety requires objective financial judgment; and

(3) a formal economic review of its missions and the Federal assets that support them is required in order to plan and implement needed restructuring of the National Aeronautics and Space Administration.

SEC. 112. RESTRUCTURING REPORTS.

(a) IMPLEMENTATION REPORT.—The Administrator shall transmit to Congress, no later than 90 days after the date of the enactment of this Act, a report—

(1) describing its restructuring activities by fiscal year, including, at a minimum, a description of all actions taken or planned to be taken after July 31, 1995, and before October 1, 2002, including contracts terminated or consolidated; reductions in force; relocations of personnel and facilities; sales, closures, or mothballing of capital assets or facilities; and net savings to be realized from such actions by fiscal year; and

(2) describing the status of the implementation of recommendations resulting from the Zero Base Review, particularly with respect to the designation of lead Centers and any increases and decreases in the roles and responsibilities of all Centers.

(b) PROPOSED LEGISLATION.—The President shall propose to Congress, not later than 180 days after the date of the enactment of this Act, all enabling legislation required to carry out actions described by the Administrator's report under subsection (a).

Subtitle C—Limitations and Special Authority

SEC. 121. USE OF FUNDS FOR CONSTRUCTION.

(a) AUTHORIZED USES.—Funds appropriated under sections 101 (1) through (4), 102, and 103 (1) and (2), and funds appropriated for research operations support under section 103(4), may be used for the construction of new facilities and additions to, repair of, rehabilitation of, or modification of existing facilities at any location in support of the purposes for which such funds are authorized.

(b) LIMITATION.—No funds may be expended pursuant to subsection (a) for a project, the estimated cost of which to the National Aeronautics and Space Administration, including collateral equipment, exceeds $500,000, until 30 days have passed after the Administrator has notified the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate of the nature, location, and estimated cost to the National Aeronautics and Space Administration of such project.

(c) TITLE TO FACILITIES.—If funds are used pursuant to subsection (a) for grants to institutions of higher education, or to nonprofit organizations whose primary purpose is the conduct of scientific research, for purchase or construction of additional research facilities, title to such facilities shall be vested in the United States unless the Administrator determines that the national program of aeronautical and space activities will best be served by vesting title in the grantee institution or organization. Each such grant shall be made under such conditions as the Administrator shall determine to be required to ensure that the United States will receive therefrom benefits adequate to justify the making of that grant.

SEC. 122. AVAILABILITY OF APPROPRIATED AMOUNTS.

To the extent provided in appropriations Acts, appropriations authorized under subtitle A may remain available without fiscal year limitation.

SEC. 123. REPROGRAMMING FOR CONSTRUCTION OF FACILITIES.

(a) IN GENERAL.—Appropriations authorized for construction of facilities under section 101(3)(A) (i) through (iii), 102(2)(A)(ii) and (4)(A)(ii)(I), or 103(3)—

(1) may be varied upward by 10 percent in the discretion of the Administrator; or

(2) may be varied upward by 25 percent, to meet unusual cost variations, after the expiration of 15 days following a report on the circumstances of such action by the Administrator to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

The aggregate amount authorized to be appropriated for construction of facilities under sections 101(3)(A) (i) through (iii), 102(2)(A)(ii) and (4)(A)(ii)(I), and 103(3) shall not be increased as a result of actions authorized under paragraphs (1) and (2) of this subsection.

(b) SPECIAL RULE.—Where the Administrator determines that new developments in the national program of aeronautical and space activities have occurred; and that such developments require the use of additional funds for the purposes of construction, expansion, or modification of facilities at any location; and that deferral of such action until the enactment of the next National Aeronautics and Space Administration authorization Act would be inconsistent with the interest of the Nation in aeronautical and space activities, the Administrator may use up to $10,000,000 of the amounts authorized under sections 101(3)(A) (i) through (iii), 102(2)(A)(ii) and (4)(A)(ii)(I), and 103(3) for each fiscal year for such purposes. No such funds may be obligated until a period of 30 days has passed after the Administrator has transmitted to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science of the House of Representatives a written report describing the nature of the construction, its costs, and the reasons therefor.

SEC. 124. CONSIDERATION BY COMMITTEES.

Notwithstanding any other provision of law—

(1) no amount appropriated to the National Aeronautics and Space Administration may be used for any program for which the President's annual budget request included a request for funding, but for which the Congress denied or did not provide funding;

(2) no amount appropriated to the National Aeronautics and Space Administration may be used for any program in excess of the amount actually authorized for the particular program under this title; and

(3) no amount appropriated to the National Aeronautics and Space Administration may be used for any program which has not been presented to the Congress in the President's annual budget request or the supporting and ancillary documents thereto,

unless a period of 30 days has passed after the receipt by the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate of notice given by the Administrator containing a full and complete statement of the action proposed to be taken and the facts and circumstances relied upon in support of such proposed action. The National Aeronautics and Space Administration shall keep the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate fully and currently informed with respect to all activities and responsibilities within the jurisdiction of those committees. Except as otherwise provided by law, any Federal department, agency, or independent establishment shall furnish any information requested by either committee relating to any such activity or responsibility.

SEC. 125. LIMITATION ON OBLIGATION OF UNAUTHORIZED APPROPRIATIONS.

(a) REPORTS TO CONGRESS.—

(1) REQUIREMENT.—Not later than—

(A) 30 days after the later of the date of the enactment of an Act making appropriations to the National Aeronautics and Space Administration for fiscal year 1998 and the date of the enactment of this Act; and

(B) 30 days after the date of the enactment of an Act making appropriations to the National Aeronautics and Space Administration for fiscal year 1999,

the Administrator shall submit a report to Congress and to the Comptroller General.

(2) CONTENTS.—The reports required by paragraph (1) shall specify—

(A) the portion of such appropriations which are for programs, projects, or activities not authorized under subtitle A of this title, or which are in excess of amounts authorized for the relevant program, project, or activity under this Act; and

(B) the portion of such appropriations which are authorized under this Act.

(b) FEDERAL REGISTER NOTICE.—The Administrator shall, coincident with the submission of each report required by subsection (a), publish in the Federal Register a notice of all programs, projects, or activities for which funds are appropriated but which were not authorized under this Act, and solicit public comment thereon regarding the impact of such programs, projects, or activities on the conduct and effectiveness of the national aeronautics and space program.

(c) LIMITATION.—Notwithstanding any other provision of law, no funds may be obligated for any programs, projects, or activities of the National Aeronautics and Space Administration for fiscal year 1998 or 1999 not authorized under this Act until 30 days have passed after the close of the public comment period contained in a notice required by subsection (b).

SEC. 126. USE OF FUNDS FOR SCIENTIFIC CONSULTATIONS OR EXTRAORDINARY EXPENSES.

Not more than $30,000 of the funds appropriated under section 102 may be used for scientific consultations or extraordinary expenses, upon the authority of the Administrator.

SEC. 127. MISSION TO PLANET EARTH LIMITATION.

No funds appropriated pursuant to this Act shall be used for Earth System Science Pathfinders for a fiscal year unless the Administrator has certified to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate that at least $50,000,000 are available for that fiscal year for obligations by the Commercial Remote Sensing Program at Stennis Space Center for commercial data purchases under section 308(a). No funds appropriated pursuant to section 102(3) shall—

(1) be transferred to any museum; or

(2) be used for the United States Man and the Biosphere Program, or related projects.".

SEC. 128. SPACE OPERATIONS.

No funds appropriated pursuant to this Act shall be used for Phase Two of the Consolidated Space Operations Contract until a period of 30 days has passed after the Administrator has transmitted to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a written report which—

(1) compares the cost-effectiveness of the single cost-plus contract approach of the Consolidated Space Operations Contract and a multiple fixed-price contracts approach;

(2) analyzes the differences in the competition generated through the bidding process used for the Consolidated Space Operations Contract as opposed to multiple fixed-price contracts; and

(3) describes how the Consolidated Space Operations Contract can be transformed into fixed-price contracts, and whether the National Aeronautics and Space Administration intends to make such a transition.

SEC. 129. INTERNATIONAL SPACE UNIVERSITY LIMITATION.

No funds appropriated pursuant to this Act shall be used to pay the tuition or living expenses of any National Aeronautics and Space Administration employee attending the International Space University.

SEC. 130. SPACE STATION PROGRAM RESPONSIBILITIES TRANSFER LIMITATION.

No funds appropriated pursuant to this Act shall be used to transfer any Space Station program responsibilities in effect at any National Aeronautics and Space Administration Center as of October 1, 1996.

TITLE II—INTERNATIONAL SPACE STATION

SEC. 201. FINDINGS.

The Congress finds that—

(1) the development, assembly, and operation of the International Space Station is in the national interest of the United States;

(2) the significant involvement by commercial providers in marketing and using, competitively servicing, and commercially augmenting the operational capabilities of the International Space Station during its assembly and operational phases will lower costs and increase benefits to the international partners; and

(3) when completed, the International Space Station will be the largest, most capable microgravity research facility ever developed. It will provide a lasting framework for conducting large-scale science programs with international partners and it is the next step in the human exploration of space. The United States should commit to completing this program, thereby reaping the benefits of scientific research and international cooperation.

SEC. 202. COMMERCIALIZATION OF SPACE STATION.

(a) POLICY.—The Congress declares that a priority goal of constructing the International Space Station is the economic development of Earth orbital space. The Congress further declares that free and competitive markets create the most efficient conditions for promoting economic development, and should therefore govern the economic development of Earth orbital space. The Congress further declares that the use of free market principles in operating, servicing, allocating the use of, and adding capabilities to the Space Station, and the resulting fullest possible engagement of commercial providers and participation of commercial users, will reduce Space Station operational costs for all partners and the Federal Government's share of the United States burden to fund operations.

(b) REPORTS.—(1) The Administrator shall deliver to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, within 90 days after the date of the enactment of this Act, a study that identifies and examines—

(A) the opportunities for commercial providers to play a role in International Space Station activities, including operation, use, servicing, and augmentation;

(B) the potential cost savings to be derived from commercial providers playing a role in each of these activities;

(C) which of the opportunities described in subparagraph (A) the Administrator plans to make available to commercial providers in fiscal year 1998 and 1999;

(D) the specific policies and initiatives the Administrator is advancing to encourage and facilitate these commercial opportunities; and

(E) the revenues and cost reimbursements to the Federal Government from commercial users of the Space Station.

(2) The Administrator shall deliver to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, within 180 days after the date of the enactment of this Act, an independently-conducted market study that examines and evaluates potential industry interest in providing commercial goods and services for the operation, servicing, and augmentation of the International Space Station, and in the commercial use of the International Space Station. This study shall also include updates to the cost savings and revenue estimates made in the study described in paragraph (1) based on the external market assessment.

(3) The Administrator shall deliver to the Congress, no later than the submission of the President's annual budget request for fiscal year 1999, a report detailing how many proposals (whether solicited or not) the National Aeronautics and Space Administration received during calendar year 1997 regarding commercial operation, servicing, utilization, or augmentation of the International Space Station, broken down by each of these four categories, and specifying how many agreements the National Aeronautics and Space Administration has entered into in response to these proposals, also broken down by these four categories.

SEC. 203. SPACE STATION ACCOUNTING REPORTS.

(a) INITIAL REPORT.—Not later than 90 days after the date of the enactment of this Act, the Administrator shall transmit to the Congress a report containing a description of all Space Station-related agreements entered into by the United States with a foreign entity after September 30, 1993, along with—

(1) a complete accounting of all costs to the United States incurred during fiscal years 1994 through 1996 pursuant to each such agreement; and

(2) an estimate of future costs to the United States pursuant to each such agreement.

(b) ANNUAL REPORTS.—Not later than 60 days after the end of each fiscal year beginning with fiscal year 1997, the Administrator shall transmit to the Congress a report containing a description of all Space Station-related agreements entered into by the United States with a foreign entity during the preceding fiscal year, along with—

(1) a complete accounting of all costs to the United States incurred during that fiscal year pursuant to each such agreement; and

(2) an estimate of future costs to the United States pursuant to each such agreement.

SEC. 204. REPORT ON INTERNATIONAL HARDWARE AGREEMENTS.

Not later than 90 days after the date of the enactment of this Act, the Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on—

(1) agreements that have been reached with foreign entities to transfer to a foreign entity the development and manufacture of International Space Station hardware baselined to be provided by the United States; and

(2) the impact of those agreements on United States operating costs and United States utilization shares of the International Space Station.

At least 90 days before entering into any additional agreements of the type described in paragraph (1), the Administrator shall report to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate the nature of the proposed agreement and the anticipated cost, schedule, commercial, and utilization impacts of the proposed agreement.

SEC. 205. INTERNATIONAL SPACE STATION LIMITATIONS.

(a) TRANSFER OF FUNDS TO RUSSIA.—No funds or in-kind payments shall be transferred to any entity of the Russian Government or any Russian contractor to perform work on the International Space Station which the Russian Government pledged, at any time, to provide at its expense. This section shall not apply to the purchase or modification of the Russian built, United States owned Functional Cargo Block, known as the "FGB".

(b) CONTINGENCY PLAN FOR RUSSIAN ELEMENTS IN CRITICAL PATH.—The Administrator shall develop and deliver to Congress, within 30 days after the date of the enactment of this Act, a contingency plan for the removal or replacement of each Russian Government element of the International Space Station that lies in the Station's critical path. Such plan shall include—

(1) decision points for removing or replacing those elements if the International Space Station is to be completed by the end of the calendar year 2002;

(2) the cost of implementing each such decision; and

(3) the cost of removing or replacing a Russian Government critical path element after its decision point has passed, if—

(A) the decision at that point was not to remove or replace the Russian Government element; and

(B) the National Aeronautics and Space Administration later determines that the Russian Government will be unable to provide the critical path element in a manner to allow completion of the International Space Station by the end of calendar year 2002.

(c) MONTHLY CERTIFICATION ON RUSSIAN STATUS.—The Administrator shall certify to the Congress on the first day of each month whether or not the Russians have performed work expected of them and necessary to complete the International Space Station by the end of calendar year 2002. Such certification shall also include a statement of the Administrator's judgment concerning Russia's ability to perform work anticipated and required to complete the International Space Station by the end of 2002 before the next certification under this subsection. Each certification under this subsection shall include a judgment that the first element launch will or will not take place by October 31, 1998.

(d) DECISION ON RUSSIAN CRITICAL PATH ITEMS.—The President shall provide to Congress a decision, by August 1, 1997, on whether or not to proceed with permanent replacement of the Service Module, and each other Russian element in the critical path for completing the International Space Station by the end of calendar year 2002. The President shall certify to Congress the reasons and justification for the decision and the costs associated with the decision. Such decision shall include a judgment that the first element launch will or will not take place by October 31, 1998, and that the stage of assembly complete will or will not take place by December 31, 2002. If the President decides, after August 1, 1997, to proceed with a permanent replacement of the Service Module or any other Russian element in the critical path, the President shall certify to Congress the reasons and justification for the decision to proceed with permanent replacement, and the costs associated with that decision, including the cost difference between making such decision by August 1, 1997, and any later date at which it is made. Such certification shall include a description of the costs of removing or replacing each critical path item, and the schedule for completing the International Space Station by the end of calendar year 2002.

(e) ASTRONAUTS ON MIR.—The National Aeronautics and Space Administration shall not place another United States astronaut on board the Mir Space Station, without the Space Shuttle attached to Mir, until the Administrator certifies to Congress that the Mir Space Station meets or exceeds United States safety standards. Such certification shall be based on an independent review of the safety of the Mir Space Station.

TITLE III—MISCELLANEOUS PROVISIONS

SEC. 301. COMMERCIAL SPACE LAUNCH AMENDMENTS.

(a) AMENDMENTS.—Chapter 701 of title 49, United States Code, is amended—

(1) in the table of sections—

(A) by amending the item relating to section 70104 to read as follows:

"70104. Restrictions on launches, operations, and reentries.";

(B) by amending the item relating to section 70108 to read as follows:

"70108. Prohibition, suspension, and end of launches, operation of launch sites and reentry sites, and reentries.";

and

(C) by amending the item relating to section 70109 to read as follows:

"70109. Preemption of scheduled launches or reentries.";

(2) in section 70101—

(A) by inserting "microgravity research," after "information services," in subsection (a)(3);

(B) by inserting ", reentry," after "launching" both places it appears in subsection (a)(4);

(C) by inserting ", reentry vehicles," after "launch vehicles" in subsection (a)(5);

(D) by inserting "and reentry services" after "launch services" in subsection (a)(6);

(E) by inserting ", reentries," after "launches" both places it appears in subsection (a)(7);

(F) by inserting ", reentry sites," after "launch sites" in subsection (a)(8);

(G) by inserting "and reentry services" after "launch services" in subsection (a)(8);

(H) by inserting "reentry sites," after "launch sites," in subsection (a)(9);

(I) by inserting "and reentry site" after "launch site" in subsection (a)(9);

(J) by inserting ", reentry vehicles," after "launch vehicles" in subsection (b)(2);

(K) by striking "launch" in subsection (b)(2)(A);

(L) by inserting "and reentry" after "commercial launch" in subsection (b)(3);

(M) by striking "launch" after "and transfer commercial" in subsection (b)(3); and

(N) by inserting "and development of reentry sites," after "launch-site support facilities," in subsection (b)(4);

(3) in section 70102—

(A) by striking "and any payload" and inserting in lieu thereof "or reentry vehicle and any payload from Earth" in paragraph (3);

(B) by inserting "or reentry vehicle" after "means of a launch vehicle" in paragraph (8);

(C) by redesignating paragraphs (10) through (12) as paragraphs (14) through (16), respectively;

(D) by inserting after paragraph (9) the following new paragraphs:

"(10) 'reenter' and 'reentry' mean to return or attempt to return, purposefully, a reentry vehicle and its payload, if any, from Earth orbit or from outer space to Earth.

"(11) 'reentry services' means—

"(A) activities involved in the preparation of a reentry vehicle and its payload, if any, for reentry; and

"(B) the conduct of a reentry.

"(12) 'reentry site' means the location on Earth to which a reentry vehicle is intended to return (as defined in a license the Secretary issues or transfers under this chapter).

"(13) 'reentry vehicle' means a vehicle designed to return from Earth orbit or outer space to Earth, or a reusable launch vehicle designed to return from outer space substantially intact."; and

(E) by inserting "or reentry services" after "launch services" each place it appears in paragraph (15), as so redesignated by subparagraph (C) of this paragraph;

(4) in section 70103(b)—

(A) by inserting "AND REENTRIES" after "LAUNCHES" in the subsection heading;

(B) by inserting "and reentries" after "space launches" in paragraph (1); and

(C) by inserting "and reentry" after "space launch" in paragraph (2);

(5) in section 70104—

(A) by amending the section designation and heading to read as follows:

"§ 70104. Restrictions on launches, operations, and reentries";

(B) by inserting "or reentry site, or to reenter a reentry vehicle," after "operate a launch site" each place it appears in subsection (a);

by inserting "or reentry" after "launch or operation" in subsection (a) (3) and (4);

(D) in subsection (b)—

(i) by striking "launch license" and inserting in lieu thereof "license";

(ii) by inserting "or reenter" after "may launch"; and

(iii) by inserting "or reentering" after "related to launching"; and

(E) in subsection (c)—

(i) by amending the subsection heading to read as follows: "PREVENTING LAUNCHES AND REENTRIES.—";

(ii) by inserting "or reentry" after "prevent the launch"; and

(iii) by inserting "or reentry" after "decides the launch";

(6) in section 70105—

(A) by inserting "or a reentry site, or the reentry of a reentry vehicle," after "operation of a launch site" in subsection (b)(1); and

(B) by striking "or operation" and inserting in lieu thereof ", operation, or reentry" in subsection (b)(2)(A);

(7) in section 70106(a)—

(A) by inserting "or reentry site" after "observer at a launch site";

(B) by inserting "or reentry vehicle" after "assemble a launch vehicle"; and

(C) by inserting "or reentry vehicle" after "with a launch vehicle";

(8) in section 70108—

(A) by amending the section designation and heading to read as follows:

"§ 70108. Prohibition, suspension, and end of launches, operation of launch sites and reentry sites, and reentries";

and

(B) in subsection (a)—

(i) by inserting "or reentry site, or reentry of a reentry vehicle," after "operation of a launch site"; and

(ii) by inserting "or reentry" after "launch or operation";

(9) in section 70109—

(A) by amending the section designation and heading to read as follows:

"§ 70109. Preemption of scheduled launches or reentries";

(B) in subsection (a)—

(i) by inserting "or reentry" after "ensure that a launch";

(ii) by inserting ", reentry site," after "United States Government launch site";

(iii) by inserting "or reentry date commitment" after "launch date commitment";

(iv) by inserting "or reentry" after "obtained for a launch";

(v) by inserting ", reentry site," after "access to a launch site";

(vi) by inserting ", or services related to a reentry," after "amount for launch services"; and

(vii) by inserting "or reentry" after "the scheduled launch"; and

(C) in subsection (c), by inserting "or reentry" after "prompt launching";

(10) in section 70110—

(A) by inserting "or reentry" after "prevent the launch" in subsection (a)(2); and

(B) by inserting "or reentry site, or reentry of a reentry vehicle," after "operation of a launch site" in subsection (a)(3)(B);

(11) in section 70111—

(A) by inserting "or reentry" after "launch" in subsection (a)(1)(A);

(B) by inserting "and reentry services" after "launch services" in subsection (a)(1)(B);

(C) by inserting "or reentry services" after "or launch services" in subsection (a)(2);

(D) by inserting "or reentry" after "commercial launch" both places it appears in subsection (b)(1);

(E) by inserting "or reentry services" after "launch services" in subsection (b)(2)(C);

(F) by striking "or its payload for launch" in subsection (d) and inserting in lieu thereof "or reentry vehicle, or the payload of either, for launch or reentry"; and

(G) by inserting ", reentry vehicle," after "manufacturer of the launch vehicle" in subsection (d);

(12) in section 70112—

(A) by inserting "or reentry" after "one launch" in subsection (a)(3);

(B) by inserting "or reentry services" after "launch services" in subsection (a)(4);

(C) by inserting "or reentry services" after "launch services" each place it appears in subsection (b);

(D) by inserting "applicable" after "carried out under the" in paragraphs (1) and (2) of subsection (b);

(E) by inserting "OR REENTRIES" after "LAUNCHES" in the heading for subsection (e); and

(F) by inserting "or reentry site or a reentry" after "launch site" in subsection (e);

(13) in section 70113 (a)(1) and (d) (1) and (2), by inserting "or reentry" after "one launch" each place it appears;

(14) in section 70115(b)(1)(D)(i)—

(A) by inserting "reentry site," after "launch site,"; and

(B) by inserting "or reentry vehicle" after "launch vehicle" both places it appears; and

(15) in section 70117—

(A) by inserting "or reentry site, or to reenter a reentry vehicle" after "operate a launch site" in subsection (a);

(B) by inserting "or reentry" after "approval of a space launch" in subsection (d);

(C) by amending subsection (f) to read as follows:

"(f) LAUNCH NOT AN EXPORT; REENTRY NOT AN IMPORT.—A launch vehicle, reentry vehicle, or payload that is launched or reentered is not, because of the launch or reentry, an export or import, respectively, for purposes of a law controlling exports or imports."; and

(D) in subsection (g)—

(i) by striking "operation of a launch vehicle or launch site," in paragraph (1) and inserting in lieu thereof "reentry, operation of a launch vehicle or reentry vehicle, or operation of a launch site or reentry site,"; and

(ii) by inserting "reentry," after "launch," in paragraph (2).

(b) ADDITIONAL AMENDMENTS.—(1) Section 70105 of title 49, United States Code, is amended—

(A) by inserting "(1)" before "A person may apply" in subsection (a);

(B) by striking "receiving an application" both places it appears in subsection (a) and inserting in lieu thereof "accepting an application in accordance with criteria established pursuant to subsection (b)(2)(D)";

(C) by adding at the end of subsection (a) the following new paragraph:

"(2) In carrying out paragraph (1), the Secretary may establish procedures for certification of the safety of a launch vehicle, reentry vehicle, or safety system, procedure, service, or personnel that may be used in conducting licensed commercial space launch or reentry activities.";

(D) by striking "and" at the end of subsection (b)(2)(B);

(E) by striking the period at the end of subsection (b)(2)(C) and inserting in lieu thereof "; and";

(F) by adding at the end of subsection (b)(2) the following new subparagraph:

"(D) regulations establishing criteria for accepting or rejecting an application for a license under this chapter within 60 days after receipt of such application."; and

(G) by inserting ", or the requirement to obtain a license," after "waive a requirement" in subsection (b)(3).

(2) The amendment made by paragraph (1)(B) shall take effect upon the effective date of final regulations issued pursuant to section 70105(b)(2)(D) of title 49, United States Code, as added by paragraph (1)(F) of this subsection.

(3) Section 70102(5) of title 49, United States Code, is amended—

(A) by redesignating subparagraphs (A) and (B) as subparagraphs (B) and (C), respectively; and

(B) by inserting before subparagraph (B), as so redesignated by subparagraph (A) of this paragraph, the following new subparagraph:

"(A) activities directly related to the preparation of a launch site or payload facility for one or more launches;".

(4) Section 70103(b) of title 49, United States Code, is amended—

(A) in the subsection heading, as amended by subsection (a)(4)(A) of this section, by inserting "AND STATE SPONSORED SPACEPORTS" after "AND REENTRIES"; and

(B) in paragraph (1), by inserting "and State sponsored spaceports" after "private sector".

(5) Section 70105(a)(1) of title 49, United States Code, as amended by subsection (b)(1) of this section, is amended by inserting at the end the following: "The Secretary shall submit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a written notice not later than 7 days after any occurrence when a license is not issued within the deadline established by this subsection.".

(6) Section 70111 of title 49, United States Code, is amended—

(A) in subsection (a)(1), by inserting after subparagraph (B) the following: "The Secretary shall establish criteria and procedures for determining the priority of competing requests from the private sector and State governments for property and services under this section.";

(B) by striking "actual costs" in subsection (b)(1) and inserting in lieu thereof "additive costs only"; and

(C) by inserting after subsection (b)(2) the following new paragraph:

"(3) The Secretary shall ensure the establishment of uniform guidelines for, and consistent implementation of, this section by all Federal agencies.".

(7) Section 70112 of title 49, United States Code, is amended—

(A) in subsection (a)(1), by inserting "launch, reentry, or site operator" after "(1) When a";

(B) in subsection (b)(1), by inserting "launch, reentry, or site operator" after "(1) A"; and

(C) in subsection (f), by inserting "launch, reentry, or site operator" after "carried out under a".

(c) REGULATIONS.—(1) Chapter 701 of title 49, United States Code, is amended by adding at the end the following new section:

"§ 70120. Regulations

"The Secretary of Transportation, within 6 months after the date of the enactment of this section, shall issue regulations to carry out this chapter that include—

"(1) guidelines for industry to obtain sufficient insurance coverage for potential damages to third parties;

"(2) procedures for requesting and obtaining licenses to operate a commercial launch vehicle and reentry vehicle;

"(3) procedures for requesting and obtaining operator licenses for launch and reentry; and

"(4) procedures for the application of government indemnification.".

(2) The table of sections for such chapter 701 is amended by adding after the item relating to section 70119 the following new item:

"70120. Regulations.".

(d) REPORT TO CONGRESS.—(1) Chapter 701 of title 49, United States Code, is further amended by adding at the end the following new section:

"§ 70121. Report to Congress

"The Secretary of Transportation shall submit to Congress an annual report to accompany the President's budget request that—

"(1) describes all activities undertaken under this chapter, including a description of the process for the application for and approval of licenses under this chapter and recommendations for legislation that may further commercial launches and reentries; and

"(2) reviews the performance of the regulatory activities and the effectiveness of the Office of Commercial Space Transportation.".

(2) The table of sections for such chapter 701 is further amended by adding after the item relating to section 70120, as added by subsection (c)(2) of this section, the following new item:

"70121. Report to Congress.".

SEC. 302. REQUIREMENT FOR INDEPENDENT COST ANALYSIS.

Before any funds may be obligated for Phase C of a project that is projected to cost more than $75,000,000 in total project costs, the Chief Financial Officer for the National Aeronautics and Space Administration shall conduct an independent cost analysis of such project and shall report the results to Congress. In developing cost accounting and reporting standards for carrying out this section, the Chief Financial Officer shall, to the extent practicable and consistent with other laws, solicit the advice of expertise outside of the National Aeronautics and Space Administration.

SEC. 303. OFFICE OF SPACE COMMERCE.

(a) ESTABLISHMENT.—There is established within the Department of Commerce an Office of Space Commerce.

(b) FUNCTIONS.—The Office of Space Commerce shall be the principal unit for the coordination of space-related issues, programs, and initiatives within the Department of Commerce. The Office's primary responsibilities shall include—

(1) promoting commercial provider investment in space activities by collecting, analyzing, and disseminating information on space markets, and conducting workshops and seminars to increase awareness of commercial space opportunities;

(2) assisting United States commercial providers in their efforts to do business with the United States Government, and acting as an industry advocate within the executive branch to ensure that the Federal Government meets its space-related requirement, to the fullest extent feasible, with commercially available space goods and services;

(3) ensuring that the United States Government does not compete with United States commercial providers in the provision of space hardware and services otherwise available from United States commercial providers;

(4) promoting the export of space-related goods and services;

(5) representing the Department of Commerce in the development of United States policies and in negotiations with foreign countries to ensure free and fair trade internationally in the area of space commerce; and

(6) seeking the removal of legal, policy, and institutional impediments to space commerce.

SEC. 304. NATIONAL AERONAUTICS AND SPACE ACT OF 1958 AMENDMENTS.

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

(1) by striking subsection (f) and redesignating subsections (g) and (h) as subsections (f) and (g), respectively; and

(2) in subsection (g), as so redesignated by paragraph (1) of this subsection, by striking "(f), and (g)" and inserting in lieu thereof "and (f)".

(b) REPORTS TO THE CONGRESS.—Section 206(a) of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2476(a)) is amended—

(1) by striking "January" and inserting in lieu thereof "May"; and

(2) by striking "calendar" and inserting in lieu thereof "fiscal".

(c) DISCLOSURE OF TECHNICAL DATA.—Section 303 of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2454) is amended—

(1) in subsection (a)(C), by inserting "or (c)" after "subsection (b)"; and

(2) by adding at the end the following new subsection:

"(c)(1) The Administrator may, and at the request of a private sector entity shall, delay for a period of at least one day, but not to exceed 5 years, the unrestricted public disclosure of technical data in the possession of, or under the control of, the Administration that has been generated in the performance of experimental,

developmental, or research activities or programs funded jointly by the Administration and such private sector entity.

"(2) Within 1 year after the date of the enactment of the Civilian Space Authorization Act, Fiscal Years 1998 and 1999, the Administrator shall issue regulations to carry out this subsection. Paragraph (1) shall not take effect until such regulations are issued.

"(3) Regulations issued pursuant to paragraph (2) shall include—

"(A) guidelines for a determination of whether data is technical data within the meaning of this subsection;

"(B) provisions to ensure that technical data is available for dissemination within the United States to United States persons and entities in furtherance of the objective of maintaining leadership or competitiveness in civil and governmental aeronautical and space activities by the United States industrial base; and

"(C) a specification of the period or periods for which the delay in unrestricted public disclosure of technical data is to apply to various categories of such data, and the restrictions on disclosure of such data during such period or periods, including a requirement that the maximum 5-year protection under this subsection shall not be provided unless at least 50 percent of the funding for the activities or programs is provided by the private sector.

"(4) The Administrator shall annually report to the Congress all determinations made under paragraph (1).

"(5) For purposes of this subsection, the term 'technical data' means any recorded information, including computer software, that is or may be directly applicable to the design, engineering, development, production, manufacture, or operation of products or processes that may have significant value in maintaining leadership or competitiveness in civil and governmental aeronautical and space activities by the United States industrial base.".

SEC. 305. PROCUREMENT.

(a) PROCUREMENT DEMONSTRATION PROGRAM.—

(1) IN GENERAL.—The Administrator shall establish a program of expedited technology procurement for the purpose of demonstrating how innovative technology concepts can rapidly be brought to bear upon space missions of the National Aeronautics and Space Administration.

(2) PROCEDURES AND EVALUATION.—The Administrator shall establish procedures for actively seeking from persons outside the National Aeronautics and Space Administration innovative technology concepts, relating to the provision of space hardware, technology, or service to the National Aeronautics and Space Administration.

(3) SPECIAL AUTHORITY.—In order to carry out this subsection the Administrator shall recruit and hire for limited term appointments persons from outside the National Aeronautics and Space Administration with special expertise and experience related to the innovative technology concepts with respect to which procurements are made under this subsection.

(4) SUNSET.—This subsection shall cease to be effective 10 years after the date of its enactment.

(b) TECHNOLOGY PROCUREMENT INITIATIVE.—

(1) IN GENERAL.—The Administrator shall coordinate National Aeronautics and Space Administration resources in the areas of procurement, commercial programs, and advanced technology in order to—

(A) fairly assess and procure commercially available technology from the marketplace in the most efficient manner practicable;

(B) achieve a continuous pattern of integrating advanced technology from the commercial sector, and from Federal sources outside the National Aeronautics and Space Administration, into the missions and programs of the National Aeronautics and Space Administration;

(C) incorporate private sector buying and bidding procedures, including fixed price contracts, into procurements; and

(D) provide incentives for cost-plus contractors of the National Aeronautics and Space Administration to integrate commercially available technology in subsystem contracts on a fixed-price basis.

(2) CERTIFICATION.—Upon solicitation of any procurement for space hardware, technology, or services that are not commercially available, the Administrator shall certify, by publication of a notice and opportunity to comment in the Commerce Business Daily, for each such procurement action, that no functional equivalent, commercially, available space hardware, technology, or service exists and that no commercial method of procurement is available.

SEC. 306. ACQUISITION OF SPACE SCIENCE DATA.

(a) ACQUISITION FROM COMMERCIAL PROVIDERS.—The Administrator shall, to the maximum extent possible and while satisfying the scientific requirements of the National Aeronautics and Space Administration, acquire, where cost effective, space science data from a commercial provider.

(b) TREATMENT OF SPACE SCIENCE DATA AS COMMERCIAL ITEM UNDER ACQUISITION LAWS.—Acquisitions of space science data by the Administrator shall be carried out in accordance with applicable acquisition laws and regulations (including chapters 137 and 140 of title 10, United States Code), except that space science data shall be considered to be a commercial item for purposes of such laws and regulations (including section 2306a of title 10, United States Code (relating to cost or pricing data), section 2320 of such title (relating to rights in technical data) and section 2321 of such title (relating to validation of proprietary data restrictions)).

(c) DEFINITION.—For purposes of this section, the term "space science data" includes scientific data concerning the elemental and mineralogical resources of the moon and the planets, Earth environmental data obtained through remote sensing observations, and solar storm monitoring.

(d) SAFETY STANDARDS.—Nothing in this section shall be construed to prohibit the Federal Government from requiring compliance with applicable safety standards.

(e) LIMITATION.—This section does not authorize the National Aeronautics and Space Administration to provide financial assistance for the development of commercial systems for the collection of space science data.

SEC. 307. COMMERCIAL SPACE GOODS AND SERVICES.

The National Aeronautics and Space Administration shall purchase commercially available space goods and services to the fullest extent feasible, and shall not conduct activities that preclude or deter commercial space activities except for reasons of national security or public safety. A space good or service shall be deemed commercially available if it is offered by a United States commercial provider, or if it could be supplied by a United States commercial provider in response to a Government procurement request. For purposes of this section, a purchase is feasible if it meets mission requirements in a cost-effective manner.

SEC. 308. ACQUISITION OF EARTH SCIENCE DATA.

(a) ACQUISITION.—For purposes of meeting Government goals for Mission to Planet Earth, the Administrator shall, to the maximum extent possible and while satisfying the scientific requirements of the National Aeronautics and Space Administration, acquire, where cost-effective, space-based and airborne Earth remote sensing data, services, distribution, and applications from a commercial provider.

(b) TREATMENT AS COMMERCIAL ITEM UNDER ACQUISITION LAWS.—Acquisitions by the Administrator of the data, services, distribution, and applications referred to in subsection (a) shall be carried out in accordance with applicable acquisition laws and regulations (including chapters 137 and 140 of title 10, United States Code), except that such data, services, distribution, and applications shall be considered to be a commercial item for purposes of such laws and regulations (including section 2306a of title 10, United States Code (relating to cost or pricing data), section 2320 of such title (relating to rights in technical data) and section 2321 of such title (relating to validation of proprietary data restrictions)).

(c) STUDY.—(1) The Administrator shall conduct a study to determine the extent to which the baseline scientific requirements of Mission to Planet Earth can be met by commercial providers, and how the National Aeronautics and Space Administration will meet such requirements which cannot be met by commercial providers.

(2) The study conducted under this subsection shall—

(A) make recommendations to promote the availability of information from the National Aeronautics and Space Administration to commercial providers to enable commercial providers to better meet the baseline scientific requirements of Mission to Planet Earth;

(B) make recommendations to promote the dissemination to commercial providers of information on advanced technology research and development performed by or for the National Aeronautics and Space Administration; and

(C) identify policy, regulatory, and legislative barriers to the implementation of the recommendations made under this subsection.

(3) The results of the study conducted under this subsection shall be transmitted to the Congress within 6 months after the date of the enactment of this Act.

(d) SAFETY STANDARDS.—Nothing in this section shall be construed to prohibit the Federal Government from requiring compliance with applicable safety standards.

(e) ADMINISTRATION AND EXECUTION.—This section shall be carried out as part of the Commercial Remote Sensing Program at the Stennis Space Center.

SEC. 309. EOSDIS REPORT.

Not later than 90 days after the date of the enactment of this Act, the Administrator shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report which contains—

(1) an analysis of the scientific capabilities, costs, and schedule of the Earth Observing System Data and Information System (EOSDIS);

(2) an identification and analysis of the threats to the success of the EOSDIS Core System; and

(3) a plan and cost estimates for resolving the threats identified under paragraph (2) to the EOSDIS Core System before the launch of the Earth Observing System satellite known as PM–1.

SEC. 310. SHUTTLE PRIVATIZATION.

(a) POLICY AND PREPARATION.—The Administrator shall prepare for an orderly transition from the Federal operation, or Federal management of contracted operation, of space transportation systems to the Federal purchase of commercial space transportation services for all nonemergency launch requirements, including human, cargo, and mixed payloads. In those preparations, the Administrator shall take into account the need for short-term economies, as well as the goal of restoring the National Aeronautics and Space Administration's research focus and its mandate to promote the fullest possible commercial use of space. As part of those preparations, the Administrator shall plan for the potential privatization of the Space Shuttle program. Such plan shall keep safety and cost effectiveness as high priorities. Nothing in this section shall prohibit the National Aeronautics and Space Administration from studying, designing, developing, or funding upgrades or modifications essential to the safe and economical operation of the Space Shuttle fleet.

(b) FEASIBILITY STUDY.—The Administrator shall conduct a study of the feasibility of implementing the recommendation of the Independent Shuttle Management Review Team that the National Aeronautics and Space Administration transition toward the privatization of the Space Shuttle. The study shall identify, discuss, and, where possible, present options for resolving, the major policy and legal issues that must be addressed before the Space Shuttle is privatized, including—

(1) whether the Federal Government or the Space Shuttle contractor should own the Space Shuttle orbiters and ground facilities;

(2) whether the Federal Government should indemnify the contractor for any third party liability arising from Space Shuttle operations, and, if so, under what terms and conditions;

(3) whether payloads other than National Aeronautics and Space Administration payloads should be allowed to be launched on the Space Shuttle, how missions will be prioritized, and who will decide which mission flies and when;

(4) whether commercial payloads should be allowed to be launched on the Space Shuttle and whether any classes of payloads should be made ineligible for launch consideration;

(5) whether National Aeronautics and Space Administration and other Federal Government payloads should have priority over non-Federal payloads in the Space Shuttle launch assignments, and what policies should be developed to prioritize among payloads generally;

(6) whether the public interest requires that certain Space Shuttle functions continue to be performed by the Federal Government; and

(7) how much cost savings, if any, will be generated by privatization of the Space Shuttle.

(c) REPORT TO CONGRESS.—Within 60 days after the date of the enactment of this Act, the National Aeronautics and Space Administration shall complete the study required under subsection (b) and shall submit a report on the study to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science of the House of Representatives.

SEC. 311. LAUNCH VOUCHER DEMONSTRATION PROGRAM AMENDMENTS.

Section 504 of the National Aeronautics and Space Administration Authorization Act, Fiscal Year 1993 (15 U.S.C. 5803) is amended—

(1) in subsection (a)—

(A) by striking "the Office of Commercial Programs within"; and

(B) by striking "Such program shall not be effective after September 30, 1995.";

(2) by striking subsection (c); and

(3) by redesignating subsections (d) and (e) as subsections (c) and (d), respectively.

SEC. 312. USE OF ABANDONED AND UNDERUTILIZED BUILDINGS, GROUNDS, AND FACILITIES.

(a) IN GENERAL.—In meeting the needs of the National Aeronautics and Space Administration for additional facilities, the Administrator, whenever feasible, shall select abandoned and underutilized buildings, grounds, and facilities in depressed communities that can be converted to National Aeronautics and Space Administration facilities at a reasonable cost, as determined by the Administrator.

(b) DEFINITIONS.—For purposes of this section, the term "depressed communities" means rural and urban communities that are relatively depressed, in terms of age of housing, extent of poverty, growth of per capita income, extent of unemployment, job lag, or surplus labor.

SEC. 313. COST EFFECTIVENESS CALCULATIONS.

In calculating the cost effectiveness of the cost of the National Aeronautics and Space Administration engaging in an activity as compared to a commercial provider, the Administrator shall compare the cost of the National Aeronautics and Space Administration engaging in the activity using full cost accounting principles with the price the commercial provider will charge for such activity.

SEC. 314. FOREIGN CONTRACT LIMITATION.

The National Aeronautics and Space Administration shall not enter into any agreement or contract with a foreign government that grants the foreign government the right to recover profit in the event that the agreement or contract is terminated.

SEC. 315. AUTHORITY TO REDUCE OR SUSPEND CONTRACT PAYMENTS BASED ON SUBSTANTIAL EVIDENCE OF FRAUD.

Section 2307(h)(8) of title 10, United States Code, is amended by striking "and (4)" and inserting in lieu thereof "(4), and (6)".

SEC. 316. NEXT GENERATION INTERNET.

None of the funds authorized by this Act, or any other Act enacted before the date of the enactment of this Act, may be used for the Next Generation Internet. Notwithstanding the previous sentence, funds may be used for the continuation of programs and activities that were funded and carried out during fiscal year 1997.

SEC. 317. LIMITATIONS.

(a) PROHIBITION OF LOBBYING ACTIVITIES.—None of the funds authorized by this Act and the amendments made by this Act shall be available for any activity whose purpose is to influence legislation pending before the Congress, except that this subsection shall not prevent officers or employees of the United States or of its departments or agencies from communicating to Members of Congress on the request of any Member or to Congress, through the proper channels, requests for legislation or appropriations which they deem necessary for the efficient conduct of the public business.

(b) LIMITATION ON APPROPRIATIONS.—No sums are authorized to be appropriated to the Administrator for fiscal years 1998 and 1999 for the activities for which sums are authorized by this Act and the amendments made by this Act, unless such sums are specifically authorized to be appropriated by this Act or the amendments made by this Act.

(c) ELIGIBILITY FOR AWARDS.—

(1) IN GENERAL.—The Administrator shall exclude from consideration for grant agreements made by the National Aeronautics and Space Administration after fiscal year 1997 any person who received funds, other than those described in paragraph (2), appropriated for a fiscal year after fiscal year 1997, under a grant agreement from any Federal funding source for a project that was not subjected to a competitive, merit-based award process. Any exclusion from consideration pursuant to this subsection shall be effective for a period of 5 years after the person receives such Federal funds.

(2) EXCEPTION.—Paragraph (1) shall not apply to the receipt of Federal funds by a person due to the membership of that person in a class specified by law for which assistance is awarded to members of the class according to a formula provided by law.

(3) DEFINITION.—For purposes of this subsection, the term "grant agreement" means a legal instrument whose principal purpose is to transfer a thing of value to the recipient to carry out a public purpose of support or stimulation authorized by a law of the United States, and does not include the acquisition (by purchase, lease, or barter) of property or services for the direct benefit or

use of the United States Government. Such term does not include a cooperative agreement (as such term is used in section 6305 of title 31, United States Code) or a cooperative research and development agreement (as such term is defined in section 12(d)(1) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3710a(d)(1))).

SEC. 318. NOTICE.

(a) NOTICE OF REPROGRAMMING.—If any funds authorized by this Act or the amendments made by this Act are subject to a reprogramming action that requires notice to be provided to the Appropriations Committees of the House of Representatives and the Senate, notice of such action shall concurrently be provided to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

(b) NOTICE OF REORGANIZATION.—The Administrator shall provide notice to the Committees on Science and Appropriations of the House of Representatives, and the Committees on Commerce, Science, and Transportation and Appropriations of the Senate, not later than 15 days before any major reorganization of any program, project, or activity of the National Aeronautics and Space Administration.

SEC. 319. SENSE OF CONGRESS ON THE YEAR 2000 PROBLEM.

With the year 2000 fast approaching, it is the sense of Congress that the National Aeronautics and Space Administration should—

(1) give high priority to correcting all 2-digit date-related problems in its computer systems to ensure that those systems continue to operate effectively in the year 2000 and beyond;

(2) assess immediately the extent of the risk to the operations of the National Aeronautics and Space Administration posed by the problems referred to in paragraph (1), and plan and budget for achieving Year 2000 compliance for all of its mission-critical systems; and

(3) develop contingency plans for those systems that the National Aeronautics and Space Administration is unable to correct in time.

SEC. 320. NATIONAL OCEANOGRAPHIC PARTNERSHIP PROGRAM.

The National Aeronautics and Space Administration is authorized to participate in the National Oceanic Partnership Program established by the National Oceanic Partnership Act (Public Law 104–201).

SEC. 321. NATIONAL SCIENCE FOUNDATION ANTARCTIC PROGRAM.

If the Administrator determines that excess capacity is available on the Tracking Data Relay Satellite System (TDRSS), the Administrator shall give strong consideration to meeting the needs of the National Science Foundation Antarctic Program.

SEC. 322. BUY AMERICAN.

(a) COMPLIANCE WITH BUY AMERICAN ACT.—No funds appropriated pursuant to this Act or the amendments made by this Act may be expended by an entity unless the entity agrees that in expending the assistance the entity will comply with sections 2 through 4 of the Act of March 3, 1933 (41 U.S.C. 10a–10c, popularly known as the "Buy American Act").

(b) SENSE OF CONGRESS.—In the case of any equipment or products that may be authorized to be purchased with financial assistance provided under this Act or the amendments made by this Act, it is the sense of Congress that entities receiving such assistance should, in expending the assistance, purchase only American-made equipment and products.

(c) NOTICE TO RECIPIENTS OF ASSISTANCE.—In providing financial assistance under this Act or the amendments made by this Act, the Administrator shall provide to each recipient of the assistance a notice describing the statement made in subsection (a) by the Congress.

II. BACKGROUND AND NEED FOR LEGISLATION

The National Aeronautics and Space Administration was created in 1958 to help win the Cold War. In 1997, the agency finds itself working with former Cold War adversaries and undertaking activities in new areas, such as environmental research. The end of the Cold War and these changes in NASA's mission have led to considerable budgetary instability during the 1990's. As late as 1992, projections of NASA's annual budget had it rising to some $20 billion

by the year 2000. However, in 1996, the White House submitted a request that cut NASA's budget to $11.6 billion in the year 2000. This year, the budget request for NASA reduces the agency's budget from $13.7 billion in FY 97 to $13.2 billion in FY00, where it remains through FY 02. After adjustment for inflation, these budget cuts go even deeper into NASA's programs. H.R. 1275 addresses these instabilities and provides NASA with a budget that grows, but remains slightly below the level of inflation. Thus, H.R. 1275 is necessary to provide the agency with the budget stability that it needs to perform its research and development missions.

Besides its budget instability, NASA is now deeply involved in the International Space Station. The Clinton Administration invited the Russians to join the program in 1993. Since then, the Russians have consistently not met their obligations to fund and construct up to half of the Station's habitable volume. Consequently, NASA has delayed the first element launch by up to 11 months. In the course of addressing this problem through hearings and oversight, the Committee has determined that NASA lacks a sound decision process for resolving Russian problems or exercising firm contingency plans to complete the International Space Station. H.R. 1275 establishes a firm decision process for resolving the Russian problem. The legislation is therefore necessary if Congress expects NASA to build the International Space Station.

Finally, the bill includes amendments to the Commercial Space Launch Act (CSLA). Currently, there is no licensing procedure to conduct reentry from space. Such reentry is vital if new technologies in reusable launch vehicles are to be exploited and the opportunity to conduct commercial experiments in space for return to Earth is to be taken. The bill authorizes and directs the Office of Commercial Space Transportation within the Department of Transportation to establish licensing mechanisms and regulations for reentry from space.

III. Summary of Hearings

The Subcommittee on Space and Aeronautics held six formal authorization hearings during the early part of 1997 regarding the Fiscal Year 1998 budget request for the National Aeronautics and Space Administration (NASA).

On March 4, 1997, the Subcommittee on Space and Aeronautics held its "FY98 NASA Posture Hearing." Administrator Goldin testified regarding the Fiscal Year 1998 NASA Budget request.

Purpose of Hearing

The objectives for NASA as laid out by the National Aeronautics and Space Act of 1958 include: expansion of human knowledge; improvement of aeronautical and space vehicles; development of vehicles to travel through space; sharing of knowledge between military and civilian space communities; international cooperation; and preservation of the United States' role as a leader in aeronautics, space science, and technology. The Subcommittee on Space and Aeronautics is responsible for overseeing and authorizing appropriations for all the activities within NASA as well as the commercial space activities within the Department of Commerce (Office of

Space Commerce) and the Department of Transportation (Office of Commercial Space Transportation). The purpose of this hearing was to receive testimony from the Administrator regarding the Fiscal Year 1998 budget request for NASA.

Key Issues

Administrator Goldin testified that the President's Fiscal Year 1998 budget request of $13.5 billion, along with stable funding in the outyears, will give America a robust space and aeronautics program. He maintained that NASA is currently spending more on research and development and less on overhead. Mr. Goldin noted that in 1992, NASA spent only 31 percent of its budget on science, aeronautics, and space technology and the request for Fiscal Year 1998, allocates 44 percent of the budget to those same areas. Mr. Goldin reviewed delays currently facing the construction of the International Space Station, but insisted that NASA wants to continue to work with the Russian government in completing this "most complex mission." In closing, he stated that the future of NASA is about making airlines safer, exploring the solar system, and building the International Space Station.

On March 12, 1997, the Subcommittee held its second authorization hearing "FY98 NASA Authorization: Aeronautics and Space Transportation Technology." The witnesses were: Dr. Robert E. Whitehead, NASA's Associate Administrator for Aeronautics and Space Transportation Technology, and Gary E. Payton, NASA's Deputy Associate Administrator for Space Transportation Technology and Director of the Space Transportation Division.

Purpose of Hearing

The purpose of this hearing was to receive testimony from NASA witnesses on the current status of NASA's Aeronautics and Space Transportation Technology program. The hearing focused on: (1) progress in and additions to the Aeronautics program; (2) the status of NASA's Reusable Launch Vehicle and Advanced Space Transportation Program activities; (3) future space transportation initiatives; and (4) NASA's Commercial Technology activities.

Key Issues

Dr. Robert E. Whitehead, NASA's Associate Administrator for the Office of Aeronautics and Space Transportation Technology, noted that NASA combined the Aeronautics and Space Transportation Technology enterprises in 1996. He stated that the current enterprise is shaped around three technology pillars for success: (1) global civil aviation, (2) revolutionary technology leaps, and (3) access to space.

Mr. Gary E. Payton, NASA's Deputy Associate Administrator for Space Transportation Technology and Director of the Space Transportation Division, discussed the accomplishments of the DC-XA program and the selection of the designs for the X-33 and X-34 vehicles.

On March 13, 1997, the Subcommittee held its third authorization hearing "FY98 NASA Authorization: Space Shuttle Program." The witnesses were: Steve Oswald, NASA's Deputy Associate Ad-

ministrator for the Space Shuttle program; Paul M. Johnstone, Chairman of the Aerospace Safety Advisory Panel; and Kent Black, Chief Executive Officer for United Space Alliance.

Purpose of Hearing

The purpose of this hearing was to receive testimony from witnesses on the current status of the Space Shuttle program. Testimony before the Subcommittee focused on: (1) overall program safety; (2) how improvements instituted since the Challenger tragedy will be maintained during agency downsizing; (3) NASA's future plans for Orbiter Maintenance Down Periods; (4) how the agency will maintain and upgrade it's Orbiter fleet for operations through the next decade; and (5) the ongoing consolidation of the program under a single prime contractor.

Key Issues

Mr. Steve Oswald, NASA's Deputy Associate Administrator for the Space Shuttle program, testified that NASA is flying the Space Shuttle more safely and accomplishing more on orbit than ever before. He maintained that NASA's Space Shuttle program is living up to the promises that were made to Congress and the American people by meeting the commitment of flying safely for less money.

Mr. Paul M. Johnstone, Chairman of the Aerospace Safety Advisory Panel, noted that relations between NASA and United Space Alliance, the Shuttle's single prime contractor, seem excellent. He said that the Aerospace Safety Advisory Panel believes that the transition to a single prime contract has not changed flight or ground risks of the program. However, Mr. Johnstone pointed out that there is a clear need on the part of both NASA and United Space Alliance to take steps to ensure the availability of a skilled and experienced work force in sufficient numbers to meet ongoing safety needs of the Shuttle program.

Mr. Kent Black, Chief Executive Officer of United Space Alliance, testified that one of the objectives of the Space Flight Operations Contract (SFOC) is to reduce the cost of flying payloads on the Shuttle by adding new customers to reduce the costs. Mr. Black mentioned the Department of Defense (DOD) and commercial customers as potential resources to help defray the costs of operating the Shuttle.

On March 19, 1997, the Subcommittee held its fourth authorization hearing "FY98 NASA Authorization: Mission to Planet Earth." The witnesses were: Mr. William F. Townsend, NASA's Acting Associate Administrator for the Office of Mission to Planet Earth; Mr. Sam Venneri, NASA's Chief Technologist; Dr. Steven C. Wofsy, Gordon McKay Professor of Atmospheric and Environmental Sciences at Harvard University and Chairman of the NASA Advisory Council's Earth Systems Science Applications Advisory Committee; Dr. Stamatios Krimigis, Head of the Space Department at the Applied Physics Laboratory, Johns Hopkins University; and Dr. Ed Hudgins, Director of Regulatory Studies at the CATO Institute.

Purpose of Hearing

This hearing was intended to explore the status and future of Mission to Planet Earth (MTPE) in the context of the Fiscal Year

1998 budget request and the outyear priorities of the nation's civil space program. Testimony before the Subcommittee focused on: (1) the goals and structure of MTPE, particularly the relationship of activities contained in the Fiscal Year 1998 budget request to the outyear program design; (2) opportunities to realize cost savings in the program, and how NASA is bringing down the total cost of MTPE; (3) the types of improvements that can be made to MTPE as the program moves forward, in particular the views of the Earth Systems Science Applications Advisory Committee (ESSAAC) on improving the program's responsiveness to the scientific community; and (4) the Midcourse Space Experiment (MSX) and its applications to MTPE.

Key Issues

Mr. William F. Townsend, NASA's Associate Administrator for the Office of Mission to Planet Earth, provided an overview of MTPE noting that program runout costs for the second series may be reduced by 30 percent due to planned technology infusion; Earth Observing System (EOS) spacecraft are smaller, cost less and have shorter development times; and that the commercial strategy for the program includes partnerships with industry including science data purchase and commercial remote sensing.

Mr. Sam Venneri, NASA's Chief Technologist, discussed the findings and recommendations of the Reshape Implementation Options Study which examined ways MTPE could use advanced technology to design a complete space-to-ground system.

Dr. Steven C. Wofsy, Gordon McKay Professor of Atmospheric and Environmental Sciences at Harvard University, discussed recommendations for the program from ESSAAC. He noted that ESSAAC was concerned with the balance of funding between space hardware and data analysis in the program.

Dr. Stamatios Krimigis, Head of the Space Department at the Applied Physics Laboratory, Johns Hopkins University, discussed the Ballistic Missile Defense Organization's (BMDO) Midcourse Space Experiment (MSX) and its potential applications to MTPE.

Dr. Ed Hudgins, Director of Regulatory Studies at the CATO Institute, conveyed the CATO Institute position that MTPE should not be reauthorized this year because government involvement in the program discourages private sector development of space infrastructure.

On April 9, 1997, the Subcommittee held its fifth authorization hearing "FY98 NASA Authorization: International Space Station." The witnesses were: Mr. Wilbur Trafton, NASA's Associate Administrator for the Office of Space Flight; Dr. Robert Park, Professor of Physics at the University of Maryland, College Park; Dr. Larry DeLucas, Director of the Center for Macromolecular Crystallography at the University of Alabama, Birmingham; and Mr. Rick N. Tumlinson, President of the Space Frontier Foundation.

Purpose of Hearing

This authorization hearing was intended to familiarize Members with the issues surrounding Space Stations and to update the Subcommittee on the status of U.S. programs. Testimony before the Subcommittee focused on: (1)the rationale for supporting humans

in low-Earth orbit and the International Space Station as a prelude to opening up the space frontier to all Americans; (2) whether or not spending on the International Space Station is the best use of taxpayer dollars for science; (3) the benefits of macromolecular research; and (4) the current status of the International Space Station program.

Key Issues

Mr. Wilbur Trafton, NASA's Associate Administrator for the Office of Space Flight, informed the Subcommittee that NASA is rescheduling the first element launch for the International Space Station, originally scheduled for launch in November 1997, for no later than October 1998. Mr. Trafton reviewed NASA's current contingency plans in light of the impending delay of Russian contributions to the International Space Station including: (1) modifying the FGB to enhance its attitude control capabilities and to make it refuelable; and (2) pursuing development of an existing, proven system built by the U.S. Naval Research Laboratory as an Interim Control Module (ICM). He indicated that a decision must be made by early May 1997 to baseline into the assembly sequence either the Russian Service Module or an ICM for launch in December 1998. Finally, Mr. Trafton advised the Subcommittee that these contingency plans will require resources outside of the planned International Space Station program. Specifically, NASA will submit a revised operating plan for Fiscal Year 1997 that will reallocate $200 million from the Shuttle program to the U.S./Russian Cooperation funding line (designated U.S./Russian Cooperation and Program Assurance); and will request a similar funding line with a placeholder amount of $100 million for Fiscal Year 1998.

Dr. Robert Park, Professor of Physics, at the University of Maryland, College Park, argued that the International Space Station is yesterday's technology and its stated scientific objectives are yesterday's science. He maintained that the International Space Station stands as the greatest single obstacle to continued exploration of space. In closing, Dr. Park noted that during the recent trend of cuts to the NASA budget, the Station remains a fixed cost, exempted from these budget cuts. Additionally, cost overruns in construction have been accommodated by postponing what little science is planned for the Station.

Dr. Larry DeLucas, Director of the Center for Macromolecular Crystallography at the University of Alabama, Birmingham, noted that scientific microgravity experiments should be conducted over long periods of time as opposed to current experiments on the Space Shuttle with durations of 1 to 2 weeks. He maintained that carrying discoveries through to fruition, where research can be used for practical benefit, must be done as an ongoing process. Dr. DeLucas endorsed the International Space Station because it will allow scientists to have a laboratory where research can be conducted 365 days per year.

Mr. Rick N. Tumlinson, President of the Space Frontier Foundation, recommended having a facility in space in which Americans can conduct experimentation on new products, new services, and new ideas. He advocated turning the International Space Station over to private interests to begin operating it in the same way that

industry operates buildings, ships, ports, and airports. In closing, Mr. Tumlinson maintained that a successful Space Station will use a partnership between government and the private sector.

On April 10, 1997, the Subcommittee held its sixth and final authorization hearing "FY98 NASA Authorization: Science Programs." The witnesses were: Dr. Wesley T. Huntress, Jr., NASA's Associate Administrator for the Office of Space Science; Dr. Arnauld E. Nicogossian, NASA's Associate Administrator for the Office of Life and Microgravity Sciences and Applications; Dr. Neal Pellis, NASA's Head of the Biotechnology Program at Johnson Space Center; Dr. Claude R. Canizares, Chair of the Space Studies Board at the National Research Council and Director of the Center for Space Research at Massachusetts Institute of Technology; Dr. Eugene Shoemaker, Scientist Emeritus at the U.S. Geological Survey; and Dr. V. Reggie Edgerton, Vice Chair of the Physiological Science Department at the University of California Los Angeles.

Purpose of Hearing

This hearing reviewed the funding request for the Fiscal Year 1998 NASA budget request for the Office of Space Science and the Office of Life and Microgravity Sciences and Applications. Testimony before the Subcommittee focused on: (1) the Origins program, designed to answer the fundamental question of our place in the universe; (2) future plans for the exploration of Mars; (3) the study of near Earth objects and orbital debris; (4) the outyear funding for Mission Operations and Data Analysis; (5) the benefits of research in space; (6) microgravity research on nerve cell regeneration; (7) the benefits of bioreactor research; and (8) life and microgravity research opportunities on the Shuttle in the wake of a Station delay.

Key Issues

Dr. Wesley T. Huntress, Jr., NASA's Associate Administrator for the Office of Space Science, discussed five near-term objectives for NASA's science initiatives: (1) to open up a new area in exploring the surfaces of planetary bodies such as Mars, comets, and asteroids; (2) to conduct extensive investigations of the surface of Mars; (3) to complete the initial reconnaissance of our solar system with a mission to Pluto; (4) to invest in the technologies required to develop a successor to the Hubble Space Telescope; and (5) to invest in technologies required to develop new techniques that we will need in order to search for Earth-like planets around other stars.

Dr. Arnauld E. Nicogossian, NASA's Associate Administrator for the Office of Life and Microgravity Sciences and Applications, mentioned that because of the delay in the assembly sequence of the International Space Station, NASA has started studying remedial actions which include the use of Shuttle flights during the early years of Station assembly. These flights would provide the research community with continued access to space until transition to the Space Station is possible.

Dr. Claude R. Canizares, Chair of the Space Studies Board at the National Research Council and Director of the Center for Space Research at Massachusetts Institute of Technology, reiterated the need for additional Shuttle flight research opportunities because of developing problems with the International Space Station. He in-

sisted that space research provides innumerable benefits that enhance the quality and character of life for the American public.

Dr. Eugene Shoemaker, Scientist Emeritus at the U.S. Geological Survey, discussed near-Earth asteroids and research that NASA is supporting at three separate institutions that survey Earth crossing asteroids. During his testimony, Dr. Shoemaker argued for the necessity of asteroid research and stated that a $4 million annual budget would be required in order to detect 90 percent of the Earth crossing asteroids larger than one kilometer in diameter.

Dr. Neal Pellis, Head of the Biotechnology Program at NASA's Johnson Space Center, discussed the benefits of biotechnology and NASA's goal of engineering human tissue, starting from individual cells, using the microgravity environment and advanced technology such as the bioreactor.

Dr. V. Reggie Edgerton, Vice Chair of the Physiological Science Department at the University of California Los Angeles, discussed different strategies for researching the field of neural repair. He argued that continued investment in this type of research is critical to efforts to optimize the recovery of elderly individuals who suffered neural dysfunctions and neural trauma patients.

IV. Summary of Major Provisions of the Bill

On February 6, 1997, the President transmitted to Congress a request of $13,500,000,000 for NASA for FY 98. The Committee recommends an authorization level of $13,881,800,000 for FY 98. The President's FY 98 request for NASA contained an estimate for FY 99 of $13,410,000,000. The Committee recommends an authorization level of $13,925,800,000 for FY 99. The Committee recommends an authorization level of $6,000,000 in FY 98 and FY 99 for the Office of Commercial Space Transportation. The Committee recommends an authorization level of $500,000 in FY 98 and FY 99 for the Office of Space Commerce.

The major provisions of the bill are the following:

Authorizes appropriations for all NASA programs;

Authorizes appropriations for the Office of Commercial Space Transportation and the Office of Space Commerce;

Prohibits funds, or in-kind payments from being transferred to Russia for work on elements of the International Space Station that Russia pledged to provide at its expense. Requires NASA to develop a contingency plan and submit it to Congress. This plan shall include: (1) decision points for removing or replacing Russian Government elements that lie in the critical path; (2) the costs of implementing such decision(s); and (3) the cost of removing or replacing a Russian Government element after the decision point has passed;

Requires a monthly certification from the NASA Administrator including: (1) whether the Russians have performed their expected work necessary to complete the International Space Station by the end of calendar year 2002; (2) the Administrator's judgment about whether the Russians will perform during the succeeding month; and (3)

the Administrator's judgment that the first element launch will occur by October 31, 1998;
Requires the President to decide by August 1, 1997, whether or not to proceed with permanent replacement of the Service Module and other Russian critical path items. The President is required to certify the reasons for the decision and the costs of such a decision. If the President decides after August 1, 1997, to replace an element, the President must certify the cost implications of not making such a decision prior by August 1, 1997;
Requires NASA to certify that Mir meets or exceeds U.S. safety standards, as determined by an independent review, before sending another astronaut on a long-term stay on Mir;
Requires the NASA Administrator to report on projected restructuring activities, by fiscal year, and the President to submit a proposal for enabling legislation to carry out actions in the Administrator's report;
Amends the Commercial Space Launch Act to establish a statutory framework for the Office of Commercial Space Transportation to license commercial reentry activities;
Requires the NASA Administrator to submit a study to Congress that identifies and examines the opportunities for commercial ventures to play a role in International Space Station activities including operation, use, servicing or augmentation;
Creates procurement initiatives to encourage NASA to take advantage of innovations of commercial providers;
Encourages NASA to purchase space science data from commercial providers instead of building complete systems to generate the data;
Encourages the NASA Administrator to acquire Earth science data from U.S. commercial providers; and requires a study on how the scientific requirements of MTPE can be met by commercial providers;
Requires the NASA Administrator to prepare for the potential privatization of the Space Shuttle program;
Establishes the Office of Space Commerce within the Department of Commerce with details on the Office's primary responsibilities;
Requires the NASA administrator to certify that $50 million has been made available for commercial Earth science data buys before funds can be used for Earth System Science Pathfinders;
Requires NASA to submit a report on the cost-effectiveness of the single cost-plus contract approach of the Consolidated Space Operations Contract versus a multiple, fixed-price contract approach;
Prohibits funds from being used to pay the tuition or living expenses of NASA employees attending the International Space University;
Requires a report on agreements with foreign entities to transfer the development of Space Station hardware baselined to be provided by the United States and the im-

pact of these agreements on U.S. operating costs and U.S. utilization shares;
Requires a report on threats to the core system of the Earth Observing System Data Information System;
Requires NASA to buy commercially available space goods and services, to the fullest extent feasible, and that NASA shall not conduct activities that preclude or deter commercial space activities (except for national security or public safety);
Prohibits NASA from entering into agreements or contracts with foreign governments which grant the foreign government the right to recover profit in the event that the agreement or contract is terminated.

V. Section-By-Section Analysis and Committee Views

Section 1. Short Title; Table of Contents

This Act may be referred to as the "Civilian Space Authorization Act, Fiscal Years 1998 and 1999."

Section 2. Findings

Sectional Analysis and Recommendation

The Congress finds that: NASA should pursue actions and reforms to reduce institutional costs; NASA must return to its role as the nation's leader in basic scientific, air and space research; the United States is on the verge of advancing and creating various technologies that could radically alter the manner in which the government approaches its space mission; a free and competitive market in privately developed and operated space transportation is important to fulfilling the majority of the Federal Government's requirements; NASA should promote the commercial providers' pursuit of development of advanced space transportation technologies; the Federal Government should invest in the types of research and innovative technology in which U.S. commercial providers do not invest, while avoiding competition with activities in which commercial providers do invest; international cooperation in space exploration and science should be pursued when it satisfies particular conditions; and NASA and the Department of Defense can reduce the cost of space missions by more effectively leveraging their mutual capabilities.

Section 3. Definitions

Throughout the Act and Committee report, the term "Administrator" refers to the Administrator of the National Aeronautics and Space Administration and the phrase "institution of higher education" refers to the meaning of this phrase given in section 1201(a) of the Higher Education Act of 1965 (20 U.S.C. 1141(a)). "Commercial provider" refers to individuals providing space-related services or activities whose organization is not under the primary control of federal, state, local or foreign governments. "State" refers to the States of the Union, the District of Columbia, and any other commonwealth, territory, or possession of the United States. "United States commercial provider" refers to a commercial provider which is more than 50 percent owned by U.S. nationals or a subsidiary

of a foreign company and the Secretary of Transportation makes particular findings about the subsidiary and the foreign country in which the company is incorporated or organized.

Title I—Authorization of Appropriations

Subtitle A—Authorizations

Section 101. Human Space Flight

Sec. 101(1). The Space Station Program

Sectional Analysis and Recommendation

$2,121,300,000 in FY 98 and $2,109,200,000 in FY 99 are authorized for the International Space Station (ISS). Of this amount, $400,500,000 in FY 98 and $496,200,000 in FY 99 shall only be for Space Station research or for activities conducted by the Office of Life and Microgravity Sciences and Applications. These funds shall be administered by the Office of Life and Microgravity Sciences and Applications.

Committee Views

The Committee fully authorizes the request for Space Station funding in Fiscal Years 1998 and 1999. Within this authorization, however, $400,500,000 in Fiscal Year 1998 and $496,000,000 in Fiscal Year 1999 of research funding are fenced for scientific purposes. These are the respective funding levels for Station research as baselined in the Fiscal Year 1997 request. In the past, NASA has taken funding from Space Station science accounts and transferred those funds to the Station for hardware development. The Fiscal Year 1998 budget request reflected this practice when it cut the baseline science program to $245,100,000 in Fiscal Year 1998, shifting $155,400,000 from Station science payloads to hardware development. The agency actually shifted $235,000,000 from Station science payloads to hardware development, and then moved $17.3 million for experiments from the U.S.-Russia Cooperation budget line into the research line. Similarly, the agency also moved $62.3 million from a utilization support line into the research line. In the Rohrabacher-Cramer Amendment to the bill, the Committee further decided that the Office of Life and Microgravity Sciences and Applications should administer the research accounts of the International Space Station. NASA views the science community as the ultimate customer for the International Space Station, a view with which the Committee concurs. In that light, it only makes sense to direct the customer to manage his/her own affairs and resources.

The Committee believes that the ability to do life and microgravity research is the principal reason for building the International Space Station. Fully funding the Station's science accounts must be NASA's first priority in developing and operating this program. Consequently, the Committee is holding NASA to its promise that the International Space Station will be a world-class laboratory in space. If the International Space Station runs into development problems or is forced to alter the design due to Russia's inability to provide its promised Station elements, the Committee would be inclined to consider supplemental funding before it would

agree to transfer funds from Station science payloads to hardware development.

With science as its principal goal, the Committee believes that the International Space Station is vital for taking life and microgravity research to their next level of complexity. Progress in these areas promises huge scientific returns, giving the Space Station a vital role in increasing human knowledge and applying it to improve life on Earth.

Additionally, the International Space Station marks a new opportunity to promote international cooperation in space. This goal, however, is secondary to the Station's main focus on research. When the goal of promoting multinational ventures in space conflicts with the ability to do world-class research to benefit all of humanity, the multinational venture must give way to the needs and requirements of science.

The Committee accepted the Administration's initiative in bringing Russia into the International Space Station program, largely due to Russia's vast experience and expertise in human space flight and the desire to promote international cooperation in space. It was believed that Russia's addition to the Space Station program would best serve the program if Russia's role was enhancing, not enabling. NASA, however, placed Russia in the critical path for completing the Space Station, making the international partnership dependent on a country experiencing a difficult transition from communism to freedom and democracy. Because of that transition and the difficulties it has created for the Russian economy, Russia has been unable to meet its commitments to the international partnership to fund development of the International Space Station. Thus Russia's role in the International Space Station currently threatens the ability to build a successful and scientifically useful laboratory in space. Just the recent history of Russia's participation in the program illustrates the problems Russia is experiencing.

During the winter of 1995-1996, when the Russian Space Agency (RSA) was not receiving its operating budget from the Russian government in either an adequate amount or timeframe, the Russians proposed redesigning the International Space Station. Instead of building the new facility as planned and agreed to, the Russians wanted to attach elements being built by the partners to their Space Station, Mir. NASA rejected this option, but agreed to add two flights in the Phase I portion of the program, in which the Space Shuttle visits the Mir Space Station. Russia has since become dependent on these Shuttle-Mir flights to keep the Mir aloft. Unfortunately, this did not resolve Russia's inability to pay the Russian Space Agency or Russian Space Station contractors.

During January 1996, Chairman Sensenbrenner and Chairman Jerry Lewis of the House Appropriations Committee's Subcommittee on VA/HUD/Independent Agencies traveled to Russia for discussions about its funding problems. The Russians revealed that the Service Module, the first element for which the Russian government was responsible, was some 6 months behind schedule, but that the April 1998 launch date could be met if funding were forthcoming from the Russian government. In March 1996, NASA Administrator Dan Goldin testified before a hearing of the Subcommittee on Space and Aeronautics that the problem with Russia

would be resolved one way or the other within a four-to-six week period, or by the middle of May 1996. This date was then pushed back until after Russia's June 1996 Presidential elections, after which NASA indicated that the Russian Space Agency expected to receive its budget from the Russian government.

The problem was not addressed in May, but in July 1996, at a meeting of the Gore-Chernomyrdin Commission, Vice President Gore received written promises that Russia would meet several milestones in 1996 and 1997 as a demonstration of its good faith effort to resolve these delays. Nevertheless, the Russian government promptly missed those milestones and declared in December 1996 that the Service Module was at least 8 months behind schedule, a delay that could not be recovered to meet the April 1998 launch date. Instead, RSA announced that it might launch the Service Module in December 1998.

During February 6-8, 1997 the Gore-Chernomyrdin Commission again convened. At that meeting, Russian Prime Minister Viktor Chernomyrdin promised Vice President Gore that the equivalent of $100 million would be made available to the Russian Space Agency by February 28th. Furthermore, the Russian Prime Minister promised that the government would develop a schedule to cover RSA funding during the course of 1997. Finally, he asked Yuri Koptev, Director General of the Russian Space Agency, to look into launching the Service Module in October/November of 1998, a six-month instead of an eight-month delay. None of these promises had been kept by the time of the introduction of this bill (April 10, 1997). The Committee on Science held a hearing on the status of Russian participation in the program on February 12, 1997 to review these promises.

Science Committee Chairman Sensenbrenner, Space and Aeronautics Subcommittee Chairman Dana Rohrabacher and Subcommittee Vice Chairman Dave Weldon traveled to Russia during the week of February 16, 1997, to determine the status of the Russian program for themselves. It did not appear that much work had been done on the Service Module since Chairman Sensenbrenner's January 1996 trip. Moreover, the Congressional delegation determined that the Russian government was not budgeting funds to be transferred to the Russian Space Agency in 1997, but that it was preparing loan guarantees that would give RSA permission to seek its operating budget by approaching commercial banks and attempting to borrow funds. Finally, the delegation obtained a copy of a decree issued by Prime Minister Chernomyrdin on February 10th. The decree did not release any funds to the Russian Space Agency. Instead, it called for the government to develop—by March 10, 1997—a schedule for the RSA to receive funds during the course of 1997, presumably through the aforementioned loans and transfers from the Russian government. The Subcommittee held NASA's Posture Hearing on March 4, 1997, at which time NASA Administrator Dan Goldin announced he would send a team to Russia to explore the Russian budget situation. That team, led by Lt. General Thomas Stafford, was in Russia during the week of March 23, 1997.

The Stafford team discovered that Russia had not issued a schedule of payments by March 10th, as Chernomyrdin's February 10th

decree indicated. Furthermore, RSA still had not received the equivalent of $100 million that Prime Minister Chernomyrdin promised Vice President Gore that RSA would receive by February 28th. While the Stafford team was in Russia on March 25th, the First Deputy Prime Minister and Finance Minister, Anatoly Chubais, promised that the Russian government would make 400 billion rubles ($69.6 million) available to the Russian Space Agency in April and 400 billion rubles ($69.6 million) in May. The Stafford team was told that a schedule for payment of the remaining one trillion rubles due in 1997 would be worked out at a later date. In short, Russia promised yet again that it would meet its obligations if the United States would wait yet another few months. In the past, such promises have not been kept.

On April 9, 1997 the Subcommittee on Space and Aeronautics held an authorization hearing on the International Space Station. At that hearing Wilbur Trafton, NASA's Associate Administrator for Space Flight, announced that the first element launch originally scheduled for November 1997, would be delayed by up to 11 months due to Russia's failures to honor its commitments. Meanwhile, NASA itself would not decide until May whether to baseline the Service Module itself or an Interim Control Module (ICM) designed and created by the Naval Research Laboratory for a December 1998 launch. In order to baseline the Service Module, NASA requires the following conditions to be met: (1) the Russian government has to pay the Russian Space Agency the promised 400 billion rubles in April and 400 billion rubles in May; (2) the General Design Review of the Service Module has to take place; and, (3) the Russian subcontractors have to make assurances that they will be able to meet the December 1998 launch date. This decision date raised the immediate concern among Committee members that NASA could decide to baseline the Service Module in May 1997, but Russia might still experience problems after that decision had been made, requiring yet another delay in the Station schedule. Furthermore, Committee members were concerned about NASA's plans to finance these activities by transferring $200 million in Shuttle funds to the Space Station during the remainder of Fiscal Year 1997, particularly given recent events in the Shuttle program that suggest safety improvements are necessary to the Shuttle fleet. Finally, NASA asked for $100 million in Fiscal Year 1998 to be placed into a "U.S.-Russian Cooperation and Assurance" line within the budget. However, NASA was unable to provide any information about offsets within the NASA budget for this funding and could not assure the Committee that the funding would be adequate to undertake the steps laid out at the hearing.

The International Space Station cannot afford such continued instability, and Administration efforts to address these problems have not resulted in any resolution. Instead, NASA has proposed a series of temporary, stop-gap measures such as the Interim Control Module and placing habitation capabilities in the U.S. laboratory to deal with Russian delays. These measures enable the agency to continue assembling the Station but either fail to permanently resolve the issue of dependence on Russia and/or threaten the research capacity of the facility. The Committee is extremely concerned that NASA does not yet appear to have credible contin-

gency plans in place in the event of the need to permanently replace the Service Module and/or other Russian elements in the critical path. Ultimately, if the trend of Russian participation continues and the Russian government never delivers on its obligations, it would be preferable and more cost effective to have plans for that contingency in place now, rather than attempt to redesign the Station in the midst of assembly. As Chairman Sensenbrenner pointed out at the Subcommittee on Space and Aeronautics Subcommittee's April 9, 1997, Station authorization hearing, it is time to do now what should have been done three years ago.

Although the Committee strongly supports the International Space Station, the program is clearly headed for trouble if the current situation remains unresolved. The inability or unwillingness to hold the Russian government to its obligations and promises has cost the program up to 11 months in schedule slips. It is time for NASA to develop credible contingency plans with clearly defined decision points.

Sec. 101(2) and (3). Space Shuttle Operations; Space Shuttle Safety and Performance Upgrades

Sectional Analysis and Recommendation

In FY 98 $2,494,400,000 are authorized for Space Shuttle operations and $483,400,000 are authorized for safety and performance upgrades. In FY 99 $2,625,600,000 are authorized for Space Shuttle operations, and $392,900,000 are authorized for safety and performance upgrades.

Program Description

The objective of the Space Shuttle program is to support the nation's launch requirements while balancing the goal of mission accomplishment with the primacy of program safety. Because of its unique capabilities, the Space Shuttle remains the cornerstone of America's space program. The Shuttle Orbiter is the world's first reusable space vehicle which can be reconfigured for a variety of payloads and missions. In addition to the transportation of personnel and equipment to orbit, the Space Shuttle stands alone among the world's space systems, due to its ability to retrieve material from space for repair or return to Earth. The Space Shuttle will serve as the primary transportation system for the assembly and operation of the International Space Station.

Committee Views

The current focus of the Space Shuttle Safety and Performance Upgrade program is primarily on meeting the requirements of the International Space Station assembly sequence. Many of these upgrades are intended to improve the performance of the Shuttle required by the increase in the inclination of the Space Station orbit to 51.6 degrees, a change which was made in order to accommodate the participation of the Russians. A portion of this upgrade program is intended to prevent damage to the orbiters by the ever-increasing threat of collision with orbital debris, especially during the assembly sequence, where vulnerable areas of the orbiter will be

exposed to greater hazards. Another focus of the upgrade program is avionics and fuel cells.

NASA has set a requirement to reduce the risk of losing a Shuttle, stating that its upgrade program will enable safe and efficient Shuttle operations during the Space Station assembly and operation. The Aerospace Safety Advisory Panel reported to the President last fall that safely accomplishing this goal may require surge operations increasing the annual launch rate to 8 or 9 missions "which may be feasible with additional resources." Further, the Chief Executive Officer of United Space Alliance testified on March 13, 1997 that accurate estimates on cost savings this early in the current six-year contract are difficult to make. This testimony suggests transfer of funding from the Shuttle program to other NASA programs should be given close scrutiny by the agency as to the impact on safety.

The Committee has met the President's request for the Safety and Performance Upgrade program, and encourages NASA to use any cost savings in the Shuttle program for an accelerated upgrade schedule.

Sec. 101(4). Payload and Utilization Operations

Sectional Analysis and Recommendation

$247,400,000 in FY 98 and $178,600,000 in FY 99 are authorized for Payload and Utilization Operations.

Program Description

This program supports the processing and flight of Shuttle payloads.

Committee Views

The en bloc amendment offered by Mr. Rohrabacher and Mr. Cramer and adopted at full committee markup (4/16/97), added $20 million to this budget line in FY 98 and increased the FY 98 total authorization for NASA accordingly. Due to delays in the assembly schedule of the International Space Station, and as a result of the redirection of funding away from science programs to offset the costs associated with those delays, $20,000,000 has been added to this budget line to allow NASA to undertake continuing life science and microgravity activities on the Space Shuttle. This will contribute to the productivity of microgravity research capability in the near term as well as when the Space Station becomes operational.

Section 102. Science, Aeronautics, and Technology

Sec. 102(1) Space Science

Sectional Analysis and Recommendation

$2,079,800,000 in FY 98 and $2,085,400,000 in FY 99 are authorized for Space Science. This authorization represents an increase of $36,000,000 in FY 98 and $60,000,000 in FY 99 over the President's request.

Program Description

There are two general science areas within space science: (1) physics and astronomy and (2) planetary exploration.

Committee Views

The Committee considers space science to be one of the core science programs at NASA, and thus, one of the highest priority missions of NASA. The runout for Space Science in the FY 97 budget request was on a downward slope. In FY 98, the runout for space science is healthy and encouraging to those who support basic research.

Gravity Probe-B

Gravity Probe-B (GP-B) is a science mission designed to test Einstein's theory of General Relativity. This is one of the few space missions NASA has planned with relevance to fundamental physics. The Committee encourages NASA to continue funding GP-B from FY 99 through completion at the agreed to April 1996 Program Cost Commitment levels.

Solar-B

Solar-B will be a collaborative mission with the Japanese. Solar-B is the next mission in the planned series of Solar Terrestrial Probes. Solar-B will complement NASA's current set of solar observing spacecraft including NASA's participation in the European Space Agency's SOHO mission. The intent of Solar-B is to give scientists a better understanding of space weather. The funding included for Solar-B will allow NASA to place instruments on board the spacecraft.

Near Earth Object Survey

$3,400,000 in FY 98 and $3,400,000 in FY 99 are authorized for the Near Earth Object (NEO) Survey. The Committee has long supported efforts to detect and catalogue near Earth objects, such as asteroids and comets, which may cross the plane of Earth's orbit and present an impact threat to the planet. Currently, NASA's plans for NEO detection will take some thirty years to complete. The Committee report (H. Rept. 103-654) on NASA's FY 95 authorization directed NASA to draft a program plan and cost estimate for cataloging near-Earth objects within ten years. In response, the Near Earth Object Survey Working Group, assessed several options for increasing the pace of NEO detection. One of the recommendations was to upgrade the Air Force Ground-based Optical Deep Space Surveillance System (GEODSS) and several large telescopes on Mt. Haleakali in Hawaii with Charged-Coupled Device (CCD) imagers being developed at the Lincoln Laboratory. $3,400,000 is provided in this bill each year to implement this upgrade of GEODSS and accelerate the Near Earth Object Survey. The Committee acknowledges and agrees with NASA's desire not to be the lead agency for space surveillance. However, NASA can do more to support the Air Force in its space surveillance mission and the Committee encourages NASA to baseline at least this level of funding to support Air Force space surveillance activities beyond FY 99.

Clementine 2

In FY 96, Congress initiated the Clementine 2 mission in the Air Force budget as a follow-up to the Defense Department's first Clementine mission in 1994. The first mission was an advanced concept technology demonstration (ACTD) which demonstrated advanced small satellite technology in space. While proving these technologies in space, the first Clementine mission also obtained the first complete map of the moon, giving scientists a low-cost opportunity to do science on a Defense Department technology mission. Like its predecessor, Clementine 2 is an ACTD. Clementine 2 will visit one or more near-Earth asteroids and launch probes into their interior. The resulting debris cloud can then be analyzed to determine the chemical content of the asteroid. NASA's Deputy Associate Administrator for the Space Shuttle, Steve Oswald, testified before the Space and Aeronautics Subcommittee on March 13, 1997 that NASA has an interest in launching the Clementine 2 spacecraft for the Air Force. The Committee encourages NASA to continue to examine the feasibility of such a mission. Dr. Eugene Shoemaker, co-discoverer of the Shoemaker-Levy Comet and chief scientist for both Clementine missions, testified before the Subcommittee on Space and Aeronautics on April 10, 1997 that Clementine 2 is the only mission in planning that will impact and characterize an asteroid directly. In order to ensure that this opportunity to do science is utilized and that the scientific community has the opportunity to leverage the Air Force investment in Clementine 2, the Committee directs NASA to commit $5 million in FY 98 and $5 million in FY 99 for scientific support to the mission. In addition to the low-cost science opportunity that Clementine 2 offers, the Committee believes that the mission's advanced technologies may prove useful to NASA in the future. Thus, NASA will benefit indirectly from the mission.

Mission Operations and Data Analysis

The Committee believes that with the amount of spacecraft in orbit, an increase in the Mission Operation and Data Analysis (MO&DA) program is essential to properly analyze the data. The MO&DA account in the Office of Space Science currently supports 22 planetary, astrophysics and space physics missions and plans to be flying 29 spacecraft by the end of FY 98. In contrast, 18 missions were flown at the beginning of FY 95. The appropriated amount for MO&DA in FY 95 was $544.6 million. In FY 98 the request is $507.4 million. On average, the cost for analyzing mission data is about one third less than it was in FY 95. The purpose of the MO&DA program is to maximize the scientific return from NASA's investment in spacecraft and other data selection sources. Funding supports satellite operations during the performance of the core missions, extended operations of selected spacecraft, and ongoing analysis of data after the usable life of spacecraft has expired. The increase in MO&DA, $22 million in FY 98 and $38 million in FY 99, is provided specifically for data analysis.

Astronomy and Astrophysics

Ms. Lofgren offered and the full committee agreed to the following report language.

The Committee is concerned over the plans for long term support for basic research in astronomy and astrophysics. Although the first priority recommended by the "Bahcall Report" on the future of astronomy addressed core funding for basic research grants and for operation and maintenance of existing facilities, these have generally lagged in agency planning.

In addition, the Committee is concerned over the extent to which the major funding agencies, NSF and NASA, have coordinated their respective plans for basic research. NASA has taken an increasing share of basic research responsibility in astronomy because of the need to complement major facility class missions such as the Hubble Space Telescope, the Advanced X-Ray Astrophysics Facility and the Space Infrared Telescope. However, basic research support associated with these missions will be episodic in nature and directly associated with the mission lifetimes. NSF must address more fully the need to provide ongoing stable and balance support for basic research. The Committee urges NSF and NASA to conduct a joint review of the division of responsibilities and funding for core support in astronomy and astrophysics and to develop a plan which addresses the long term needs of the science community in this area.

Sec. 102(2) Life and Microgravity Sciences and Applications

Sectional Analysis and Committee Recommendation

$234,200,000 in FY 98 and $249,800,000 in FY 99 are authorized for the Office of Life and Microgravity Sciences and Applications. $20,000,000 in FY 98 will augment funds to provide additional Space Shuttle life science and microgravity flight opportunities. $2,000,000 in each fiscal year are for breast and ovarian cancer research.

Program Description

The Office of Life and Microgravity Sciences and Applications (OLMSA) conducts the basic research required to enable human space flight and is responsible for the health of astronaut crews who live and work in space. OLMSA is responsible for carrying out the NASA-National Institutes of Health (NIH) Protocol, which has served to make space-based biomedical research relevant to other basic health research.

Committee Views

The en bloc amendment offered by Mr. Rohrabacher and Mr. Cramer and adopted at full committee markup (4/16/97), added $20 million to this budget line in FY 98 and increased the FY 98 total authorization for NASA accordingly.

The Space Station research function of OLMSA is now under the management of the Human Exploration and Development of Space Enterprise. The long-term impact of this short term vision on OLMSA may be the undesired distancing of NASA's microgravity research activities from the scientific and biomedical research communities on which these activities rely for high quality basic research. This bill places the Space Station research funding under the administration of OLMSA.

The Committee views with concern the growing gaps in life and microgravity science and applications flight opportunities prior to the commencement of Space Station operations. The seriousness of the situation was attested to by several of the witnesses at the April 10, 1997 hearing of the Subcommittee on Space and Aeronautics. The Committee believes that failure to maintain sufficient flight research activities over the interval prior to the installation of the Space Station's full utilization capabilities would have a deleterious impact on the nation's ability to capitalize on its intended research investment in the Space Station. As a result the Committee has added $20,000,000 to the Payload Utilization and Operations budget line and $20,000,000 to the Life and Microgravity Sciences and Applications budget line. The Committee believes that with international participation and efficient reuse of existing hardware, those funds could support flight research opportunities in each of the next three years.

The Committee supports the recent formation of the National Space Biomedical Institute in Houston, Texas. However, to be successful, it is imperative that the Institute establish a strong management plan as soon as possible. In addition, the Institute needs to develop a transition plan to deal with the planned decreases in NASA's funding support. NASA will support the biomedical institute at approximately $10 million a year for the first four years. At the beginning of the fifth year, NASA will decrease funding by ten percent annually until the core funding is at 60 percent of the initial level. Additional funding for the institute will be procured through grants awarded from NASA and other government agencies, universities, and also from private industry. The Committee feels that if proper funding is not forthcoming from outside sources, valuable research will be lost.

Sec. 102(3) Mission to Planet Earth

Sectional Analysis and Recommendation

$1,417,300,000 in FY 98 and $1,446,300,000 in FY 99 are authorized for Mission to Planet Earth. $50,000,000 in each fiscal year are for commercial Earth science data purchases. $8,000,000 in FY 98 are for continuing operations of the Midcourse Space Experiment. $10,000,000 in each fiscal year are for the lightning mapper.

Program Description

Mission to Planet Earth (MTPE) is NASA's contribution to the Interagency U.S. Global Change Research Program and its largest component. The program consists of a core system known as the Earth Observing System (EOS). EOS, in turn, consists of three series of three remote sensing satellites each, the AM series, which crosses the equator in the morning, the PM series, which crosses the equator in the afternoon, and the Chem series, which looks at atmospheric constituents and chemical behavior. The ground element of the EOS system is known as the Earth Observing System Data and Information System (EOSDIS) and is the most complex civil data management system ever designed. MTPE was initiated in 1990 and is expected to run through 2022. Its cost was estimated by the U.S. General Accounting Office to be $33 billion be-

tween FY 91 and FY 22 although NASA believes a lower life cycle cost will be realized. Collectively, EOS comprises about two-thirds of MTPE's budget.

In addition to EOS, Mission to Planet Earth has several small satellite programs intended to do research into specific environmental phenomenon over short timeframes. These include Flights of Opportunity, which may involve placing a particular Earth remote sensing sensor on any available and appropriate orbital platform, and the Earth System Science Pathfinder (ESSP) program, which involves a series of low-cost missions designed to give MTPE the flexibility that EOS lacks.

Committee Views

NASA has made progress in implementing past recommendations by the Committee to reduce the cost of Mission to Planet Earth through new technology, improved coordination, and leveraging of private sector investments in remote sensing and information capabilities. NASA has pledged that it will reduce the annual cost of Mission to Planet Earth by 30 percent per year after the year 2000. While the Committee welcomes these improvements, their success will ultimately be measured by NASA's consistent commitment to them. With that in mind, it was disturbing to note that the Commercial Earth Science Data Purchase Program was discontinued in the FY 98 budget request and that the budget of the Commercial Remote Sensing Program (CRSP) at Stennis Space Center was cut, even though the total MTPE budget is increasing and the CRSP has been given more responsibilities.

For FY 98, the Committee directs NASA to continue the Commercial Earth Science Data Purchase Program at Stennis Space Center and sets aside $50,000,000 for this purpose. Furthermore, the Committee directs NASA to take over operations of the Midcourse Space Experiment (MSX) satellite for the purposes of determining how this new technology can be used in the program's baseline architecture and sets aside $8,000,000 for this program. The en bloc amendment offered by Mr. Rohrabacher and Mr. Cramer and adopted at full committee markup (4/16/97), requires that prior to the obligation of funds, NASA shall conduct an independent scientific review of MSX data products to determine that they meet Mission to Planet Earth's science requirements.

The en bloc amendment offered by Mr. Rohrabacher and Mr. Cramer and adopted at full committee markup (4/16/97) authorized, from within existing funds, $10 million in FY 98 and FY 99 for the "lightning mapper." The lightning mapper is a technology development program intended to create a follow-on to NASA's Lightning Imaging Sensor (LIS). Ideally, this follow-on mapper will become an interagency project that could serve both research and operational requirements. As is the case with MSX, an independent review of the scientific requirements for the lightning mapper is required prior to obligating any funds.

Sec. 102(4) Aeronautics and Space Transportation Technology

Sectional Analysis and Recommendation

$1,769,500,000 in FY 98 and $1,816,400,000 in FY 99 are authorized for Aeronautics and Space Transportation Technology of which Aeronautical Research and Technology is $915,100,000 in FY 98 and $832,400,000 in FY 99; Advanced Space Transportation is $696,600,000 in FY 98 and $818,600,000 in FY 99; and Commercial Technology is $157,800,000 in FY 98 and $165,400,000 in FY 99. The Committee recommends funding for High Performance Computing and Communications (HPCC) at a level of $35,700,000 in FY 98, which reflects a reduction of $10,000,000. This represents the amount requested for the Next Generation Internet program. Out of the Commercial Technology line, $10,000,000 in each fiscal year are authorized for business facilitators which receive 40 percent State matching funds and obtain significant participation from local community colleges. Out of the Advanced Space Transportation Technology line, $333,500,000 in FY 98 and $313,900,000 in FY 99 are authorized for the X-33; $300,000,000 in FY 98 and $425,000,000 in FY 99 are authorized for a competitive award of a contract to develop, build, flight test and procure an experimental SSTO vehicle which will be a complementary follow-on to the X-33. The en bloc amendment offered by Mr. Rohrabacher and Mr. Cramer and adopted at full committee markup (4/16/97) specifically authorized $40,770,000 in FY 99 for the Advanced Space Transportation Program. The additional SSTO X-vehicle program, originally authorized at $450 million in FY 99 was reduced by $25 million and this amount was transferred to the Advanced Space Transportation Program in FY 99.

Program Description

NASA has restructured its Aeronautics and Space Transportation Enterprise by the incorporation of Space Transportation and Commercial Technology programs into Aeronautics. The Research and Technology Base, High Speed Research, Advanced Subsonic Technologies, and the High Performance Computing and Communications programs form the bulk of NASA's aeronautical research efforts. The core of these programs can be found in the Research and Technology Base where the focus is leading-edge research in propulsion and structures. Development of technologies and environmental research required prior to a decision to build a High Speed Civil Transport are the main focuses of the High Speed Research Program. The High Speed Research Program will terminate in FY 02. Significant challenges will have to be overcome before the goal of the High Speed Civil Transport—a safe, environmentally friendly supersonic transport whose cost efficiencies rival today's subsonic long-range aircraft—can be met.

Committee Views

On July 25, 1996 the President established the White House Commission on Aviation Safety and Security and assigned it three specific mandates: to assess the future threat to security; to provide a framework for regulation of the aviation industry of the future; and to assess advances in technology and how they can best be

used. On February 12, 1997 the final report of the Commission was delivered to the President. The principal recommendation of the Commission was that the focus of government and industry should be to reduce the rate of accidents by a factor of five within the next decade, and that a national air traffic control system capable of facilitating this be operational by 2005. The agencies which will be involved in this initiative are principally the Federal Aviation Administration, DoD, and NASA.

NASA's role in this effort will be primarily in the area of human factors research due to the fact that the majority of aviation accidents involves human error. NASA will contribute expertise in areas it has already conducted research in, such as more efficient terminal area control and advanced air traffic control systems. NASA's proposed share of this initiative is $500 million, though funding profiles have not been provided to Congress.

Given that the Committee has not been provided with a detailed plan on NASA's participation in this initiative, it is premature to judge the level of committed resources and the content of the program. Thus, the Committee expects that funding for this program will not be pursued prior to the budget submission for Fiscal Year 1999. Further, the Administration should consider the work already performed by the agency in human factors research, advanced air traffic control technologies, and terminal area productivity in the final determination of funding levels within NASA for this initiative.

The Paramount Goal of Cheap Access To Space

After maintaining safety of the Space Shuttle for the astronauts who fly on it, the Committee believes the highest priority in federal civil space transportation is the radical reduction of the cost of launching people and cargo into space and returning them to Earth. This Committee has long supported the focused experimental demonstration of technologies which can lower space transportation costs, and the development and implementation of policies which foster a free and competitive market in space transportation services. The Committee believes that both advanced technology and competitive markets are required to dramatically lower space transportation costs.

Cheap access to space is important for several reasons. One is the reduction of costs borne by the American taxpayer for ongoing and planned federal space activities, including human space flight, space science, space technology research and development; and broader requirements for non-emergency space transportation services for civilian and national security needs. A more important long-term goal is the enabling of new, unforeseen civil and commercial space activities which offer public and or private benefit to American citizens.

In that context, the Committee believes that one of the highest priorities of the Federal Government's efforts to enable lower cost, commercially developed and operated space transportation systems is opening the space frontier to science and commerce.

Advanced Space Transportation Technology Program—In General

In the past year, NASA's Advanced Space Transportation Technology activities have demonstrated significant progress, undergone significant organizational change, and assumed expanded responsibilities both for NASA and the broader space community.

During 1996 and early 1997, the Advanced Space Transportation Technology program has seen the conclusion of a very successful DC-XA project, the restructuring of the X-34 program in ways responsive to this Committee's concerns, the selection of an X-33 design and rapid progress on several important milestones in that program. The Committee commends the quantity and quality of success this program is producing across the board.

With the elimination of the Office of Space Access and Technology, an action which concerned this Committee, the former Code X's Advanced Space Transportation Division was transferred to the Office of Aeronautics, creating the Office of Aeronautics and Space Transportation Technology. Although the Committee might have preferred preserving this activity as a free-standing Code, there are good historical reasons for the marriage of NASA's aeronautics and advanced space transportation efforts. In many ways, NASA's efforts to promote cheap access to space are akin to its historic role of promoting technological leadership in aviation, including building a strong cooperative relationship with industry. Furthermore, it is the Committee's impression that the Associate Administrator is strongly committed to the success of the Advanced Space Transportation Technology effort.

Nevertheless, the Committee is concerned about the potential for losing focus in the Advanced Space Transportation function's Reusable Launch Vehicle program. The Administrator and Associate Administrator are reminded that the RLV program, and its component DC-XA, X-34, and X-33 projects were created with this Committee's approval as experiments in lean project management as well as technological endeavors. Because of the immense importance of these and newer advanced space transportation initiatives, the Committee will carefully monitor the progress of this Office and the potential impact of any organizational changes on the cost, timing, and prospective success of these initiatives.

The Committee also takes note of the growing popular consensus that achieving cheap, reliable, and plentiful access to space is our nation's paramount space challenge for civilian, commercial, and national security purposes. The NASA Administrator has been a tireless and inspiring advocate for the critical need for cheaper, more robust space transportation, including new and innovative propulsion systems and technologies, as well as vehicle designs and commercial partnership arrangements. The Committee demonstrates its support for this priority by adding the majority of the increase in NASA's budget during FY 98 and FY 99 to the Advanced Space Transportation Technology account.

DC-XA (Clipper Graham)

The Committee notes with sadness the accident which destroyed the Delta Clipper-Experimental (Advanced) vehicle upon landing after its fourth test flight. The Committee was pleased that the DC-XA demonstrated rapid re-flight in its second and third test

flights, thanks largely to the courage of the NASA DC-XA project manager. The Committee commends Administrator Goldin for, and joins in, his statements that occasional failure must be acceptable if NASA is to push back technological barriers to the scientific exploration and commercial development of space.

The Committee expresses regret that NASA did not install a more operator-friendly and redundant landing gear system in the DC-XA because of limited funds. The Committee generally supports the idea of buying multiple copies, or at least sufficient spare parts, for X-vehicles like the DC-XA, the X-34, and the X-33. Finally, the Committee encourages NASA to pursue future technology demonstrations which would support such vertical take-off and landing concepts as pioneered by the DC-X and DC-XA, both for eventual commercial and military application.

X-34

The Committee strongly supports NASA's restructuring and redefining the purpose of the X-34 project. Over the past years the Committee has received testimony, and staff briefings, which suggest that it is dangerous to mix the need to demonstrate an experimental technology with the commercial need to build a profitable system. The new X-34 is a pure "X-vehicle", and will play an important role in developing flight test expertise which can benefit the X-33. The X-34 will serve as an important technology testbed for many X-33-complementary technologies which may be incorporated into X-33 or commercial reusable launch vehicles, as well as future integrated advanced technology demonstration vehicles (X-vehicles).

Because of this newly-focused and vital role of the X-34, and the lessons learned from not investing more in the DC-XA testbed itself, the Committee supports NASA's plan to fund a second copy of the X-34 vehicle.

X-33

The Committee was pleased by NASA's timely awarding, and the Vice President's announcement, of a Cooperative Agreement for Phase Two of the X-33. The project will be technically and organizationally challenging and the Committee will closely watch its progress and schedule. The Committee is strongly supportive of NASA and its industry partners embarking on the nation's flagship effort to revolutionize access to space.

The Committee also wishes to specifically commend the X-33 industry team, and the team leader Lockheed Martin in particular, for the significant investment of financial and human resources they are making in this program, and the attention given this program at the highest executive levels. Because the civil space program belongs to the American people, the Committee also thanks the industry team for its efforts to increase public awareness and understanding of the importance of cheap access to space.

The Committee does remain concerned about the lack of redundancy in flight hardware for the X-33 test program. The lesson of having more than one copy of the test article was painfully relearned during the DC-XA program, and is being addressed for the X-34 program. The Committee understands that although NASA

does not intend to build a second vehicle copy, it may submit a reprogramming request to fund additional spare parts.

Advanced Space Transportation Program

Since its creation in FY 97, the Advanced Space Transportation Program (ASTP) has had several different, and sometimes conflicting, purposes. With the FY 98 budget submission NASA appears to have clarified the purpose of ASTP, and is making progress in refocusing the disparate activities towards this new purpose.

The Committee supports a significant and continuing program of investment in developing and demonstrating newer technologies than those used in the X-33. The Committee also supports the Low Cost Boost Technologies initiative, and recommends that NASA pursue the greatest possible cross-application of technologies between the RLV program and the technologies developed in support of a commercial low-cost booster.

Additional SSTO X-Vehicle

Historically, experimental programs either build two different designs or two or more copies of one design. This is because funding a second approach, at equal or lesser funding than the first, offers the program manager significant technical and programmatic redundancy in achieving the stated goals.

It was impossible under the declining outyear budget in the President's FY 97 budget submission to fund an additional SSTO X-vehicle concept, which at that time would have been a second design concept for the X-33 program. Even with the stable budget forecast of FY 98, the Committee does not wish to fund a second X-33 concept, for two important reasons. First, the X-33 Industry Team won the X-33 competition, and the right to succeed first in demonstrating SSTO technology. The Committee does not wish to suggest any lack of confidence in the X-33 Industry/NASA team's efforts, and so does not authorize a "backup concept" X-33 effort. The second reason is that the X-33 program makes payments to the Industry Team of approximately $980 million, roughly two thirds of which are for the X-33 vehicle and the remainder for full-scale ground technology demonstrations which will, presumably, help win investment confidence in the development of a full-scale commercial RLV. It would not be appropriate, nor is it affordable, to fund such "confidence building" activities for a second industry team.

Instead, based on Administrator Goldin's response to written questions and his public statements about "darkening the sky with X-vehicles," plus detailed NASA briefings to staff, the Committee wishes to endorse NASA's plans for building additional experimental vehicles to demonstrate more advanced technologies than the X-33, and to meet additional needs beyond NASA's requirement for a Shuttle replacement.

To that end, the Committee is authorizing in FY 98 and FY 99 an entire additional SSTO X-vehicle program that will be a complementary follow-on, and not a competitor, to the X-33. This will offer NASA and industry the opportunity to test, in flight, other concepts and newer technologies than the X-33. The Committee does not wish the additional SSTO X-vehicle program to be slowed

by waiting for the development of technologies unlikely to be mature enough by 1999 for integration into a flight test vehicle, such as rocket-based combined cycle engines.

The Committee has been concerned about the long-term potential for competition among operational RLVs. The Committee believes that authorizing this SSTO X-vehicle program will increase the likelihood that the United States will achieve cost reductions as well as price reductions in commercial launch services using operational RLVs.

Commercial Technology

The amendment offered by Mr. Weldon (FL) and adopted at full committee markup (4/16/97), authorized, from within existing funds, $10 million in FY 98 and FY 99 for NASA business facilitators, also known as business incubators. This program is consistent with the stated mission of the agency particularly with respect to the Commercial Technology program within the Science, Aeronautics, and Technology budget. Business facilitators provide important resources for the startup of small, high-technology businesses in communities around the nation. Funding for these programs include a requirement for matching state funds. Not only will this requirement leverage the federal investment, it will link the success of the business facilitator to an active role played by the State government. Additionally, the Committee favors the requirement that this grant program be administered through a NASA Center that has experience with a business facilitator receiving state funds. This is a logical approach given the significant role State governments are asked to play in this program, since those Centers with past experience with State-funded business facilitators can provide the most effective analysis of the proposals. Further, the Committee encourages the NASA Administrator to provide adequate resources to the Centers which host business facilitators to ensure their success, and encourages the Administrator to provide updates to the Committee on the progress and accomplishments of business facilitators at the end of Fiscal Years 1998 and 1999.

Sec. 102(5) Mission Communication Services

Sectional Analysis and Recommendation

$400,800,000 in FY 98 and $436,100,000 in FY 99 are authorized for Mission Communication Services.

Program Description

The Mission Communication Services line provides the ground networks for every NASA flight mission from interplanetary spacecraft to the Space Shuttle. Services also include tracking, orbit and attitude determination, maneuver analysis, communications scheduling, spacecraft command, spacecraft health and safety data acquisition, and science data acquisition.

Committee Views

The Committee is concerned about the goals and status of consolidating many Mission Communications Services functions under

a Consolidated Space Operations Contract, and therefore directs NASA to provide the Committee with a report, as detailed in Sec. 128.

Sec. 102(6) Academic Programs

Sectional Analysis and Recommendation

$102,000,000 in FY 98 and $108,000,000 in FY 99 are authorized for Academic Programs, of which $31,300,000 in FY 98 and $33,800,000 in FY 99 are authorized for Historically Black Colleges and Universities; and $15,300,000 in FY 98 are authorized for the National Space Grant College and Fellowship Program.

Program Description

Academic Program goals are to promote excellence in the United States' education system through enhancing and expanding scientific and technological competence.

Committee Views

The amendment offered by Ms. Jackson Lee and adopted at full committe markup (4/16/97), added $5.8 million in FY 98 and FY 99 for Historically Black Colleges and Universities.

The Committee supports NASA's educational activities as an important means of generating student interest in mathematics and science.

Section 103. Mission Support

Sec. 103(1) Safety, Reliability, and Quality Assurance

Sectional Analysis and Recommendation

$37,800,000 in FY 98 and $43,000,000 in FY 99 are authorized for Safety, Reliability, and Quality Assurance.

Program Description

NASA's agencywide efforts to develop policies and practices to ensure safe operations and practices, quality controls, and reliable flight systems are funded under this account.

Sec. 103(2) Space Communication Services

Sectional Analysis and Recommendation

$245,700,000 in FY 98 and $204,400,000 in FY 99 are authorized for Space Communication Services.

Program Description

The Space Communications Services line provides electronic communications which are essential to the success of every NASA flight mission, from interplanetary spacecraft to the Space Shuttle. All Space Network major development activities such as TDRS Replenishment are funded in this budget line.

Committee Views

The Committee is concerned about the goals and status of consolidating many Space Communications Services functions under a Consolidated Space Operations Contract, and therefore directs

NASA to provide the Committee with a report, as detailed in Sec. 128.

Sec. 103(3) Construction of Facilities

Sectional Analysis and Recommendation

$159,400,000 in FY 98 and $188,900,000 in FY 99 are authorized for Construction of Facilities.

Program Description

The Construction of Facilities line provides funding for facilities modifications, upgrades, and minor construction.

Sec. 103(4) Research and Program Management

Sectional Analysis and Recommendation

$2,070,300,000 in FY 98 and $2,022,600,000 in FY 99 are authorized for Research and Program Management.

Program Description

This budget line funds personnel and related costs; supporting costs; travel; and research operations support.

Section 104. Inspector General

Sectional analysis and recommendation

$18,300,000 in FY 98 and $18,600,000 in FY 99 are authorized in FY 98 for the Office of Inspector General. This authorization represents no change from the President's request.

Program description

Funding for this account supports activities of the NASA Office of Inspector General in carrying out its responsibilities under the Inspector General Act of 1978, including conduct of independent audits and investigations of agency programs and operations, prevention and detection of waste, fraud and abuse in agency activities, and promotion of economy and efficiency within the agency.

Section 105. Total Authorization

Sectional Analysis and Recommendation

The total amount authorized under this Act for NASA is $13,881,800,000 in FY 98 and $13,925,800,000 in FY 99.

Section 106. Office of Commercial Space Transportation Authorization

Sectional Analysis and Recommendation

$6,000,000 in FY 98 and $6,000,000 in FY 99 are authorized for the Office of Commercial Space Transportation within the Department of Transportation.

Committee Views

The en bloc amendment offered by Mr. Rohrabacher and Mr. Cramer and adopted at full committee markup (4/16/97), added $200,000 in FY 98 and FY 99.

In addition to fulfilling its licensing responsibilities, the Office of Commercial Space Transportation should focus on supporting the development of industry-based standards. The resources of the Office can be more effectively used in recognizing existing government and non-government standards that are suitable for use in the space launch industry than in areas currently being managed by other agencies, i.e., space debris analysis, trade negotiations, etc. By fostering the development of industry-based standards, the Office can then use these standards as "material approved for incorporation by reference," rather than develop new and potentially burdensome federal regulations. The Office should also recognize the efforts by the State governments in developing standards and regulations for the conduct of space launch activities.

The Office should provide the resources to support the standards-issuing organizations in defining the standards needed, and the creation of the standards by the affected industry. In the international arena, other space faring nations are significantly ahead of the United States in the development of space related standards and are recommending their standards become the international standards recognized by the International Standards Organization. This role by AST would be in keeping with the additional findings to the 1988 amendments to the Commercial Space Launch Act, "the United States commercial space launch industry must be competitive in the international marketplace."

The Committee is concerned with the approach of the Office of Commercial Space Transportation to the licensing of pre-launch activities. The Office's approach is inconsistent with the realities of today's commercial space launch industry and an anachronistic interpretation of the Act. Despite significant technological developments in the commercial space sector, the Office continues to apply a geographical test in its definition of launch for the purposes of license coverage. In the recently published Notice of Proposed Rulemaking (NPRM) on licensing regulations and in recent correspondence with industry and with Members of Congress, the Office defines the commencement of launch as only those hazardous activities that take place once the launch vehicle enters a federal range from which flight will occur. This approach is discriminatory and seriously flawed. Today's launch vehicle operators conduct an array of hazardous pre-launch activities, in some cases thousands of miles away from the actual launch site and several weeks away from the actual launch date but nevertheless in direct support of a particular launch campaign. Consistency can be applied by treating different launch vehicles the same by licensing the hazardous activities by nature and their relationship to the licensed launch rather than on the basis of geographical proximity or imminence of flight. Any other approach discriminates against launch operators that happen to conduct launches in non-traditional ways (e.g., air or sea-launch).

Section 107. Office of Space Commerce

Sectional Analysis and Recommendations

$500,000 in FY 98 and $500,000 in FY 99 are authorized for the Office of Space Commerce within the Department of Commerce.

Program Description

The Office of Space Commerce assists the Secretary of Commerce in efforts to promote the commercial development of space through policy development, export licensing, and policy coordination through the interagency process.

Section 108. United States—Mexico Foundation for Science

Sectional Analysis and Recommendation

$1,000,000 in FY 98 and $1,000,000 in FY 99 are authorized for the United States—Mexico Foundation for Science.

Program Description

The en bloc amendment offered by Mr. Rohrabacher and Mr. Cramer and adopted at full committee markup (4/16/97) authorized, from within existing NASA funds, $1 million in FY 98 and FY 99 for the United States-Mexico Foundation for Science.

The non-governmental US/Mexico Foundation for Science was established in 1992 by the Governments of Mexico and the United States with the strong support of the research and business communities of both countries. The creation of the Foundation was the result of a year-long study funded by the MacArthur Foundation on how to improve US/Mexican scientific and technological cooperation. Each country provided equal financial support to the Foundation (a total of $4 million).

The Foundation's mission is to contribute to the technological and scientific strength of the two countries through fostering relevant research, training and human resource development, and promoting collaborative and comprehensive solutions of common problems.

The Foundation is uniquely structured to accomplish this mission. The Foundation's Board of Governors consists of high level and influential members from the Mexican Academy of Scientific Investigation, the National Academy of Medicine, and the Academy of Engineering and the U.S. National Academies of Science and of Engineering and the Institute of Medicines. In addition, there are representatives of both Mexican and American businesses who are members of the Board.

The Foundation is bi-national in structure and has the ability to be flexible in selection of priority areas which are defined as being of mutual interest and potential benefit to both countries. The Foundation has a proven track record of supporting high-quality research projects selected with a peer-review system. The Foundation also currently supports a visiting scientist program, a Hewlett Foundation training program in S&T policy and graduate and summer scholarship programs.

Mexico has agreed to provide additional funds to the Foundation, contingent upon a U.S. contribution.

Subtitle B—Restructuring the National Aeronautics and Space Administration

Section 111. Findings

Sectional analysis

Section 111 finds that restructuring NASA is essential to accomplishing space missions while balancing the federal budget; restructuring requires objective financial judgment; and, a formal economic review of NASA's missions and the federal assets that support them is required in order to plan and implement needed restructuring.

Section 112. Restructuring Reports

Sectional Analysis

Section 112 requires the Administrator to transmit a report to Congress, no later than 90 days after the date of enactment, on the agency's restructuring activities by fiscal year taken between July 31, 1995 and October 1, 2002. Not later than 180 days after the date of enactment, the President shall propose all enabling legislation to carry out actions described in the Administrator's report.

Committee Views

NASA continues to downsize its personnel and infrastructure. The Committee is interested in receiving a formal report on the actions NASA plans to take to restructure the agency. Specifically, the Committee wishes to review restructuring activities that lead to terminated or consolidated contracts; reductions in force; personnel or facilities relocations; sales, closures, or mothballing of capital assets or facilities; and any savings that result from these actions. The Committee also wishes to review the status of implementing the Zero Base Review, in particular, the roles and responsibilities of all NASA Centers.

In response to a Sense of the Congress amendment offered by Ms. Jackson Lee at full committee markup (4/16/97) and subsequently withdrawn, the Committee developed the following view:

The Committee believes that NASA, when requesting contract proposals as a result of downsizing activities, should first consider those proposals that indicate a willingness to hire personnel currently performing functions for which a contract will be awarded.

Subtitle C—Limitations and Special Authority

Section 121. Use of Funds for Construction

This section authorizes the use of funds appropriated for program purposes other than construction of facilities, personnel and travel-related costs in the Human Space Flight; Science, Aeronautics and Technology; and Mission Support accounts, for the construction of new facilities or repair of existing facilities at any location. The authorization is subject to a limitation that funds may not be expended for projects exceeding $500,000 until 30 days have passed following a report to the House Committee on Science and to the Committee on Commerce, Science, and Transportation of the Senate. This section would also provide for vesting of legal title in

the United States when funds are used under this section for grants to academic institutions for additional research facilities.

The Committee wishes to emphasize that the sole purpose of consolidating in one section the various provisions in previous authorization acts and bills concerning use of funds for construction of facilities purposes is to streamline and simplify the applicable legal authorities. This change from past practice should in no way be viewed as a dilution of the agency's authority to manage the construction of facilities program, or to realign the respective authorities and responsibilities of NASA Headquarters in relation to the Centers. With respect to the latter, the Committee expects the agency to establish the necessary internal procedures to ensure that construction of facilities decisions continue to be made in an orderly and fully justified manner.

Section 122. Availability of Appropriated Amounts

Section 122 provides that, to the extent provided in appropriations Acts, appropriations authorized for Human Space Flight; Science, Aeronautics, and Technology; Mission Support; and, Inspector General may remain available without fiscal year limitation.

Section 123. Reprogramming for Construction of Facilities

Section 123 establishes authority for the Administrator to increase the amount of funds authorized for specific construction of facilities projects, provided that the total authorization for construction of facilities is not increased as a result of such reprogramming actions. This section also authorizes the Administrator to use up to $10,000,000 of amounts authorized in this bill for construction of facilities for projects that result from new and unforeseen developments in the national civil space program, subject to notification to the House and Senate authorizing committees.

Section 124. Consideration by Committees

Section 124 establishes a requirement that the Administrator report in advance to the House and Senate authorizing committees the use of appropriated funds for a program where the Congress did not provide funding as requested; the amount of funds proposed to be used exceeds the amount authorized for the program under Title I, Subtitle A of this bill; or the program was not presented to the Congress in the President's budget request.

Section 125. Limitation on Obligation of Unauthorized Appropriations

Section 125 requires the Administrator to submit a report to the Congress and to the Comptroller General on FY 98 and FY 99 appropriations for programs not authorized under subtitle A of this bill or that exceed authorized amounts for specific programs. The report is to be submitted within 30 days following enactment of an appropriations Act for FY 98 and within 30 days following enactment of an appropriations Act for FY 99. Section 125 also requires the Administrator to publish a Federal Register notice seeking public comment on programs for which funds are appropriated but

which were not authorized in this bill, and limits the obligation of such funds until 30 days following close of the comment period.

Section 126. Use of Funds for Scientific Consultations or Extraordinary Expenses

Section 126 authorizes the Administrator to use funds appropriated for Science, Aeronautics, and Technology activities, in an amount not exceeding $30,000 for scientific consultations or extraordinary expenses.

Section 127. Mission to Planet Earth Limitation

$50,000,000 each year is authorized for the commercial Earth science data purchase program. In the past, NASA has resisted implementing such data purchases, even though the Committee has strongly endorsed them as a potential means of saving money. It was not until the White House Office of Management and Budget forced NASA to initiate a pilot program in Fiscal Year 1997 that NASA's Office of Mission to Planet Earth decided to explore the idea of leveraging private sector investments and to design and implement the program. The Committee commends the White House for moving NASA in this direction and applauds NASA's designation of the Commercial Remote Sensing Program (CRSP) at the Stennis Space Center as the lead center to implement this program. CRSP is the nation's premier program for stimulating private investments in space technology which meet federal science needs.

The bill directs NASA's CRSP to design and implement the commercial Earth science data purchase program. The Committee expects that the Office of Mission to Planet Earth will allow CRSP the same autonomy it enjoyed in the former Office of Space Access and Technology and which the data purchase program requires for ultimate success. Due to the importance of the commercial Earth science data purchase program, the bill places NASA's Earth Systems Science Pathfinder program on hold until such time as the Office of Mission to Planet Earth makes all data purchase program funds available to CRSP for obligation by CRSP at the Stennis Space Center. The Committee therefore expects NASA to expedite the commercial Earth science data purchase program.

The amendment offered by Mr. Coburn and adopted at full committee markup (4/16/97), prohibits NASA from transferring any appropriated Mission to Planet Earth funds to any museum. It also prohibits their use for the Man in the Biosphere Program, a program of the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Section 128. Space Operations

The Committee strongly supports the Administrator's goal of moving operational activities out of NASA and focusing the space agency's limited resources on scientific research and advanced technology development. There is at least some question, however, as to whether the model of the Space Flight Operations Contract should apply to the decentralized space operations activities contained in the Mission Communications Services, Space Communications Services, and other budget lines.

Over two years NASA has initiated, suspended, and reinitiated an effort to consolidate all non-human space flight space operations activities into a Consolidated Space Operations Contract (CSOC). This Committee does not wish to prevent NASA from pursuing this initiative. However, there have been concerns raised about the level of competition in the bidding process for this contract. The Committee is also interested in the ability of the emerging commercial satellite operations industry to fulfill some part of the CSOC requirements on a commercial, fixed-price basis, and whether that might not be more cost effective than a single, cost-plus-fee contract mechanism.

The Committee therefore asks for a study of various cost-effectiveness and level-of-competition issues regarding the CSOC before the consolidation proceeds to the five year contract award phase.

Section 129. International Space University Limitation

Section 129 prohibits funds from this bill from being used to pay the tuition or living expenses for employees of NASA to attend the International Space University.

Section 130. Space Station Program Responsibilities

The en bloc amendment offered by Mr. Rohrabacher and Mr. Cramer and adopted at full committee markup (4/16/97), added a new section to the bill. In brief, the new section prohibits the use of authorized funds to transfer International Space Station program responsibilities held as of October 1, 1996 from one NASA Center to another.

Title II—International Space Station

Section 201. Findings

The bill finds that the development, assembly, and operation of the International Space Station is in the national interest; it will be a unique and advanced laboratory for conducting microgravity research; it will create a framework for future international cooperation in large-scale science programs; and bringing capitalism and market mechanisms into the use, augmentation, and re-supply of the International Space Station may be an important means of reducing the program's cost to taxpayers and of increasing its benefits to the international partnership.

Section 202. Commercialization of Space Station

The Committee has consistently stated its interest, both in legislation adopted by the House of Representatives and in authorization and oversight hearings, in the greatest possible U.S. commercial participation in the operation, growth, servicing, and utilization of the International Space Station. This is motivated both by a desire to lower costs to U.S. taxpayers by bringing the efficiencies and the capital resources of competitive free enterprise to bear on the Space Station, and by the Committee's belief that Earth orbital space is an economic frontier of tremendous potential and that the International Space Station should be operated in a matter which helps open up this frontier to American enterprise.

To this end, the Act directs the Administrator of NASA to produce three reports for the Committee. The first is a short-term internal study of opportunities for commercialization of the U.S. portion of the International Space Station. The second is a 180-day external study of market interest in Station commercialization. The third is an annual report on how much interest private companies have shown by making proposals to NASA themselves, and how NASA has acted on those proposals.

Section 203. Space Station Accounting Report

The bill directs the Administrator to transmit to the Congress within 90 days of enactment a report which summarizes all Space Station-related agreements entered into with a foreign entity after September 30, 1993. The bill requires this report to include the costs of having entered into agreements in 1994 through 1996, including the costs that NASA expects to incur. The bill also requires an annual report on such foreign agreements reached during the previous fiscal year to be submitted to the Congress no later than 60 days after the end of each fiscal year. These annual reports shall also include an accounting of costs resulting from the aforementioned agreements during the previous year, as well as an estimate of future costs of those agreements.

Section 204. Report on International Hardware Agreements

Section 204 requires the NASA Administrator to report to the House and Senate authorizing committees, not later than 90 days after the date of enactment, on agreements that have been reached with foreign entities for the International Space Station. The report is to focus on agreements that have been reached with foreign entities to transfer to the foreign entity, the development and manufacture of hardware baselined to be provided by the United States and the impact of those agreements on U.S. operating costs and U.S. utilization shares. The section also requires, that 90 days before entering into any additional agreements, a report from the Administrator on the nature of the proposed agreement and the anticipated cost, schedule, commercial and utilization impacts of the proposed agreement.

The Committee is concerned about these types of barter arrangements and whether they are in the taxpayers' interest. Such agreements may be creating outyear obligations, the extent of which we are currently unable to determine. These barter arrangements may also be eliminating opportunities to bring U.S. commercial providers into the International Space Station, thereby reducing the potential of the Space Station to contribute to the commercial development of low-Earth orbit. The Committee does not intend by this language to overturn existing barter arrangements. However, the Committee has not had adequate insight into the agreements that have already been entered into by NASA. Under this Section, the Committee intends to have such insight into future agreements.

Section 205. International Space Station Limitations

Chairman Sensenbrenner and Ranking Member Brown offered a joint amendment at full committee markup (4/16/97) which was unanimously adopted by a division vote. This amendment added

Section 205 to the bill. In Section 205, the Committee directs the Administration to take several actions intended to create a decision process for permanently resolving the issue of Russia's failure to meet all of its obligations to the International Space Station partnership. First, NASA is prohibited from transferring funds or making in-kind payments to the Russian government or any of its contractors to perform work on elements that the Russian government has pledged to provide at its expense. NASA's practice of forward funding Russian performance on existing contracts in order to enable the Russian Space Agency to pay its contractors for non-contract work will be prohibited under this measure, enabling the Administration and Congress to have an honest estimate of the Russian government's degree of accountability for work that has not been performed on its elements. The measure exempts payments made for modifying the Functional Cargo Block, or FGB, which is Russian-built, but U.S.-owned.

Second, the amended bill directs NASA to develop a contingency plan within 30 days of enactment for removing/replacing Russian elements in the critical path of the International Space Station. The plan is required to have firm target dates for deciding whether Russian elements shall or shall not be baselined in the operational Space Station, which still must be completed by the end of 2002. NASA is required to include the costs associated with each decision, including the cost of not making it at the decision point and then being forced to replace a Russian critical path item after its decision point has passed. While the amendment gives NASA some flexibility in determining what its contingency options are for replacing each Russian element, the requirement for firm decision points deprives NASA of the ability to delay resolution. The Committee believes that this is the best means of ensuring that NASA's contingency plan will be executed and that decisions will be made in a rational manner.

Third, the Administrator is required to certify to Congress on the first of every month that Russia has, or has not, done the required work in the previous month and is capable of doing the work in the succeeding month, that is necessary for Russia to keep its commitments to the International Space Station, while maintaining the assembly complete stage in 2002 and the first element launch by October 31, 1998. The Administration, Congress, and the public will have accurate insight into Russia's ability, or lack thereof, to meet its obligations. In the words of Ronald Reagan, who said of international agreements that we must "trust, but verify," this is the verification.

Fourth, the President is required to decide and report to Congress by August 1, 1997, whether the United States will baseline Russian elements or find some mechanism for replacing them in the Station's design. Additionally, the President is required to certify the reasons for the decision and the cost implications of such a decision. Such decision shall include a judgment as to whether the first element launch will occur by October 31, 1998, and whether assembly complete will occur by December 31, 2002. If the President decides after August 1, 1997, to proceed with a permanent replacement of the Service Module or any other Russian element in the critical path, then he is required to certify to Congress the rea-

sons for this decision as well as the cost difference between making this decision before August 1, 1997 and some point thereafter.

Finally, the NASA administrator must certify to Congress that Mir meets or exceeds U.S. safety standards before placing any U.S. astronaut on the Russian Mir Space Station for any length of time beyond that during which the Space Shuttle is docked to the Mir. Such certification must be based on an independent review of the Mir Space Station's safety.

The Committee is imposing a decision process on the Administration for resolving the Station's problems. It is not imposing a solution on the Administration at this time in the hope and expectation that the Administration will resolve the issue itself. However, the Committee made clear in its discussions at the markup that it reserves the right and will have the opportunity during this budget cycle to recommend the imposition of particular solutions if the Administration does not succeed in its efforts to resolve the current Russian situation.

Title III—Miscellaneous Provisions

Section 301. Commercial Space Launch Amendments

This section amends Chapter 701 of title 49, United States Code, entitled "Commercial Space Launch Activities," which is a recodification of the Commercial Space Launch Act of 1984. The purpose of the amendments is to establish a statutory framework for the licensing of commercial reentry activities by the Secretary of Transportation; clarify certain provisions in Chapter 701; provide for criteria for accepting a license application; require regulations, on obtaining a license, be issued by the Secretary of Transportation; and require an annual report, on licensing activities for space transportation vehicles and the performance of the Office of Commercial Space Transportation, be submitted by the Secretary of Transportation.

The Commercial Space Launch Act is further amended to expand the definition of "launch services" to those activities directly related to the preparation of a launch site or payload facility. Under Section 70105, the Secretary of Transportation is directed to notify the authorizing House and Senate Committees within seven days after a license has not been issued within the deadline. The Secretary may establish procedures for certification of the safety of a launch or reentry vehicle. The Secretary is also given the authority to develop regulations establishing criteria for accepting an application for a license within the 60 days after receipt of such application. The Secretary is directed to establish criteria and procedures for determining the priority of competing requests from the private sector and State governments for property and services under section 70111. The term "license" is amended to "launch reentry or site operator license" under section 70112 on liability insurance.

Program Description

The Department of Transportation, through its Office of Commercial Space Transportation, is responsible for implementing Chapter 701 which authorizes the Secretary of Transportation to license and regulate the non-governmental space launch and reentry

of a vehicle and operation of a launch or reentry site. In addition, by virtue of Executive Order 12465, the Department has lead agency responsibilities within the Executive Branch to encourage, facilitate and coordinate development of commercial expendable launch vehicle operations by private U.S. enterprises.

Committee Views

When the Commercial Space Launch Act was passed in 1984 (P.L. 98-575) and when it was amended in 1988 (P.L. 100-657), Congress did not address the full range of space transportation activities that the private sector could undertake on a commercial basis. Specifically, commercial space activities involving reentry vehicles that are returned to Earth from Earth orbit were not encompassed, and were not intended to be encompassed, by the statute. The Committee wishes to establish the appropriate legal framework to ensure public safety is protected while minimizing regulatory burden, delay or uncertainty that could inhibit commercial exploitation of reentry capabilities. In addition to establishing a regulatory regime for commercial reentries, the Committee intends these amendments to address certain issues that have arisen regarding the definition of "launch," the extent to which activities before and after launch may be licensed or regulated, and applicability of the third party liability provisions of sections 70112 and 70113 of Chapter 701.

In establishing the legal framework for reentry, the Committee's approach is to treat reentry of a reentry vehicle the same as launch of a launch vehicle. Reentries described in section 70104(a) must be licensed, just as launches meeting these same criteria must be licensed. In addition, amendments to other sections of Chapter 701 grant to the Secretary the same authority and responsibility with respect to the licensing and regulation of the reentry of reentry vehicles as existing law provides to the Secretary with respect to the launch of vehicles.

An amendment to section 70102 also adds the phrase "from Earth" to the existing definition of "launch" in order to make clear the original intent of the Commercial Space Launch Act that the launch of a launch vehicle is an event that takes place from Earth, not from Earth orbit or otherwise from or in outer space. Although the definition of launch in the original Act lacks this explicit specification, the Act was otherwise quite clear that a launch for purposes of the license requirement takes place from a "launch site," which is defined in terms of a location "on Earth." Moreover, the legislative history of the Commercial Space Launch Act demonstrates that only launches from Earth were envisioned.

The amendment to section 70102 was originally prompted by a concern that the Department of Transportation was advocating the position that a reentry is subject to a launch license requirement on the grounds that reentry entailed the placing of a launch vehicle in a suborbital trajectory "from Earth orbit." Although the Department has since abandoned that position, the Committee wishes by this amendment to register its emphatic rejection of any interpretation of "launch" that would include space transportation activities that do not begin from Earth; such as reentry, the transfer of a satellite between one Earth orbit and another, or any other on-orbit

operation after a launch is completed and before reentry is initiated.

The Committee intends that for purposes of the license requirement, reentry begins when the vehicle is prepared specifically for reentry. By way of definition, the Committee intends the term to apply to that phase of the overall space mission during which the reentry is intentionally initiated. Although this may vary slightly from system to system, as a general matter the Committee expects reentry to begin when the vehicle's attitude is oriented for propulsion firing to place the vehicle on its reentry trajectory.

The Committee acknowledges that in order to issue a license the Department must be satisfied that an applicant has demonstrated capability to carry out a reentry safely and without jeopardy to critical national interests. The Committee also appreciates that, to evaluate capability, the Department may need to examine certain of the applicant's proposed procedures and activities that would precede initiation of reentry. However, the Committee wishes to make clear that these pre-reentry procedures or activities are not events requiring a license, nor otherwise subject to regulation. Rather, they would represent aspects of an application that the Department would have to measure against standards and criteria that the Department has established are necessary to evaluate capability to conduct the reentry. These standards and criteria may be generally applicable to all applicants or specific to a particular proposal. The Committee urges the Department to take the steps necessary to ensure that they are clearly articulated and understandable to license applicants.

These same principles should apply to the licensing of a launch. There has been much discussion about what activities, should be encompassed by the term "launch" for purposes of the license requirement. It is the Committee's view that there may be activities that precede flight that (1) are closely proximate in time to ignition or lift-off, (2) entail critical steps preparatory to initiating flight, (3) are unique to space launch, and (4) are inherently so hazardous as to warrant the Department's regulatory oversight under Chapter 701, For instance, once a launch vehicle is fueled and armed in preparation for a launch, whether from the ground or the air, the risk of an inadvertent ignition may be sufficiently high to justify an interpretation of launch that would encompass this pre-flight phase of the launch campaign.

The Committee recognizes that, given the very different preparatory process associated with individual launch vehicle systems, it may be difficult to pinpoint the same commencement of launch for all proposals. However, the Committee views with concern the Department's attempt to address this situation by using a license to indiscriminately cover all activities of a licensee at a launch facility before, during, and after a launch. The Committee believes that the Department can identify when a launch begins both for well-established launch systems as well as emerging systems. This would limit applicability of the Department's license requirement for purposes of obtaining a license and implementing the insurance and risk allocation provisions in Chapter 701.

The original Act intended that a launch ends, as far as the launch vehicle's payload is concerned, once the launch vehicle

places the payload in Earth orbit or in the planned trajectory in outer space. The Committee wishes to make clear that the Secretary has no authority to license or regulate activities that take place between the end of the launch phase and the beginning of the reentry phase, such as maneuvers between two Earth orbits or other non-reentry operations in Earth orbit; or after the end of a launch phase in the case of missions where the payload is not a reentry vehicle.

Sections 70112 and 70113, establishing an allocation of risk regime, are also amended to cover reentry in the same way that launches are covered. The Committee notes that these provisions apply to losses sustained as a result of licensed activities, (i.e., launches and reentries) not events or activities before launch, between launch and reentry, or after reentry. Once a launch or a reentry is completed no protection against third party liability is intended to be provided under Chapter 701 unless there is a clear causal nexus between the loss and the behavior of the launch or reentry vehicle. For instance, if, subsequent to a launch vehicle's successful deployment of a payload that is not a reentry vehicle, the payload returns to Earth and causes third party loss, the loss is not intended to be covered by sections 70112 and 70113. As another example, if during an airborne launch, the aircraft suffers an accident after the vehicle has separated from the aircraft and taken off, and the accident is not attributable to the launch vehicle, then this event is also not intended to be covered by sections 70112 and 70113.

To clarify applicability of sections 70112 and 70113 to licensed activities, the Committee recommends that the Secretary initiate a rule-making action to address both launch and reentry insurance and allocation of risk requirements as soon as reasonably practicable following enactment of this bill.

Two new sections were added to Chapter 701, Sections 70120 and 70121. Section 70120 requires the Secretary of Transportation within 6 months after the date of enactment, to issue regulations to give industry guidelines and procedures related to insurance, licenses and government indemnification. Section 70121 requires the Secretary of Transportation to submit an annual report on the activities undertaken under Chapter 701 and the performance of OCST.

Additional amendments authorizing criteria for license application acceptance

Section 301 also amends Chapter 701 to authorize the Secretary to issue regulations establishing criteria for acceptance of a license application. The acceptance or rejection must be made within 60 days of receipt of the application. The purpose of this amendment is to (1) limit the undue expenditure of Office resources on determining whether an application is viable, and (2) to provide the applicant with timely notice of whether the application will be accepted.

Section 302. Requirement for Independent Cost Analysis

Section 302 requires the NASA Chief Financial Officer to conduct independent cost analyses of projects estimated to cost in excess of

$75,000,000 in total project costs, and to report the results of the analyses to the Congress. The cost analysis is to occur before the project enters Phase C. The Committee views this provision as critical to its ongoing oversight and authorization responsibilities, as well as Congressional support for current and future NASA programs.

Section 303. Office of Space Commerce

This Section establishes the Office of Space Commerce within the Department of Commerce. The Office's primary responsibilities include: the promotion of commercial provider investment in space activities; assisting United States commercial providers in their efforts to do business with the United States Government; ensuring that the United States government not compete with U.S. commercial providers in the provision of space hardware and services otherwise available from U.S. commercial providers; promoting the export of space-related goods and services; representing the Department of Commerce in the development of United States policies in negotiations with foreign countries to ensure fair and equal trade; and seeking the removal of legal, policy, and institutional impediments to space commercialization.

Section 304. National Aeronautics and Space Act of 1958 Amendments

Reports to the Congress

Section 304 amends the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451) to require the President to submit to Congress the annual aeronautics and space report in May, rather than January; and to address in the report, activities carried out by government agencies on a fiscal, rather than calendar year basis. This change is made in order to give the Administration adequate time to prepare the report.

Disclosure of technical data

Section 304 also amends the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451) by the addition of provisions that authorize the Administrator at his discretion or at the request of a private sector entity, to withhold from public disclosure technical data generated in the performance of experimental, development, or research activities funded jointly by NASA and the private sector.

Under existing authority (42 U.S.C. 22454(b)), NASA is authorized to withhold from public disclosure for a period not to exceed five years, technical data that (1) results from activities conducted under an agreement entered into under section 203(c)(5) and (6) of the National Aeronautics and Space Act of 1958, and (2) would be exempt from disclosure as a trade secret or commercial or financial information privileged or confidential under the Freedom of Information Act if it were obtained from a non-governmental participant in the activities. However, this authority does not necessarily apply to the product of jointly-funded research and development initiatives.

The absence of appropriate protection for commercially-sensitive data can be an obstacle to industry involvement and investment in

cooperative projects with NASA. Private sector participation and cost-sharing in NASA projects could be encouraged by allowing temporary protection for certain kinds of commercially sensitive data that may emerge from cooperative initiatives. At the same time, the Committee supports fundamental principles of open access to Federal Government information that underlie the Freedom of Information Act.

The amendment set forth in Section 304 seeks to balance these competing interests. Subject to issuance of regulations implementing this provision, the Administrator is authorized to afford limited and temporary protection for up to five years of technical data generated in the course of joint NASA-private sector research activities and programs as long as such activities include cost-sharing by the industry partners. "Technical data" is defined as any recorded information, including computer software that is, or may be, directly applicable to the design, engineering, development, production, manufacture, or operation of products or processes that may have significant value in maintaining leadership or competitiveness in civil and governmental aeronautical and space activities by the United States industrial base. Regulations required to be issued are to include guidance for evaluating data from cooperative projects to determine whether it is encompassed by the definition of "technical data;" specification of the period(s) of nondisclosure for different types of technical data, including a requirement that the full 5-year nondisclosure period is available only if the private sector share of funding is at least 50 percent; and identification of those experimental, developmental, or research activities that could generate technical data protected under this amendment. The Committee believes that NASA should study whether the regulations should provide for a sliding scale that would provide longer periods of protection for larger amounts of cost-sharing by industry. Cost-sharing means the expenditure by industry of non-federal, private funds directly on the joint research activities.

Section 305. Procurement

This section establishes a program of expedited technology procurement to demonstrate how innovative technology concepts generated by commercial providers can quickly be brought to bear upon NASA space missions.

Subsection (a) creates a procurement demonstration program with a sunset provision of ten years. The purpose of this initiative is not to create additional requirements for the agency. Instead, the Administrator is expected to conduct this pilot program in the context of normal procurement activities for which NASA has already identified a mission requirement. Several programs, such as the Explorer program in space sciences and the New Millennium program, have a technology demonstration timeline and flight schedule that would seem to accommodate this section.

The Administrator is given special authority to hire, for limited term appointments, persons outside of NASA with expertise in relevant innovative technology concepts. In the past, NASA has been unreceptive to new solutions or ideas that came from outside the agency. This subsection is designed to generate creative solutions

from commercial providers which shall be applied to the missions of NASA.

Subsection (b) calls for a technology procurement initiative wherein the Administrator is required to certify that no functional equivalent of space hardware, technology, or service exists in the commercial sector or other, non-NASA federal agency before NASA can proceed with any procurement. The Administrator is required to comment in the Commerce Business Daily. This subsection is intended to ensure that NASA pursues "off-the-shelf" technology available from commercial providers or a non-NASA federal agency before soliciting a more expensive one-of-a-kind procurement.

Section 306. Acquisition of Space Science Data

This section requires NASA, to the maximum extent possible, to purchase space science data from commercial providers, where cost effective, and while satisfying scientific requirements. Acquisitions of space science data are to be carried out in accordance with applicable acquisition laws and regulations. Further, space science data is to be treated as a commercial item under applicable acquisition laws.

The purpose of this section is to encourage the Administrator of NASA to acquire space science data commercially. For those data sets with both scientific merit and commercial appeal, NASA can spur commercial enterprises while acquiring the data faster and cheaper.

Section 307. Commercial Space Goods and Services

This provision requires NASA to procure commercially available space goods and services when available. Furthermore, it prohibits NASA from engaging in activity that precludes or deters commercial investments in new space capabilities. This provision is consistent with the National Space Act and is derived from the White House National Space Policy of 1996.

Section 308. Acquisition of Earth Science Data

This provision of the bill directs NASA to purchase commercial Earth science data to meet the requirements of Mission to Planet Earth when such data is cost effective and satisfies scientific requirements. Furthermore, the bill directs NASA to treat such data as a commercial item under applicable acquisition laws.

The section also directs NASA to conduct a study to determine how commercial provider capabilities can be best used to meet Mission to Planet Earth's baseline scientific requirements. As part of the study, NASA is expected to determine what steps are necessary by both commercial providers and the government to make this program efficient and effective. Finally, the study and data purchase activity is required to be carried out by the Commercial Remote Sensing Program (CRSP) at the Stennis Space Center. CRSP is widely acknowledged as one of the nation's premier institutions for stimulating private investment in space capabilities that help meet government needs. Because CRSP is small, streamlined, and horizontally organized, the program succeeds largely because it is able to make decisions quickly and enjoys a degree of autonomy that reduces bureaucratic costs.

Section 309. EOSDIS Report

The Earth Observing System Data and Information System (EOSDIS) is the ground element of NASA's Mission to Planet Earth (MTPE). EOSDIS has been criticized consistently by the Committee on Science, the National Research Council, and the Earth Systems Science Applications Advisory Committee for: (1) being overly centralized; (2) insufficiently involving MTPE principal investigators in design and development; and, (3) for locking the MTPE program, which will run through 2022, into 1990s information technology at a time when information technology is changing overnight. In late 1996, these concerns proved well-founded when NASA was forced to issue a stop-work order for the first release version of the software due to the contractor's performance. If the EOSDIS Core System fails, then the nation's investment in Mission to Planet Earth is at risk. Consequently, the bill directs NASA to (1) analyze the capabilities, cost, and schedule of the Core System; (2) identify and analyze threats to the EOSDIS Core System's successful development and operation; (3) summarize NASA's plans and cost estimates for resolving each threat; and, (4) report these issues to the House and the Senate authorizing committees.

Section 310. Shuttle Privatization

Privatization of the Shuttle program is the next logical step beyond consolidation of existing contracts under a single prime, and should be carried out in a manner that provides for a safe and efficient transition to private enterprise. The Committee also supports the concept of a derivative of a reusable launch vehicle to satisfy the requirement for a manned successor to the Space Shuttle program. It is hoped that any such system will be operated by a commercial provider as will any operation of the Shuttle by and beyond 2012. The Committee views the goal of a privately operated follow-on to the Shuttle program as one that is achievable by this date but will reserve the right to monitor the progress of both programs and revise any milestones accordingly.

Section 311. Launch Voucher Demonstration Program Amendments

Launch Voucher Demonstration Program Amendments, Section 504 of the Fiscal Year 1993 National Aeronautics and Space Administration Act (P.L. 102-588) is amended by striking out outdated references to dates and Offices.

Section 312. Use of Abandoned and Underutilized Buildings, Grounds, and Facilities

In meeting the needs for additional facilities, the Administrator, whenever feasible, shall select abandoned and underutilized buildings, grounds, and facilities in depressed communities that can be converted to NASA facilities at a reasonable cost, as determined by the Administrator.

Section 313. Cost Effectiveness Calculations

When comparing the costs of NASA or a commercial provider engaging in an activity, the Administrator shall use full cost accounting principles in assessing NASA costs and shall compare this with the price the commercial provider would charge.

Section 314. Foreign Contract Limitation

The bill prohibits NASA from entering into any agreement or contract with a foreign government that gives the foreign government the right to recover profit in the event that such agreement or contract is terminated. Leaving aside the appropriateness of the "profit" concept in agreements or contracts between government agencies, the Committee believes that NASA should not enter into any agreements with a foreign government that creates the possibility that those foreign governments will have legitimate standing to make demands on the American taxpayer for any "profits" that go unearned from a terminated agreement. Although one would expect NASA not enter into agreements with such provisions due to its responsibilities as a steward of public funds and public trust, NASA did enter such an agreement with the Russian Space Agency.

Section 315. Authority to Reduce or Suspend Contract Payments Based on Substantial Evidence of Fraud

This section amends 10 USC 2307(h)(8) which deals with actions that certain federal agencies can take in the case of fraud by a contractor. Currently this section applies to DoD, the Department of the Army, the Department of the Navy, and the Department of the Air Force. The section allows these entities to suspend or reduce contract payments when there is substantial evidence that the request of a contractor for advance, partial, or progress payment under a contract awarded by that agency is based on fraud. This amendment would add NASA to the list of agencies that can use this authority.

Section 316. Next Generation Internet

Ensures that the Committee will have the opportunity to review and authorize the Next Generation Internet (NGI), while at the same time allowing for minimal on-going research in that program.

Committee Views

The progression of our country's computer networking technology plays a vital role in our nation's continued leadership in scientific research. The Committee, however, feels it necessary to develop more of a record before addressing funding for NGI, and is working with the Administration to develop a plan concerning NGI. The Committee expects to hold hearings on NGI in the future to better understand how it will further the goals of advancing network technologies.

Section 317. Limitations

Prohibition of Lobbying Activities

Prohibits the use of funds authorized by this Act for any activity whose purpose is to influence legislation pending before the Congress. This section does not prevent employees of the departments and agencies from communicating with Members of Congress to conduct public business.

Committee Views

The Committee is committed to ensuring that awards for research and education are used solely for those purposes. Funds should not be used for any purpose, other than that specified in the award. The Committee, however, does not exclude appropriate communications between the Executive Branch and the Congress.

Limitation on Appropriations

Disallows authorization of funds which are not specifically authorized to be appropriated by this Act for FY's 1998 and 1999, or by an Act of Congress in succeeding fiscal years.

Committee Views

This section emphasizes the Committee's position that the only funds authorized to be appropriated for the National Aeronautics and Space Administration are made available through this Act. It is the Committee's position that authorizations designating specific sums are required for appropriations of such sums to be authorized.

Eligibility for Awards

Requires the head of each federal agency for which funds are authorized under this act to exclude, for a period of 5 years, any person who received funds for a project not subject to competitive, merit-based review process after FY 97. This section is not applicable to the long-standing Cooperative Research and Development Agreement program nor awards to persons who are members of a class specified by law for which assistance is awarded according to formula provided by law.

Section 318. Notice

If any funds of this Act, or amendments made by this Act, are subject to reprogramming which requires notice to be given to the Appropriations Committees of the House of Representatives and the Senate, notice of such action shall be concurrently provided to this Committee and the Committee on Commerce, Science, and Transportation of the Senate.

If any program, project, or activity of the National Aeronautics and Space Administration is preparing to undergo any major reorganization, the Administrator of the National Aeronautics and Space Administration shall notify the Committees on Science and Appropriations of the House of Representatives and the Committees on Commerce, Science, and Transportation and Appropriations of the Senate no later than 15 days prior to such reorganization.

Committee Views

The Committee believes that such notice must be given if it is to carry out its oversight responsibilities under the Rules of the House.

Section 319. Sense of the Congress on the Year 2000 Problem

It is the sense of Congress that the National Aeronautics and Space Administration should give high priority to correcting the year 2000 problem in all of its computer systems to ensure effective

operation in the year 2000 and beyond. The National Aeronautics and Space Administration needs to assess immediately the risk of the problem upon their systems and develop a plan and a budget to correct the problem for its mission-critical programs. The National Aeronautics and Space Administration also needs to begin consideration of contingency plans, in the event that certain systems are unable to be corrected in time.

Committee Views

Despite knowing of the problem for years, the Federal Government has yet to adequately create strategies to address the year 2000 problem. The Committee believes Congress should continue to take a leadership role in raising awareness about the issue with both government and the private sector.

The potential impact on federal programs if the year 2000 problem is not corrected in an effective and timely manner is substantial and potentially serious. If federal computers are not prepared to handle the change of date on January 1, 2000, there is a risk to all government systems and the programs they support. It is imperative that such corrective action be taken to avert disruption to critical Federal Government programs.

Section 320. National Oceanographic Partnership Program

Sectional Analysis

The National Oceanic Partnership Program was established by Congress in the Fiscal Year 1997 Defense Authorization Act and enables the government to enter partnerships with non-government entities to study the world's oceans. The program is currently sponsored by the Navy. The bill authorizes NASA to participate. The Committee has included bill language specifically authorizing NASA participation in the National Oceanic Partnership Program. The Committee supports the goals of the Program to maximize efficiency in the execution of ocean research efforts among nine federal agencies, academia and industry. The Committee encourages NASA to take a proactive role in the Program via membership on the National Oceanographic Research Leadership Council; to use the Partnership Program mechanism to leverage NASA oceanographic resources; and to coordinate with ongoing and planned efforts of federal agencies and other entities having similar research requirements.

Section 321. National Science Foundation Antarctic Program

Sectional Analysis

The Committee has been very supportive of the National Science Foundations Antarctic Program. At the full committee hearing, "The United States and Antarctica in the 21st Century," the recommendation was made that if excess capacity is available on the Tracking and Data Relay Satellite System (TDRSS) it could be used by the NSF's Antarctic program. The Committee endorses this recommendation and encourages the NASA Administrator to give strong consideration in providing excess capacity of the TDRSS constellation to NSF's Antarctic program.

Section 322. Buy American

Requires any entity that is appropriated funds pursuant to this act or amendments thereto, to comply with sections 2-4 of the Act of March 3, 1933 (41 U.S.C. 10a-10c, popularly known as the "Buy American Act"). Requires that recipients of funds pursuant to this act shall be notified of subsection (a)'s requirement of compliance with the Buy American Act.

Committee Views

It is the view of this Committee that the Federal Government buy goods manufactured in the United States when feasible, where cost-effective, and practicable.

VI. COMMITTEE COST ESTIMATE

Clause 7(a) of rule XIII of the Rules of the House of Representatives requires each committee report accompanying each bill or joint resolution of a public character to contain: (1) an estimate, made by such Committee, of the costs which would be incurred in carrying out such bill or joint resolution in the fiscal year in which it is reported, and in each of the 5 fiscal years following such fiscal year (or for the authorized duration of any program authorized by such bill or joint resolution, if less than 5 years); (2) a comparison of the estimate of costs described in subparagraph (1) of this paragraph made by such Committee with an estimate of such costs made by any Government agency and submitted to such committee; and (3) when practicable, a comparison of the total estimated funding level for the relevant program (or programs) with the appropriate levels under current law. However, clause 7(d) of that rule provides that this requirement does not apply when a cost estimate and comparison prepared by the Director of the Congressional Budget Office under section 403 of the Congressional Budget Act of 1974 has been timely submitted prior to the filing of the report and included in the report pursuant to clause 2(l)(3)(C) of rule XI. A cost estimate and comparison prepared by the Director of the Congressional Budget Office under section 403 of the Congressional Budget Act of 1974 has been timely submitted prior to the filing of this report and included in Section VII of this report pursuant to clause 2(l)(3)(C) of rule XI.

Clause 2(l)(3)(B) of rule XI of the Rules of the House of Representatives requires each committee report that accompanies a measure providing new budget authority (other than continuing appropriations), new spending authority, or new credit authority, or changes in revenues or tax expenditures to contain a cost estimate, as required by section 308(a)(1) of the Congressional Budget Act of 1974 and, when practicable with respect to estimates of new budget authority, a comparison of the total estimated funding level for the relevant program (or programs) to the appropriate levels under current law. H.R. 1275 does not contain any new budget authority, credit authority, or changes in revenues or tax expenditures. Assuming that the sums authorized under the bill are appropriated, H.R. 1275 does authorize additional discretionary spending, as described in the Congressional Budget Office report on the bill, which is contained in Section VII of this report.

VII. CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

[The CBO estimate follows:]

CONGRESSIONAL BUDGET OFFICE
U.S. CONGRESS
WASHINGTON, D.C. 20515

June E. O'Neill
Director

April 21, 1997

Honorable F. James Sensenbrenner, Jr.
Chairman
Committee on Science
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

The Congressional Budget Office has prepared the enclosed cost estimate for H.R. 1275, the Civilian Space Authorization Act, Fiscal Years 1998 and 1999.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contacts for federal costs are Kathleen Gramp, Clare Doherty, and Rachel Forward, all of whom can be reached at 226-2860. The staff contact for the impact on state, local, and tribal governments is Pepper Santalucia, who can be reached at 225-3220; and the contact for the impact on the private sector is Lesley Frymier, who can be reached at 226-2940.

Sincerely,

James L. Blum

for June E. O'Neill

Enclosure

cc: Honorable George E. Brown, Jr.
Ranking Minority Member

CONGRESSIONAL BUDGET OFFICE
COST ESTIMATE

April 21, 1997

H.R. 1275

Civilian Space Authorization Act, Fiscal Years 1998 and 1999

As ordered reported by the House Committee on Science on April 16, 1997

SUMMARY

H.R. 1275 would authorize funding for civilian space programs for fiscal years 1998 and 1999 and revise federal policies governing those activities. Assuming the appropriation of the specified amounts, CBO estimates that enacting this bill would result in additional discretionary spending of $27.8 billion over the 1998-2002 period. Because H.R. 1275 could affect direct spending and revenues, pay-as-you-go procedures would apply. CBO estimates, however, that any such effects would be negligible.

H.R. 1275 contains no intergovernmental mandates as defined in the Unfunded Mandates Reform Act of 1995 (UMRA), and would not impose any costs on state, local, or tribal governments. The bill would provide various types of financial support to state and local governments. H.R. 1275 would impose new private-sector mandates, but CBO estimates that the cost of these mandates would not exceed the statutory threshold established in UMRA.

DESCRIPTION OF THE BILL'S MAJOR PROVISIONS

Most of the money authorized for the two-year period would fund activities of the National Aeronautics and Space Administration (NASA). In addition, H.R. 1275 would direct NASA to expand the role of commercial providers in meeting the agency's needs for data, hardware, and services, including support needed for the International Space Station, Mission to Planet Earth, and Space Science. For example, funding for a new Earth System Science Pathfinders program would be contingent upon $50 million being made available for commercial data purchases. NASA also would be required to submit a plan to privatize the space shuttle, reform procurement practices, and revise guidelines for data disclosure. In addition, the bill

would impose restrictions on the use of the appropriated funds, including limitations on the role of Russian components for the space station.

Title III would revise certain aspects of federal policy regarding commercial space launch activities, which are regulated by the Department of Transportation. It would authorize a total of $12 million in funding for fiscal years 1998 and 1999 for the Office of Commercial Space Transportation (OCST), and would expand OCST's licensing authority to include reentry vehicles, sites, and services. The office would be required to issue rules and reports on matters related to reentry operations and on the allocation of excess or underutilized federal launch services and property. The bill also would codify the practice of requiring nonfederal entities to reimburse the government only for the "additive" costs of using excess or underutilized launch services or facilities.

Finally, the bill would outline the statutory duties of the Department of Commerce in promoting exports, investments, and opportunities for commercial providers of space hardware and services. H.R. 1275 would authorize a total of $1 million for these functions over the 1998-1999 period.

ESTIMATED COST TO THE FEDERAL GOVERNMENT

The estimated budgetary impact of H.R. 1275 is shown in the table on the following page. For the purposes of this estimate, CBO assumes that the amounts authorized in the bill will be appropriated by the start of each fiscal year and that outlays will follow the historical spending trends for these activities. Although H.R. 1275 could affect offsetting receipts and revenues, we estimate that the effects would not be significant.

BASIS OF ESTIMATE

Spending Subject to Appropriation

This estimate is based on the yearly authorization ceilings specified by the bill for each of the three agencies. Hence, we assume that the $1 million authorized each year for the U.S.-Mexico Foundation for Science would be accommodated within the NASA totals by offsetting reductions elsewhere in the agency's budget.

	By Fiscal Year, in Millions of Dollars					
	1997	1998	1999	2000	2001	2002
SPENDING SUBJECT TO APPROPRIATION						
NASA and Other Space-Related Spending Under Current Law						
Budget Authority[a]	13,716	365	0	0	0	0
Estimated Outlays	14,286	5,922	784	91	91	73
Proposed Changes						
Authorization Level	0	13,888	13,932	0	0	0
Estimated Outlays	0	8,355	13,394	5,576	495	0
NASA and Other Space-Related Spending Under H.R. 1275						
Authorization Level[a]	13,716	14,253	13,932	0	0	0
Estimated Outlays	14,286	14,277	14,178	5,667	586	73

a. The 1997 level is the amount appropriated for that year. For 1998, $365 million in NASA funding has already been appropriated.

The costs of this legislation fall within budget functions 250 (general science, space, and technology), 370 (commerce and housing credit), and 400 (transportation).

CBO estimates that directing NASA to purchase space science and Earth system data from commercial providers when cost-effective would not significantly affect spending by agencies that rely on NASA for such information. Several agencies, including the U.S. Geological Survey, the Federal Emergency Management Agency, and the National Oceanic and Atmospheric Agency, currently buy remote sensing data from NASA at its marginal cost, which may be less than what they would have to pay if NASA had to acquire the information from commercial providers. Assuming that NASA would purchase commercial data only if the terms of the acquisition would be cost-effective governmentwide, this provision should not increase costs to the government. On the other hand, very few commercial ventures provide the kinds of data used by federal agencies, so is difficult to estimate any near-term savings for those agencies from this policy change. Other provisions of the bill would not have a significant effect on discretionary spending.

Direct Spending

The provisions in Title III regarding cost reimbursement for use of federal facilities or services could affect offsetting receipts, but we estimate that the impact would not be significant. The Department of Defense and NASA, the two agencies that make launch services or property available to nonfederal entities, currently base their fee structures on the "additive" costs of the activity. Hence, codifying this practice would have no effect on projected receipts.

Revenues

Other provisions in Title III could affect revenues but CBO estimates that any additional receipts from civil penalties associated with the OCST licensing activities required by this bill would be insignificant. DOT has never collected a penalty for a violation of the licensing and related requirements of the commercial space transportation program.

PAY-AS-YOU-GO CONSIDERATIONS

Section 252 of the Balanced Budget and Emergency Deficit Control Act of 1985 sets up pay-as-you-go procedures for legislation affecting direct spending or receipts through 1998. Enacting H.R. 1275 could affect direct spending and receipts because of provisions involving reimbursement for the use of certain federal services and facilities and civil penalties for compliance with space transportation regulations. CBO estimates, however, that these changes would have little or no impact.

ESTIMATED IMPACT ON STATE, LOCAL, AND TRIBAL GOVERNMENTS

H.R. 1275 contains no intergovernmental mandates as defined in UMRA, and would not impose any costs on state, local, or tribal governments. The bill would provide various types of financial support to state and local governments. Currently, about $750 million of NASA's budget goes to academic institutions, including public universities, for research and development projects. In addition, state and local governments are the beneficiaries of NASA's activities. For example, NASA's satellite images are used for land use planning and state and local government management. With the reauthorization of NASA's programs, this assistance would continue.

The bill also would broaden the scope of DOT's commercial space transportation program to include in-space transportation and reentry activities, rather than just launch activities. One of the purposes of this program is to facilitate the participation of state governments in providing infrastructure, such as launch sites, for space transportation. The Secretary of Transportation is required to make excess launch property available to state governments. By broadening the scope of the program, the bill would enable states to receive additional assistance if they choose to participate.

Two provisions in the bill would affect eligibility for federal grants. The first would require compliance with the Buy American Act. The second would exclude grantees from consideration for awards if they had received funds under any other federal grant program that was not subject to a competitive, merit-based award process. The latter provision could change the allocation of funds among grant recipients, including state universities and colleges. CBO cannot predict how the share of research funding awarded to public universities and colleges would change because of this provision.

ESTIMATED IMPACT ON THE PRIVATE SECTOR

Section 301 would require operators of reentry sites to obtain a license from the OCST for reentry sites, vehicles, and services. CBO estimates that the direct costs of these private-sector mandates would not exceed the statutory threshold ($100 million in 1996, adjusted annually for inflation) established in UMRA in any one year.

ESTIMATE PREPARED BY:

Federal Cost: Kathleen Gramp, Clare Doherty, and Rachel Forward (226-2860)
Impact on State, Local, and Tribal Governments: Pepper Santalucia (225-3220)
Impact on the Private Sector: Lesley Frymier (226-2940)

ESTIMATE APPROVED BY:

Robert A. Sunshine
Deputy Assistant Director for Budget Analysis

VIII. Compliance With Public Law 104-4

H.R. 1275 contains no unfunded mandates.

IX. Committee Oversight Findings and Recommendations

Clause 2(l)(3)(A) of rule XI of the Rules of the House of Representatives requires each committee report to include oversight findings and recommendations required pursuant to clause 2(b)(1) of rule X. The Committee has no oversight findings.

X. Oversight Findings and Recommendations by the Committee on Government Reform and Oversight

Clause 2(l)(3)(D) of rule XI of the Rules of the House of Representatives requires each committee report to contain a summary of the oversight findings and recommendations made by the House Government Reform and Oversight Committee pursuant to clause 4(c)(2) of rule X, whenever such findings and recommendations have been submitted to the Committee in a timely fashion. The Committee on Science has received no such findings or recommendations from the Committee on Government Reform and Oversight.

XI. Constitutional Authority Statement

Clause 2(l)(4) of rule XI of the Rules of the House of Representatives requires each report of a Committee on a bill or joint resolution of a public character to include a statement citing the specific powers granted to the Congress in the Constitution to enact the law proposed by the bill or joint resolution. Article I, section 8 of the Constitution of the United States grants Congress the authority to enact H.R. 1275.

XII. Federal Advisory Committee Statement

This legislation does not establish or authorize the establishment of a new advisory committee.

XIII. Congressional Accountability Act

The Committee finds that H.R. 1275 does not relate to the terms and conditions of employment or access to public services or accommodations within the meaning of section 102(b)(3) of the Congressional Accountability Act (Public Law 104-1).

XIV. Changes in Existing Law Made by the Bill, as Reported

In compliance with clause 3 of rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italics, existing law in which no change is proposed is shown in roman):

TITLE 49, UNITED STATES CODE

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SUBTITLE IX—COMMERCIAL SPACE TRANSPORTATION

* * * * * * *

CHAPTER 701—COMMERCIAL SPACE LAUNCH ACTIVITIES

§ 70101. Findings and purposes

(a) FINDINGS.—Congress finds that—

(1) * * *

* * * * * * *

(3) new and innovative equipment and services are being sought, produced, and offered by entrepreneurs in telecommunications, information services, *microgravity research,* and remote sensing technologies;

(4) the private sector in the United States has the capability of developing and providing private satellite launching*, reentry,* and associated services that would complement the launching*, reentry,* and associated services now available from the United States Government;

(5) the development of commercial launch vehicles*, reentry vehicles,* and associated services would enable the United States to retain its competitive position internationally, contributing to the national interest and economic well-being of the United States;

(6) providing launch services *and reentry services* by the private sector is consistent with the national security and foreign policy interests of the United States and would be facilitated by stable, minimal, and appropriate regulatory guidelines that are fairly and expeditiously applied;

(7) the United States should encourage private sector launches*, reentries,* and associated services and, only to the extent necessary, regulate those launches*, reentries,* and services to ensure compliance with international obligations of the United States and to protect the public health and safety, safety of property, and national security and foreign policy interests of the United States;

(8) space transportation, including the establishment and operation of launch sites*, reentry sites,* and complementary fa-

cilities, the providing of launch services *and reentry services*, the establishment of support facilities, and the providing of support services, is an important element of the transportation system of the United States, and in connection with the commerce of the United States there is a need to develop a strong space transportation infrastructure with significant private sector involvement; and

(9) the participation of State governments in encouraging and facilitating private sector involvement in space-related activity, particularly through the establishment of a space transportation-related infrastructure, including launch sites, *reentry sites,* complementary facilities, and launch site *and reentry site* support facilities, is in the national interest and is of significant public benefit.

(b) PURPOSES.—The purposes of this chapter are—

(1) to promote economic growth and entrepreneurial activity through use of the space environment for peaceful purposes;

(2) to encourage the United States private sector to provide launch vehicles*, reentry vehicles,* and associated services by—

(A) simplifying and expediting the issuance and transfer of commercial [launch] licenses; and

(B) facilitating and encouraging the use of Government-developed space technology;

(3) to provide that the Secretary of Transportation is to oversee and coordinate the conduct of commercial launch *and reentry* operations, issue and transfer commercial [launch] licenses authorizing those operations, and protect the public health and safety, safety of property, and national security and foreign policy interests of the United States; and

(4) to facilitate the strengthening and expansion of the United States space transportation infrastructure, including the enhancement of United States launch sites and launch-site support facilities, *and development of reentry sites,* with Government, State, and private sector involvement, to support the full range of United States space-related activities.

* * * * * * *

§ 70102. Definitions

In this chapter—

(1) * * *

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(3) "launch" means to place or try to place a launch vehicle [and any payload] *or reentry vehicle and any payload from Earth*—

(A) * * *

* * * * * * *

(5) "launch services" means—

(A) activities directly related to the preparation of a launch site or payload facility for one or more launches;

[(A)] *(B)* activities involved in the preparation of a launch vehicle and payload for launch; and

[(B)] *(C)* the conduct of a launch.

* * * * * * *

(8) "payload" means an object that a person undertakes to place in outer space by means of a launch vehicle *or reentry vehicle*, including components of the vehicle specifically designed or adapted for that object.

* * * * * * *

(10) "reenter" and "reentry" mean to return or attempt to return, purposefully, a reentry vehicle and its payload, if any, from Earth orbit or from outer space to Earth.

(11) "reentry services" means—

(A) activities involved in the preparation of a reentry vehicle and its payload, if any, for reentry; and

(B) the conduct of a reentry.

(12) "reentry site" means the location on Earth to which a reentry vehicle is intended to return (as defined in a license the Secretary issues or transfers under this chapter).

(13) "reentry vehicle" means a vehicle designed to return from Earth orbit or outer space to Earth, or a reusable launch vehicle designed to return from outer space substantially intact.

[(10)] *(14)* "State" means a State of the United States, the District of Columbia, and a territory or possession of the United States.

[(11)] *(15)* "third party" means a person except—

(A) the United States Government or the Government's contractors or subcontractors involved in launch services *or reentry services*;

(B) a licensee or transferee under this chapter;

(C) a licensee's or transferee's contractors, subcontractors, or customers involved in launch services *or reentry services*; or

(D) the customer's contractors or subcontractors involved in launch services *or reentry services*.

[(12)] *(16)* "United States" means the States of the United States, the District of Columbia, and the territories and possessions of the United States.

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§ 70103. General authority

(a) GENERAL.—The Secretary of Transportation shall carry out this chapter.

(b) FACILITATING COMMERCIAL LAUNCHES *AND REENTRIES AND STATE SPONSORED SPACEPORTS*.—In carrying out this chapter, the Secretary shall—

(1) encourage, facilitate, and promote commercial space launches *and reentries* by the private sector *and State sponsored spaceports*; and

(2) take actions to facilitate private sector involvement in commercial space transportation activity, and to promote public-private partnerships involving the United States Government, State governments, and the private sector to build, ex-

pand, modernize, or operate a space launch *and reentry* infrastructure.

[§ 70104. Restrictions on launches and operations]

§ 70104. Restrictions on launches, operations, and reentries

(a) LICENSE REQUIREMENT.—A license issued or transferred under this chapter is required for the following:

(1) for a person to launch a launch vehicle or to operate a launch site *or reentry site, or to reenter a reentry vehicle,* in the United States.

(2) for a citizen of the United States (as defined in section 70102(1)(A) or (B) of this title) to launch a launch vehicle or to operate a launch site *or reentry site, or to reenter a reentry vehicle,* outside the United States.

(3) for a citizen of the United States (as defined in section 70102(1)(C) of this title) to launch a launch vehicle or to operate a launch site *or reentry site, or to reenter a reentry vehicle,* outside the United States and outside the territory of a foreign country unless there is an agreement between the United States Government and the government of the foreign country providing that the government of the foreign country has jurisdiction over the launch or operation *or reentry*.

(4) for a citizen of the United States (as defined in section 70102(1)(C) of this title) to launch a launch vehicle or to operate a launch site *or reentry site, or to reenter a reentry vehicle,* in the territory of a foreign country if there is an agreement between the United States Government and the government of the foreign country providing that the United States Government has jurisdiction over the launch or operation *or reentry*.

(b) COMPLIANCE WITH PAYLOAD REQUIREMENTS.—The holder of a **[**launch**]** license under this chapter may launch *or reenter* a payload only if the payload complies with all requirements of the laws of the United States related to launching *or reentering* a payload.

(c) **[**PREVENTING LAUNCHES.—**]** *PREVENTING LAUNCHES AND REENTRIES*.—The Secretary of Transportation shall establish whether all required licenses, authorizations, and permits required for a payload have been obtained. If no license, authorization, or permit is required, the Secretary may prevent the launch *or reentry* if the Secretary decides the launch *or reentry* would jeopardize the public health and safety, safety of property, or national security or foreign policy interest of the United States.

§ 70105. License applications and requirements

(a) APPLICATIONS.—*(1)* A person may apply to the Secretary of Transportation for a license or transfer of a license under this chapter in the form and way the Secretary prescribes. Consistent with the public health and safety, safety of property, and national security and foreign policy interests of the United States, the Secretary, not later than 180 days after **[**receiving an application**]** *accepting an application in accordance with criteria established pursuant to subsection (b)(2)(D)*, shall issue or transfer a license if the Secretary decides in writing that the applicant complies, and will continue to comply, with this chapter and regulations prescribed

under this chapter. The Secretary shall inform the applicant of any pending issue and action required to resolve the issue if the Secretary has not made a decision not later than 120 days after [receiving an application] *accepting an application in accordance with criteria established pursuant to subsection (b)(2)(D). The Secretary shall submit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a written notice not later than 7 days after any occurrence when a license is not issued within the deadline established by this subsection.*

(2) In carrying out paragraph (1), the Secretary may establish procedures for certification of the safety of a launch vehicle, reentry vehicle, or safety system, procedure, service, or personnel that may be used in conducting licensed commercial space launch or reentry activities.

(b) REQUIREMENTS.—(1) Except as provided in this subsection, all requirements of the laws of the United States applicable to the launch of a launch vehicle or the operation of a launch site *or a reentry site, or the reentry of a reentry vehicle,* are requirements for a license under this chapter.

(2) The Secretary may prescribe—

(A) any term necessary to ensure compliance with this chapter, including on-site verification that a launch [or operation]*, operation, or reentry* complies with representations stated in the application;

(B) an additional requirement necessary to protect the public health and safety, safety of property, national security interests, and foreign policy interests of the United States; [and]

(C) by regulation that a requirement of a law of the United States not be a requirement for a license if the Secretary, after consulting with the head of the appropriate executive agency, decides that the requirement is not necessary to protect the public health and safety, safety of property, and national security and foreign policy interests of the United States[.]*; and*

(D) regulations establishing criteria for accepting or rejecting an application for a license under this chapter within 60 days after receipt of such application.

(3) The Secretary may waive a requirement*, or the requirement to obtain a license,* for an individual applicant if the Secretary decides that the waiver is in the public interest and will not jeopardize the public health and safety, safety of property, and national security and foreign policy interests of the United States.

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§ 70106. Monitoring activities

(a) GENERAL REQUIREMENTS.—A licensee under this chapter must allow the Secretary of Transportation to place an officer or employee of the United States Government or another individual as an observer at a launch site *or reentry site* the licensee uses, at a production facility or assembly site a contractor of the licensee uses to produce or assemble a launch vehicle *or reentry vehicle*, or at a site at which a payload is integrated with a launch vehicle *or re-*

entry vehicle. The observer will monitor the activity of the licensee or contractor at the time and to the extent the Secretary considers reasonable to ensure compliance with the license or to carry out the duties of the Secretary under section 70104(c) of this title. A licensee must cooperate with an observer carrying out this subsection.

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[§ 70108. Prohibition, suspension, and end of launches and operation of launch sites]

§ 70108. Prohibition, suspension, and end of launches, operation of launch sites and reentry sites, and reentries

(a) GENERAL AUTHORITY.—The Secretary of Transportation may prohibit, suspend, or end immediately the launch of a launch vehicle or the operation of a launch site *or reentry site, or reentry of a reentry vehicle,* licensed under this chapter if the Secretary decides the launch or operation *or reentry* is detrimental to the public health and safety, the safety of property, or a national security or foreign policy interest of the United States.

* * * * * * *

[§ 70109. Preemption of scheduled launches]

§ 70109. Preemption of scheduled launches or reentries

(a) GENERAL.—With the cooperation of the Secretary of Defense and the Administrator of the National Aeronautics and Space Administration, the Secretary of Transportation shall act to ensure that a launch *or reentry* of a payload is not preempted from access to a United States Government launch site*, reentry site,* or launch property, except for imperative national need, when a launch date commitment *or reentry date commitment* from the Government has been obtained for a launch *or reentry* licensed under this chapter. A licensee or transferee preempted from access to a launch site*, reentry site,* or launch property does not have to pay the Government any amount for launch services*, or services related to a reentry,* attributable only to the scheduled launch *or reentry* prevented by the preemption.

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(c) REPORTS.—In cooperation with the Secretary of Transportation, the Secretary of Defense or the Administrator, as appropriate, shall submit to Congress not later than 7 days after a decision to preempt under subsection (a) of this section, a report that includes an explanation of the circumstances justifying the decision and a schedule for ensuring the prompt launching *or reentry* of a preempted payload.

§ 70110. Administrative hearings and judicial review

(a) ADMINISTRATIVE HEARINGS.—The Secretary of Transportation shall provide an opportunity for a hearing on the record to—

(1) an applicant under this chapter, for a decision of the Secretary under section 70105(a) of this title to issue or trans-

fer a license with terms or deny the issuance or transfer of a license;

(2) an owner or operator of a payload under this chapter, for a decision of the Secretary under section 70104(c) of this title to prevent the launch *or reentry* of the payload; and

(3) a licensee under this chapter, for a decision of the Secretary under—

(A) section 70107 (b) or (c) of this title to modify, suspend, or revoke a license; or

(B) section 70108(a) of this title to prohibit, suspend, or end a launch or operation of a launch site *or reentry site, or reentry of a reentry vehicle,* licensed by the Secretary.

* * * * * * *

§ 70111. Acquiring United States Government property and services

(a) GENERAL REQUIREMENTS AND CONSIDERATIONS.—(1) The Secretary of Transportation shall facilitate and encourage the acquisition by the private sector and State governments of—

(A) launch *or reentry* property of the United States Government that is excess or otherwise is not needed for public use; and

(B) launch services *and reentry services*, including utilities, of the Government otherwise not needed for public use.

The Secretary shall establish criteria and procedures for determining the priority of competing requests from the private sector and State governments for property and services under this section.

(2) In acting under paragraph (1) of this subsection, the Secretary shall consider the commercial availability on reasonable terms of substantially equivalent launch property or launch services *or reentry services* from a domestic source.

(b) PRICE.—(1) In this subsection, "direct costs" means the **[**actual costs**]** *additive costs only* that—

(A) can be associated unambiguously with a commercial launch *or reentry* effort; and

(B) the Government would not incur if there were no commercial launch *or reentry* effort.

(2) In consultation with the Secretary, the head of the executive agency providing the property or service under subsection (a) of this section shall establish the price for the property or service. The price for—

(A) acquiring launch property by sale or transaction instead of sale is the fair market value;

(B) acquiring launch property (except by sale or transaction instead of sale) is an amount equal to the direct costs, including specific wear and tear and property damage, the Government incurred because of acquisition of the property; and

(C) launch services *or reentry services* is an amount equal to the direct costs, including the basic pay of Government civilian and contractor personnel, the Government incurred because of acquisition of the services.

(3) The Secretary shall ensure the establishment of uniform guidelines for, and consistent implementation of, this section by all Federal agencies.

* * * * * * *

(d) COLLECTION BY OTHER GOVERNMENTAL HEADS.—The head of a department, agency, or instrumentality of the Government may collect a payment for an activity involved in producing a launch vehicle [or its payload for launch] *or reentry vehicle, or the payload of either, for launch or reentry* if the activity was agreed to by the owner or manufacturer of the launch vehicle*, reentry vehicle,* or payload.

§ 70112. Liability insurance and financial responsibility requirements

(a) GENERAL REQUIREMENTS.—(1) When a *launch, reentry, or site operator* license is issued or transferred under this chapter, the licensee or transferee shall obtain liability insurance or demonstrate financial responsibility in amounts to compensate for the maximum probable loss from claims by—

(A) * * *

* * * * * * *

(3) For the total claims related to one launch *or reentry*, a licensee or transferee is not required to obtain insurance or demonstrate financial responsibility of more than—

(A)(i) $500,000,000 under paragraph (1)(A) of this subsection; or

(ii) $100,000,000 under paragraph (1)(B) of this subsection; or

(B) the maximum liability insurance available on the world market at reasonable cost if the amount is less than the applicable amount in clause (A)(i) or (ii) of this paragraph.

(4) An insurance policy or demonstration of financial responsibility under this subsection shall protect the following, to the extent of their potential liability for involvement in launch services *or reentry services*, at no cost to the Government:

(A) the Government.

(B) executive agencies and personnel, contractors, and subcontractors of the Government.

(C) contractors, subcontractors, and customers of the licensee or transferee.

(D) contractors and subcontractors of the customer.

(b) RECIPROCAL WAIVER OF CLAIMS.—(1) A *launch, reentry, or site operator* license issued or transferred under this chapter shall contain a provision requiring the licensee or transferee to make a reciprocal waiver of claims with its contractors, subcontractors, and customers, and contractors and subcontractors of the customers, involved in launch services *or reentry services* under which each party to the waiver agrees to be responsible for property damage or loss it sustains, or for personal injury to, death of, or property damage or loss sustained by its own employees resulting from an activity carried out under the *applicable* license.

(2) The Secretary of Transportation shall make, for the Government, executive agencies of the Government involved in launch

services *or reentry services*, and contractors and subcontractors involved in launch services *or reentry services*, a reciprocal waiver of claims with the licensee or transferee, contractors, subcontractors, and customers of the licensee or transferee, and contractors and subcontractors of the customers, involved in launch services *or reentry services* under which each party to the waiver agrees to be responsible for property damage or loss it sustains, or for personal injury to, death of, or property damage or loss sustained by its own employees resulting from an activity carried out under the *applicable* license. The waiver applies only to the extent that claims are more than the amount of insurance or demonstration of financial responsibility required under subsection (a)(1)(B) of this section. After consulting with the Administrator and the Secretary of the Air Force, the Secretary of Transportation may waive, for the Government and a department, agency, and instrumentality of the Government, the right to recover damages for damage or loss to Government property to the extent insurance is not available because of a policy exclusion the Secretary of Transportation decides is usual for the type of insurance involved.

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(e) LAUNCHES *OR REENTRIES* INVOLVING GOVERNMENT FACILITIES AND PERSONNEL.—The Secretary of Transportation shall establish requirements consistent with this chapter for proof of financial responsibility and other assurances necessary to protect the Government and its executive agencies and personnel from liability, death, bodily injury, or property damage or loss as a result of a launch or operation of a launch site *or reentry site or a reentry* involving a facility or personnel of the Government. The Secretary may not relieve the Government of liability under this subsection for death, bodily injury, or property damage or loss resulting from the willful misconduct of the Government or its agents.

(f) COLLECTION AND CREDITING PAYMENTS.—The head of a department, agency, or instrumentality of the Government shall collect a payment owed for damage or loss to Government property under its jurisdiction or control resulting from an activity carried out under a *launch, reentry, or site operator* license issued or transferred under this chapter. The payment shall be credited to the current applicable appropriation, fund, or account of the department, agency, or instrumentality.

* * * * * * *

§ 70113. Paying claims exceeding liability insurance and financial responsibility requirements

(a) GENERAL REQUIREMENTS.—(1) To the extent provided in advance in an appropriation law or to the extent additional legislative authority is enacted providing for paying claims in a compensation plan submitted under subsection (d) of this section, the Secretary of Transportation shall provide for the payment by the United States Government of a successful claim (including reasonable litigation or settlement expenses) of a third party against a licensee or transferee under this chapter, a contractor, subcontractor, or customer of the licensee or transferee, or a contractor or subcontractor of a customer, resulting from an activity carried out

under the license issued or transferred under this chapter for death, bodily injury, or property damage or loss resulting from an activity carried out under the license. However, claims may be paid under this section only to the extent the total amount of successful claims related to one launch *or reentry*—

(A) is more than the amount of insurance or demonstration of financial responsibility required under section 70112(a)(1)(A) of this title; and

(B) is not more than $1,500,000,000 (plus additional amounts necessary to reflect inflation occurring after January 1, 1989) above that insurance or financial responsibility amount.

* * * * * * *

(d) SURVEYS, REPORTS, AND COMPENSATION PLANS.—(1) If as a result of an activity carried out under a license issued or transferred under this chapter the total of claims related to one launch *or reentry* is likely to be more than the amount of required insurance or demonstration of financial responsibility, the Secretary shall—

(A) survey the causes and extent of damage; and

(B) submit expeditiously to Congress a report on the results of the survey.

(2) Not later than 90 days after a court determination indicates that the liability for the total of claims related to one launch *or reentry* may be more than the required amount of insurance or demonstration of financial responsibility, the President, on the recommendation of the Secretary, shall submit to Congress a compensation plan that—

(A) outlines the total dollar value of the claims;

(B) recommends sources of amounts to pay for the claims;

(C) includes legislative language required to carry out the plan if additional legislative authority is required; and

(D) for a single event or incident, may not be for more than $1,500,000,000.

§ 70115. Enforcement and penalty

(a) PROHIBITIONS.—A person may not violate this chapter, a regulation prescribed under this chapter, or any term of a license issued or transferred under this chapter.

(b) GENERAL AUTHORITY.—(1) In carrying out this chapter, the Secretary of Transportation may—

(A) conduct investigations and inquiries;

(B) administer oaths;

(C) take affidavits; and

(D) under lawful process—

(i) enter at a reasonable time a launch site, *reentry site,* production facility, assembly site of a launch vehicle *or reentry vehicle*, or site at which a payload is integrated with a launch vehicle *or reentry vehicle* to inspect an object to which this chapter applies or a record or report the Secretary requires be made or kept under this chapter; and

(ii) seize the object, record, or report when there is probable cause to believe the object, record, or report was

used, is being used, or likely will be used in violation of this chapter.

* * * * * * *

§ 70117. Relationship to other executive agencies, laws, and international obligations

(a) EXECUTIVE AGENCIES.—Except as provided in this chapter, a person is not required to obtain from an executive agency a license, approval, waiver, or exemption to launch a launch vehicle or operate a launch site *or reentry site, or to reenter a reentry vehicle*.

* * * * * * *

(d) CONSULTATION.—The Secretary of Transportation is encouraged to consult with a State to simplify and expedite the approval of a space launch *or reentry* activity.

* * * * * * *

[(f) LAUNCH NOT AN EXPORT.—A launch vehicle or payload that is launched is not, because of the launch, an export for purposes of a law controlling exports.**]**

(f) LAUNCH NOT AN EXPORT; REENTRY NOT AN IMPORT.—A launch vehicle, reentry vehicle, or payload that is launched or reentered is not, because of the launch or reentry, an export or import, respectively, for purposes of a law controlling exports or imports.

(g) NONAPPLICATION.—This chapter does not apply to—

(1) a launch, **[**operation of a launch vehicle or launch site,**]** *reentry, operation of a launch vehicle or reentry vehicle, or operation of a launch site or reentry site,* or other space activity the Government carries out for the Government; or

(2) planning or policies related to the launch, *reentry,* operation, or activity.

* * * * * * *

§ 70120. Regulations

The Secretary of Transportation, within 6 months after the date of the enactment of this section, shall issue regulations to carry out this chapter that include—

(1) guidelines for industry to obtain sufficient insurance coverage for potential damages to third parties;

(2) procedures for requesting and obtaining licenses to operate a commercial launch vehicle and reentry vehicle;

(3) procedures for requesting and obtaining operator licenses for launch and reentry; and

(4) procedures for the application of government indemnification.

§ 70121. Report to Congress

The Secretary of Transportation shall submit to Congress an annual report to accompany the President's budget request that—

(1) describes all activities undertaken under this chapter, including a description of the process for the application for and approval of licenses under this chapter and recommendations for legislation that may further commercial launches and reentries; and

(2) reviews the performance of the regulatory activities and the effectiveness of the Office of Commercial Space Transportation.

* * * * * * *

NATIONAL AERONAUTICS AND SPACE ACT OF 1958

TITLE I—SHORT TITLE, DECLARATION OF POLICY, AND DEFINITIONS

* * * * * * *

DECLARATION OF POLICY AND PURPOSE

SEC. 102. (a) * * *

* * * * * * *

[(f) The Congress declares that the general welfare of the United States requires that the unique competence in scientific and engineering systems of the National Aeronautics and Space Administration also be directed toward the development of advanced automobile propulsion systems. Such development shall be conducted so as to contribute to the achievement of the purposes set forth in section 302(b) of the Automotive Propulsion Research and Development Act of 1978.**]**

[(g)**]** *(f)* The Congress declares that the general welfare of the United States requires that the unique competence of the National Aeronautics and Space Administration in science and engineering systems be directed to assisting in bioengineering research, development, and demonstration programs designed to alleviate and minimize the effects of disability.

[(h)**]** *(g)* It is the purpose of this Act to carry out and effectuate the policies declared in subsections (a), (b), (c), (d), (e), **[**(f), and (g)**]** *and (f)*.

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TITLE II—COORDINATION OF AERONAUTICAL AND SPACE ACTIVITIES

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REPORTS TO THE CONGRESS

SEC. 206. (a) The President shall transmit to the Congress in **[**January**]** *May* of each year a report, which shall include (1) a comprehensive description of the programed activities and the accomplishments of all agencies of the United States in the field of aeronautics and space activities during the preceding **[**calendar**]** *fiscal* year, and (2) an evaluation of such activities and accomplishments in terms of the attainment of, or the failure to attain, the objectives described in section 102(c) of this Act.

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TITLE III—MISCELLANEOUS

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ACCESS TO INFORMATION

SEC. 303. (a) Information obtained or developed by the Administrator in the performance of his functions under this Act shall be made available for public inspection, except (A) information authorized or required by Federal statute to be withheld, (B) information classified to protect the national security, and (C) information described in subsection (b) *or (c)*: *Provided,* That nothing in this Act shall authorize the withholding of information by the Administrator from the duly authorized committees of the Congress.

* * * * * * *

(c)(1) The Administrator may, and at the request of a private sector entity shall, delay for a period of at least one day, but not to exceed 5 years, the unrestricted public disclosure of technical data in the possession of, or under the control of, the Administration that has been generated in the performance of experimental, developmental, or research activities or programs funded jointly by the Administration and such private sector entity.

(2) Within 1 year after the date of the enactment of the Civilian Space Authorization Act, Fiscal Years 1998 and 1999, the Administrator shall issue regulations to carry out this subsection. Paragraph (1) shall not take effect until such regulations are issued.

(3) Regulations issued pursuant to paragraph (2) shall include—

(A) guidelines for a determination of whether data is technical data within the meaning of this subsection;

(B) provisions to ensure that technical data is available for dissemination within the United States to United States persons and entities in furtherance of the objective of maintaining leadership or competitiveness in civil and governmental aeronautical and space activities by the United States industrial base; and

(C) a specification of the period or periods for which the delay in unrestricted public disclosure of technical data is to apply to various categories of such data, and the restrictions on disclosure of such data during such period or periods, including a requirement that the maximum 5-year protection under this subsection shall not be provided unless at least 50 percent of the funding for the activities or programs is provided by the private sector.

(4) The Administrator shall annually report to the Congress all determinations made under paragraph (1).

(5) For purposes of this subsection, the term "technical data" means any recorded information, including computer software, that is or may be directly applicable to the design, engineering, development, production, manufacture, or operation of products or processes that may have significant value in maintaining leadership or competitiveness in civil and governmental aeronautical and space activities by the United States industrial base.

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SECTION 504 OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT, FISCAL YEAR 1993

SEC. 504. LAUNCH VOUCHER DEMONSTRATION PROGRAM.

(a) COMMERCIAL SPACE VOUCHER DEMONSTRATION PROGRAM; EFFECTIVE PERIOD.—The Administrator shall establish a demonstration program to award vouchers for the payment of commercial launch services and payload integration services for the purpose of launching payloads funded by [the Office of Commercial Programs within] the National Aeronautics and Space Administration to become effective October 1, 1993. [Such program shall not be effective after September 30, 1995.]

* * * * * * *

[(c) ASSUMPTION OF CERTAIN RESPONSIBILITIES.—In carrying out the demonstration program established under subsection (a), the Administrator, in awarding vouchers, is limited to the launch of payloads funded by the Office of Commercial Programs within the National Aeronautics and Space Administration.]

[(d)] *(c)* ASSISTANCE.—The Administrator may provide voucher award recipients with such assistance, including contract formulation and technical support during the proposal evaluation, as may be necessary, to ensure the purchase of cost effective and reasonably reliable commercial launch services and payload integration services.

[(e)] *(d)* REPORT.—The Administrator shall conduct an ongoing review of the program established under this section, and shall, not later than January 31, 1995, report to Congress the results of such a review, together with recommendations for further action relating to the program.

TITLE 10, UNITED STATES CODE

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Subtitle A—General Military Law

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PART IV—SERVICE, SUPPLY, AND PROCUREMENT

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CHAPTER 137—PROCUREMENT GENERALLY

§ 2307. Contract financing

(a) * * *

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(h) ACTION IN CASE OF FRAUD.—(1) * * *

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(8) This subsection applies to the agencies named in paragraphs (1), (2), (3), [and (4)] *(4), and (6)* of section 2303(a) of this title.

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XV. COMMITTEE RECOMMENDATIONS

On April 16, 1997, a quorum being present, the Committee favorably reported the "Civilian Space Authorization Act, Fiscal Years 1998 and 1999," by a voice vote, and recommends its enactment.

XVI. MINORITY, SUPPLEMENTAL AND ADDITIONAL VIEWS

ADDITIONAL VIEWS OF HON. TIM ROEMER

In voting against H.R. 1275, the Civilian Space Authorization Act for Fiscal Years, I remain very concerned about U.S. participation in the planned international space station program. While I am grateful for the opportunity to bring this matter to the Committee's consideration, I am disappointed that my amendment to terminate the $2.1 billion authorization for the space station has failed again.

Last week, NASA announced that it will begin its on-orbit assembly of the International Space Station 11 months behind schedule, and is looking at other options that will allow it to work around the delay caused by the late arrival of the service module. It is very likely that continued delays will result in cost overruns, launch setbacks and may require yet another redesign effort. NASA has indicated that construction of the interim control module construction could costs taxpayers an additional $600 million to the program. Moreover, the revised assembly schedule will require as much as $300 million to be diverted from other NASA programs, including the space shuttle, to finance the "U.S./Russian Cooperation and Program Assurance" contingency fund. NASA even says some of this money would be set aside for "future contingencies."

For well over a year, NASA has told the Science Committee that a solution to the Russian funding problem was attainable. NASA promised the Committee that it would have a plan to resolve the Russian problem by mid-April, but no plan has been formulated. It would appear that NASA is serving at the mercy of the Russian Finance Ministry, like the Russian contractors who have yet to be paid for construction of critical hardware components.

NASA made clear promises to the Committee that the Russian partnership would save the American taxpayers at least two billion dollars. Clearly NASA has not been able to deliver, and although there has never been a full accounting of the station program, it is evident that Russian participation is costing more than planned; not saving but costing more.

For these reasons, my amendment to eliminate Russian participation was intended as a reasonable and cost-conscious alternative. It would simply allow them to be paying commercial tenants of the space station. It was not intended to prevent NASA from buying components from Russian contractors, but it would prevent the Russians, and their inability to meet their commitments, out of the pockets of American taxpayers. My amendment would not remove the Russians from participating as a partner in the station, but would relegate them to the status of the other partners, remove

them from the critical path to permanent manned capability and completion.

Leading scientists, including Dr. Robert Park of the American Physical Society, have testified before the Science Committee that the space station will yield insignificant scientific results. I share his assessment as the scientific rationale for the space station continues to shrivel, as more funds are transferred from research to hardware.

In conclusion, the space station is not an intelligent use of taxpayer money, and I will continue to fight this project. With our increasingly limited resources, we must invest in those space programs that create quality science for a reasonable cost. The space station does neither, and is eating up too much of NASA's resources. For these reasons, I could not support the legislation.

TIM ROEMER.

ADDITIONAL VIEWS OF HON. ZOE LOFGREN

I agree with many of the provisions of H.R. 1275, and generally support this legislation. Nevertheless, I am very concerned about the $750 million in funding for a single-stage-to-orbit (SSTO) vehicle added in the bill.

I am concerned that the Committee added about $750 million for a specific new program, without debate or consideration of its merits. While we know that the Reusable Launch Vehicle program will and should not end with one X-33 demonstrator, the Committee has not yet determined how it will proceed once this first vehicle is constructed. Program options range all the way from a second X-33 to a multi-stage-to-orbit vehicle, and I believe that each of these options merit due consideration.

Further, H.R. 1275 funds this new SSTO at a higher level than the X-33 program over the next 2 years. Congress has required the X-33 contractor to secure private sector funding, and the SSTO provisions in this bill send a conflicting message to Wall Street about our commitment to the X-33, potentially impacting the program's ability to attract the necessary backing.

I strongly believe in competition and certainly share the dream of those who seek cheap access to space. But the SSTO proposal needs hearings and debate, and I oppose its presence in the bill at this time.

ZOE LOFGREN.

ADDITIONAL VIEWS OF HON. TOM COBURN

As a scientist trained as a physician, I recognize and respect the technological and scientific progress made by NASA, the space program, and related endeavors. Yet while I support the merits and intent of the Civilian Space Authority Act, I cannot support the funding levels requested by this bill.

I remain concerned about many aspects of NASA, especially the Mission to Planet Earth program. Regardless of the supposed worth of such initiatives, they are outside the scope of NASA's core mission, space exploration. I believe NASA should focus its dollars on the space program, not on duplicative environmental policies.

Finally, during this time of financial uncertainty, I cannot support the proposed budgetary increase, regardless of how insignificant it might seem. Acknowledging this, I do not believe NASA truly needs a $259 million increase over the next two years.

TOM A. COBURN.

COMMITTEE ON SCIENCE - ROLL CALL - 105TH CONGRESS

DATE: 4-16-97 SUBJECT: HR 1275: Roemer Amendment to Terminate International Space Statio

Rm.	Phone	Member	Yes	No	Not Voting	Present	Absent
2332	55101	Mr. Sensenbrenner, R-WI		1			
2246	53665	Mr. Boehlert, R-NY		2			
2368	53515	Mr. Fawell, R-IL		30			
2228	55341	Mrs. Morella, R-MD		31			
2452	52011	Mr. Curt Weldon, R-PA		32			
2338	52415	Mr. Rohrabacher, R-CA		3			
2404	56316	Mr. Schiff, R-NM					✓
2264	52002	Mr. Barton, R-TX					✓
1034	51986	Mr. Calvert, R-CA		4			
322	52721	Mr. Bartlett, R-MD		5			
1717	53831	Mr. Ehlers, R-MI		6			
216	53671	Mr. Dave Weldon, R-FL		7			
115	52635	Mr. Salmon, R-AZ		8			
224	51492	Mr. Thomas Davis, R-VA		9			
425	52472	Mr. Gutknecht, R-MN					✓
113	55792	Mr. Foley, R-FL		33			
2417	52371	Mr. Ewing, R-IL		10			
427	55031	Mr. Pickering, R-MS		11			
118	57751	Mr. Cannon, R-UT					✓
1531	54901	Mr. Brady, R-TX		12			
1431	53011	Mr. Cook, R-UT					✓
1721	55406	Mr. English, R-PA		13			
1527	52006	Mr. Nethercutt, R-WA					
429	52701	Mr. Coburn, R-OK		14			
1318	52231	Mr. Sessions, R-TX		15			
2300	*56161*	*Mr. Brown, D-CA*		16			
2221	*56673*	*Mr. Hall, D-TX*		17			
2201	*54231*	*Mr. Gordon, D-TN*		18			
2446	*55261*	*Mr. Traficant, D-OH*					✓
2348	*53915*	*Mr. Roemer, D-IN*	1				
2416	*54801*	*Mr. Cramer, D-AL*		19			
2419	*58171*	*Mr. Barcia, D-MI*		20			
217	*56411*	*Mr. McHale, D-PA*		34			
1123	*58885*	*Ms. Johnson, D-TX*		21			
1039	*51313*	*Mr. Hastings, D-FL*					✓
1724	*56261*	*Ms. Rivers, D-MI*	2				
318	*53072*	*Ms. Lofgren, D-CA*		22			
126	*54865*	*Mr. Doggett, D-TX*		23			
133	*52135*	*Mr. Doyle, D-PA*	3				
410	*53816*	*Ms. Jackson-Lee, D-TX*		24			
117	*52271*	*Mr. Luther, D-MN*	4				
1118	*53601*	*Mr. Capps, D-CA*		25			
1516	*54872*	*Ms. Stabenow, D-MI*		26			
1641	*54531*	*Mr. Etheridge, D-NC*		27			
417	*56565*	*Mr. Lampson, D-TX*		28			
1419	*55711*	*Ms. Hooley, D-OR*		29			
		TOTAL	4	34			

Attest: Patricia Schwartz (Clerk)

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