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HOUSE OF REPRESENTATIVES
REPORT
106–145

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT OF 1999

MAY 18, 1999.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

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

REPORT

together with

MINORITY, DISSENTING, AND ADDITIONAL VIEWS

[To accompany H.R. 1654]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science, to whom was referred the bill (H.R. 1654) to authorize appropriations for the National Aeronautics and Space Administration for fiscal years 2000, 2001, and 2002, and for other purposes, having considered the same, report favorably thereon with an amendment and recommend that the bill as amended do pass.

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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 "National Aeronautics and Space Administration Authorization Act of 1999".

(b) TABLE OF CONTENTS.—

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

TITLE I—AUTHORIZATION OF APPROPRIATIONS

Subtitle A—Authorizations

Sec. 101. International Space Station.
Sec. 102. Launch Vehicle and Payload Operations.
Sec. 103. Science, Aeronautics, and Technology.
Sec. 104. Mission Support.
Sec. 105. Inspector General.
Sec. 106. Total authorization.
Sec. 107. Aviation systems capacity.

Subtitle B—Limitations and Special Authority

Sec. 121. Use of funds for construction.
Sec. 122. Availability of appropriated amounts.
Sec. 123. Reprogramming for construction of facilities.
Sec. 124. Limitation on obligation of unauthorized appropriations.
Sec. 125. Use of funds for scientific consultations or extraordinary expenses.
Sec. 126. Earth science limitation.
Sec. 127. Competitiveness and international cooperation.
Sec. 128. Trans-hab.
Sec. 129. Consolidated Space Operations Contract.
Sec. 130. Triana funding prohibition.

TITLE II—MISCELLANEOUS PROVISIONS

Sec. 201. Requirement for independent cost analysis.
Sec. 202. National Aeronautics and Space Act of 1958 amendments.
Sec. 203. Commercial space goods and services.
Sec. 204. Cost effectiveness calculations.
Sec. 205. Foreign contract limitation.
Sec. 206. Authority to reduce or suspend contract payments based on substantial evidence of fraud.
Sec. 207. Space Shuttle upgrade study.
Sec. 208. Aero-space transportation technology integration.
Sec. 209. Definitions of commercial space policy terms.
Sec. 210. External tank opportunities study.
Sec. 211. Eligibility for awards.
Sec. 212. Notice.
Sec. 213. Unitary Wind Tunnel Plan Act of 1949 amendments.
Sec. 214. Innovative technologies for human space flight.
Sec. 215. Life in the universe.
Sec. 216. Research on International Space Station.
Sec. 217. Remote sensing for agricultural and resource management.
Sec. 218. Integrated safety research plan.
Sec. 219. 100th anniversary of flight educational initiative.
Sec. 220. Internet availability of information.

SEC. 2. FINDINGS.

The Congress makes the following findings:

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

(2) The National Aeronautics and Space Administration must continue on its current course of returning to its proud history as the Nation's leader in basic scientific, air, and space research.

(3) The overwhelming preponderance of the Federal Government's requirements for routine, 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.

(4) 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, and human space systems.

(5) 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.

(6) 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—

(i) is undertaken in a manner that is sensitive to the desire of United States commercial providers to develop or explore space commercially;

(ii) is consistent with the need for Federal agencies to use space to complete their missions; and

(iii) is carried out in a manner consistent with United States export control laws.

(7) The National Aeronautics and Space Administration and the Department of Defense can cooperate more effectively in leveraging their mutual capabilities to conduct joint space missions that improve United States space capabilities and reduce the cost of conducting space missions.

(8) The Deep Space Network will continue to be a critically important part of the Nation's scientific and exploration infrastructure in the coming decades, and the National Aeronautics and Space Administration should ensure that the Network is adequately maintained and that upgrades required to support future missions are undertaken in a timely manner.

(9) The Hubble Space Telescope has proven to be an important national astronomical research facility that is revolutionizing our understanding of the universe and should be kept productive, and its capabilities should be maintained and enhanced as appropriate to serve as a scientific bridge to the next generation of space-based observatories.

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 Commerce 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. INTERNATIONAL SPACE STATION.

There are authorized to be appropriated to the National Aeronautics and Space Administration for International Space Station—

(1) for fiscal year 2000, $2,482,700,000, of which $394,400,000, notwithstanding section 121(a)—

(A) shall only be for Space Station research or for the purposes described in section 103(2); and

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

(2) for fiscal year 2001, $2,328,000,000, of which $465,400,000, notwithstanding section 121(a)—

(A) shall only be for Space Station research or for the purposes described in section 103(2); and

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

(3) for fiscal year 2002, $2,091,000,000, of which $469,200,000, notwithstanding section 121(a)—

(A) shall only be for Space Station research or for the purposes described in section 103(2); and

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

SEC. 102. LAUNCH VEHICLE AND PAYLOAD OPERATIONS.

There are authorized to be appropriated to the National Aeronautics and Space Administration for Launch Vehicle and Payload Operations the following amounts:

(1) For Space Shuttle Operations—

(A) for fiscal year 2000, $2,547,400,000;

(B) for fiscal year 2001, $2,649,900,000; and

(C) for fiscal year 2002, $2,629,000,000.

(2) For Space Shuttle Safety and Performance Upgrades—

(A) for fiscal year 2000, $456,800,000, of which $18,000,000 shall not be obligated until 45 days after the report required by section 207 has been submitted to the Congress;

(B) for fiscal year 2001, $407,200,000; and

(C) for fiscal year 2002, $414,000,000.

(3) For Payload and Utilization Operations—

(A) for fiscal year 2000, $169,100,000;

(B) for fiscal year 2001, $182,900,000; and
(C) for fiscal year 2002, $184,500,000.

SEC. 103. 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 2000, $2,202,400,000, of which—
(i) $10,500,000 shall be for the Near Earth Object Survey;
(ii) $472,000,000 shall be for the Research Program;
(iii) $12,000,000 shall be for Space Solar Power technology; and
(iv) $170,400,000 shall be for Hubble Space Telescope (Development);
(B) for fiscal year 2001, $2,315,200,000, of which—
(i) $10,500,000 shall be for the Near Earth Object Survey;
(ii) $475,800,000 shall be for the Research Program; and
(iii) $12,000,000 shall be for Space Solar Power technology; and
(C) for fiscal year 2002, $2,411,800,000, of which—
(i) $10,500,000 shall be for the Near Earth Object Survey;
(ii) $511,100,000 shall be for the Research Program;
(iii) $12,000,000 shall be for Space Solar Power technology; and
(iv) $5,000,000 shall be for space science data buy.

(2) For Life and Microgravity Sciences and Applications—
(A) for fiscal year 2000, $333,600,000, of which $2,000,000 shall be for research and early detection systems for breast and ovarian cancer and other women's health issues, and $5,000,000 shall be for sounding rocket vouchers;
(B) for fiscal year 2001, $335,200,000, of which $2,000,000 shall be for research and early detection systems for breast and ovarian cancer and other women's health issues; and
(C) for fiscal year 2002, $344,000,000, 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 Earth Science, subject to the limitations set forth in sections 126 and 130—
(A) for fiscal year 2000, $1,382,500,000;
(B) for fiscal year 2001, $1,413,300,000; and
(C) for fiscal year 2002, $1,365,300,000.

(4) For Aero-Space Technology—
(A) for fiscal year 2000, $999,300,000, of which—
(i) $532,800,000 shall be for Aeronautical Research and Technology, with no funds to be used for the Ultra-Efficient Engine, and with $412,800,000 to be for the Research and Technology Base;
(ii) $334,000,000 shall be for Advanced Space Transportation Technology, including—
(I) $61,300,000 for the Future-X Demonstration Program; and
(II) $105,600,000 for Advanced Space Transportation Program; and
(iii) $132,500,000 shall be for Commercial Technology;
(B) for fiscal year 2001, $908,400,000, of which—
(i) $524,000,000 shall be for Aeronautical Research and Technology, with no funds to be used for the Ultra-Efficient Engine, and with $399,800,000 to be for the Research and Technology Base, and with $54,200,000 to be for Aviation System Capacity;
(ii) $249,400,000 shall be for Advanced Space Transportation Technology, including—
(I) $109,000,000 for the Future-X Demonstration Program; and
(II) $134,400,000 for Advanced Space Transportation Program; and
(iii) $135,000,000 shall be for Commercial Technology; and
(C) for fiscal year 2002, $994,800,000, of which—
(i) $519,200,000 shall be for Aeronautical Research and Technology, with no funds to be used for the Ultra-Efficient Engine, and with $381,600,000 to be for the Research and Technology Base, and with $67,600,000 to be for Aviation System Capacity;
(ii) $340,000,000 shall be for Advanced Space Transportation Technology; and
(iii) $135,600,000 shall be for Commercial Technology.

(5) For Mission Communication Services—

(A) for fiscal year 2000, $406,300,000;
(B) for fiscal year 2001, $382,100,000; and
(C) for fiscal year 2002, $296,600,000.

(6) For Academic Programs—

(A) for fiscal year 2000, $128,600,000, of which $11,600,000 shall be for Higher Education within the Teacher/Faculty Preparation and Enhancement Programs, of which $20,000,000 shall be for the National Space Grant College and Fellowship Program, and of which $62,100,000 shall be for minority university research and education, including $33,600,000 for Historically Black Colleges and Universities;

(B) for fiscal year 2001, $128,600,000, of which $62,100,000 shall be for minority university research and education, including $33,600,000 for Historically Black Colleges and Universities; and

(C) for fiscal year 2002, $130,600,000, of which $62,800,000 shall be for minority university research and education, including $34,000,000 for Historically Black Colleges and Universities.

(7) For Future Planning (Space Launch)—

(A) for fiscal year 2001, $144,000,000; and
(B) for fiscal year 2002, $280,000,000.

SEC. 104. 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 2000, $43,000,000;
(B) for fiscal year 2001, $45,000,000; and
(C) for fiscal year 2002, $49,000,000.

(2) For Space Communication Services—

(A) for fiscal year 2000, $89,700,000;
(B) for fiscal year 2001, $109,300,000; and
(C) for fiscal year 2002, $174,200,000.

(3) For Construction of Facilities, including land acquisition—

(A) for fiscal year 2000, $181,000,000, including—

(i) Restore Electrical Distribution System (ARC), $2,700,000;
(ii) Rehabilitate Main Hangar Building 4802 (Dryden Flight Research Center (DFRC)), $2,900,000;
(iii) Rehabilitate High Voltage System (Glenn Research Center), $7,600,000;
(iv) Repair Site Steam Distribution System (GSFC), $2,900,000;
(v) Restore Chilled Water Distribution System (GSFC), $3,900,000;
(vi) Rehabilitate Hydrostatic Bearing Runner, 70 meter Antenna, Goldstone (JPL), $1,700,000;
(vii) Upgrade 70 meter Antenna Servo Drive, 70 meter Antenna Subnet (JPL), $3,400,000;
(viii) Rehabilitate Utility Tunnel Structure and Systems (Johnson Space Center (JSC)), $5,600,000;
(ix) Connect KSC to CCAS Wastewater Treatment Plant (KSC), $2,500,000;
(x) Repair and Modernize HVAC System, Central Instrument Facility (KSC), $3,000,000;
(xi) Replace High Voltage Load Break Switches (KSC), $2,700,000;
(xii) Repair and Modernize HVAC and Electrical systems, Building 4201 (Marshall Space Flight Center (MSFC)), $2,300,000;
(xiii) Repair Roofs, Vehicle Component Supply buildings (MAF), $2,000,000;
(xiv) Minor Revitalization of Facilities at Various Locations, not in excess of $1,500,000 per project, $65,500,000;
(xv) Minor Construction of New Facilities and Additions to Existing Facilities at Various Locations, not in excess of $1,500,000 per project, $5,000,000;
(xvi) Facility Planning and Design, $19,200,000;
(xvii) Deferred Major Maintenance, $8,000,000;
(xviii) Environmental Compliance and Restoration, $40,100,000;

(B) for fiscal year 2001, $181,000,000; and
(C) for fiscal year 2002, $191,000,000.

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

(A) for fiscal year 2000, $2,181,200,000;

(B) for fiscal year 2001, $2,195,000,000; and
(C) for fiscal year 2002, $2,261,600,000.

SEC. 105. INSPECTOR GENERAL.

There are authorized to be appropriated to the National Aeronautics and Space Administration for Inspector General—
(1) for fiscal year 2000, $22,000,000;
(2) for fiscal year 2001, $22,000,000; and
(3) for fiscal year 2002, $22,000,000.

SEC. 106. 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 2000, $13,625,600,000;
(2) for fiscal year 2001, $13,747,100,000; and
(3) for fiscal year 2002, $13,839,400,000.

SEC. 107. AVIATION SYSTEMS CAPACITY.

In addition to amounts otherwise authorized, there are authorized to be appropriated to the Administrator of the Federal Aviation Administration $5,000,000 for fiscal year 2001 for aviation systems capacity.

Subtitle B—Limitations and Special Authority

SEC. 121. USE OF FUNDS FOR CONSTRUCTION.

(a) AUTHORIZED USES.—Funds appropriated under sections 101, 102, 103, and 104(1) and (2), and funds appropriated for research operations support under section 104(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 $1,000,000, 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 104(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 section 104(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 construc-

tion, 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 section 104(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. 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 2000 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 2001 or 2002,

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 2000, 2001, or 2002 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. 125. USE OF FUNDS FOR SCIENTIFIC CONSULTATIONS OR EXTRAORDINARY EXPENSES.

Not more than $30,000 of the funds appropriated under section 103 may be used for scientific consultations or extraordinary expenses, upon the authority of the Administrator.

SEC. 126. EARTH SCIENCE LIMITATION.

Of the funds authorized to be appropriated for Earth Science under section 103(3) for each of fiscal years 2001 and 2002, $50,000,000 shall be for the Commercial Remote Sensing Program at Stennis Space Center for commercial data purchases, unless the National Aeronautics and Space Administration has integrated data purchases into the procurement process for Earth science research by obligating at least 5 percent of the aggregate amount appropriated for that fiscal year for Earth Observing System and Earth Probes for the purchase of Earth science data from the private sector.

SEC. 127. COMPETITIVENESS AND INTERNATIONAL COOPERATION.

(a) LIMITATION.—As part of the evaluation of the costs and benefits of entering into an obligation to conduct a space mission in which a foreign entity will participate as a supplier of the spacecraft, spacecraft system, or launch system, the Administrator shall solicit comment on the potential impact of such participation through notice published in Commerce Business Daily at least 45 days before entering into such an obligation.

(b) NATIONAL INTERESTS.—Before entering into an obligation described in subsection (a), the Administrator shall consider the national interests of the United States described in section 2(6).

SEC. 128. TRANS-HAB.

(a) REPLACEMENT STRUCTURE.—No funds authorized by this Act shall be obligated for the definition, design, or development of an inflatable space structure to replace

any International Space Station components scheduled for launch in the Assembly Sequence released by the National Aeronautics and Space Administration on February 22, 1999.

(b) GENERAL LIMITATION.—No funds authorized by this Act for fiscal year 2000 shall be obligated for the definition, design, or development of an inflatable space structure capable of accommodating humans in space.

SEC. 129. CONSOLIDATED SPACE OPERATIONS CONTRACT.

No funds authorized by this Act shall be used to create a Government-owned corporation to perform the functions that are the subject of the Consolidated Space Operations Contract.

SEC. 130. TRIANA FUNDING PROHIBITION.

None of the funds authorized by this Act may be used for the Triana program, except that $2,500,000 of the amount authorized under section 103(3)(A) for fiscal year 2000 shall be available for termination costs.

TITLE II—MISCELLANEOUS PROVISIONS

SEC. 201. REQUIREMENT FOR INDEPENDENT COST ANALYSIS.

Before any funds may be obligated for Phase B of a project that is projected to cost more than $100,000,000 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. 202. 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".

SEC. 203. 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. 204. 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. 205. 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. 206. AUTHORITY TO REDUCE OR SUSPEND CONTRACT PAYMENTS BASED ON SUBSTANTIAL EVIDENCE OF FRAUD.

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

SEC. 207. SPACE SHUTTLE UPGRADE STUDY.

(a) STUDY.—The Administrator shall enter into appropriate arrangements for the conduct of an independent study to reassess the priority of all Phase III and Phase IV Space Shuttle upgrades.

(b) PRIORITIES.—The study described in subsection (a) shall establish relative priorities of the upgrades within each of the following categories:

(1) Upgrades that are safety related.

(2) Upgrades that may have functional or technological applicability to reusable launch vehicles.

(3) Upgrades that have a payback period within the next 12 years.

(c) COMPLETION DATE.—The results of the study described in subsection (a) shall be transmitted to the Congress not later than 180 days after the date of the enactment of this Act.

SEC. 208. AERO-SPACE TRANSPORTATION TECHNOLOGY INTEGRATION.

(a) INTEGRATION PLAN.—The Administrator shall develop a plan for the integration of research, development, and experimental demonstration activities in the aeronautics transportation technology and space transportation technology areas. The plan shall ensure that integration is accomplished without losing unique capabilities which support the National Aeronautics and Space Administration's defined missions. The plan shall also include appropriate strategies for using aeronautics centers in integration efforts.

(b) REPORTS TO CONGRESS.—Not later than 90 days after the date of the enactment of this Act, the Administrator shall transmit to the Congress a report containing the plan developed under subsection (a). The Administrator shall transmit to the Congress annually thereafter for 5 years a report on progress in achieving such plan, to be transmitted with the annual budget request.

SEC. 209. DEFINITIONS OF COMMERCIAL SPACE POLICY TERMS.

The Administrator shall ensure that the usage of terminology in National Aeronautics and Space Administration policies and programs is consistent with the following definitions:

(1) The term "commercialization" means the process of private entities conducting privatized space activities to expand their customer base beyond the Federal Government to address existing or potential commercial markets, investing private resources to meet those commercial market requirements.

(2) The term "commercial purchase" means a purchase by the Federal Government of space goods and services at a market price from a private entity which has invested private resources to meet commercial requirements.

(3) The term "commercial use of Federal assets" means the use by a service contractor or other private entity of the capability of Federal assets to deliver services to commercial customers, with or without putting private capital at risk.

(4) The term "contract consolidation" means the combining of two or more Government service contracts for related space activities into one larger Government service contract.

(5) The term "privatization" means the process of transferring—

(A) control and ownership of Federal space-related assets, along with the responsibility for operating, maintaining, and upgrading those assets; or

(B) control and responsibility for space-related functions,

from the Federal Government to the private sector.

SEC. 210. EXTERNAL TANK OPPORTUNITIES STUDY.

(a) APPLICATIONS.—The Administrator shall enter into appropriate arrangements for an independent study to identify, and evaluate the potential benefits and costs of, the broadest possible range of commercial and scientific applications which are enabled by the launch of Space Shuttle external tanks into Earth orbit and retention in space, including—

(1) the use of privately owned external tanks as a venue for commercial advertising on the ground, during ascent, and in Earth orbit, except that such study shall not consider advertising that while in orbit is observable from the ground with the unaided human eye;

(2) the use of external tanks to achieve scientific or technology demonstration missions in Earth orbit, on the Moon, or elsewhere in space; and

(3) the use of external tanks as low-cost infrastructure in Earth orbit or on the Moon, including as an augmentation to the International Space Station.

A final report on the results of such study shall be delivered to the Congress not later than 90 days after the date of enactment of this Act. Such report shall include recommendations as to Government and industry-funded improvements to the exter-

nal tank which would maximize its cost-effectiveness for the scientific and commercial applications identified.

(b) REQUIRED IMPROVEMENTS.—The Administrator shall conduct an internal agency study, based on the conclusions of the study required by subsection (a), of what—

(1) improvements to the current Space Shuttle external tank; and

(2) other in-space transportation or infrastructure capability developments,

would be required for the safe and economical use of the Space Shuttle external tank for any or all of the applications identified by the study required by subsection (a), a report on which shall be delivered to Congress not later than 45 days after receipt of the final report required by subsection (a).

(c) CHANGES IN LAW OR POLICY.—Upon receipt of the final report required by subsection (a), the Administrator shall solicit comment from industry on what, if any, changes in law or policy would be required to achieve the applications identified in that final report. Not later than 90 days after receipt of such final report, the Administrator shall transmit to the Congress the comments received along with the recommendations of the Administrator as to changes in law or policy that may be required for those purposes.

SEC. 211. ELIGIBILITY FOR AWARDS.

(a) IN GENERAL.—The Administrator shall exclude from consideration for grant agreements made by the National Aeronautics and Space Administration after fiscal year 1999 any person who received funds, other than those described in subsection (b), appropriated for a fiscal year after fiscal year 1999, under a grant agreement from any Federal funding source for a project that was not subjected to a competitive, merit-based award process, except as specifically authorized by this Act. Any exclusion from consideration pursuant to this section shall be effective for a period of 5 years after the person receives such Federal funds.

(b) EXCEPTION.—Subsection (a) 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.

(c) DEFINITION.—For purposes of this section, 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. 212. NOTICE.

(a) NOTICE OF REPROGRAMMING.—If any funds authorized 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. 213. UNITARY WIND TUNNEL PLAN ACT OF 1949 AMENDMENTS.

The Unitary Wind Tunnel Plan Act of 1949 is amended—

(1) in section 101 (50 U.S.C. 511) by striking "transsonic and supersonic" and inserting in lieu thereof "transsonic, supersonic, and hypersonic"; and

(2) in section 103 (50 U.S.C. 513)—

(A) by striking "laboratories" in subsection (a) and inserting in lieu thereof "laboratories and centers";

(B) by striking "supersonic" in subsection (a) and inserting in lieu thereof "transsonic, supersonic, and hypersonic"; and

(C) by striking "laboratory" in subsection (c) and inserting in lieu thereof "facility".

SEC. 214. INNOVATIVE TECHNOLOGIES FOR HUMAN SPACE FLIGHT.

(a) ESTABLISHMENT OF PROGRAM.—In order to promote a "faster, cheaper, better" approach to the human exploration and development of space, the Administrator

shall establish a Human Space Flight Commercialization/Technology program of ground-based and space-based research and development in innovative technologies.

(b) AWARDS.—At least 75 percent of the amount appropriated for the program established under subsection (a) for any fiscal year shall be awarded through broadly distributed announcements of opportunity that solicit proposals from educational institutions, industry, nonprofit institutions, National Aeronautics and Space Administration Centers, the Jet Propulsion Laboratory, other Federal agencies, and other interested organizations, and that allow partnerships among any combination of those entities, with evaluation, prioritization, and recommendations made by external peer review panels.

(c) PLAN.—The Administrator shall include as part of the National Aeronautics and Space Administration's budget request to the Congress for fiscal year 2001 a plan for the implementation of the program established under subsection (a).

SEC. 215. LIFE IN THE UNIVERSE.

(a) REVIEW.—The Administrator shall enter into appropriate arrangements with the National Academy of Sciences for the conduct of a review of—

(1) international efforts to determine the extent of life in the universe; and

(2) enhancements that can be made to the National Aeronautics and Space Administration's efforts to determine the extent of life in the universe.

(b) ELEMENTS.—The review required by subsection (a) shall include—

(1) an assessment of the direction of the National Aeronautics and Space Administration's astrobiology initiatives within the Origins program;

(2) an assessment of the direction of other initiatives carried out by entities other than the National Aeronautics and Space Administration to determine the extent of life in the universe, including other Federal agencies, foreign space agencies, and private groups such as the Search for Extraterrestrial Intelligence Institute;

(3) recommendations about scientific and technological enhancements that could be made to the National Aeronautics and Space Administration's astrobiology initiatives to effectively utilize the initiatives of the scientific and technical communities; and

(4) recommendations for possible coordination or integration of National Aeronautics and Space Administration initiatives with initiatives of other entities described in paragraph (2).

(c) REPORT TO CONGRESS.—Not later than 18 months after the date of the enactment of this Act, the Administrator shall transmit to the Congress a report on the results of the review carried out under this section.

SEC. 216. RESEARCH ON INTERNATIONAL SPACE STATION.

(a) STUDY.—The Administrator shall enter into a contract with the National Research Council and the National Academy of Public Administration to jointly conduct a study of the status of life and microgravity research as it relates to the International Space Station. The study shall include—

(1) an assessment of the United States scientific community's readiness to use the International Space Station for life and microgravity research;

(2) an assessment of the current and projected factors limiting the United States scientific community's ability to maximize the research potential of the International Space Station, including, but not limited to, the past and present availability of resources in the life and microgravity research accounts within the Office of Human Spaceflight and the Office of Life and Microgravity Sciences and Applications, and the past, present, and projected access to space of the scientific community; and

(3) recommendations for improving the United States scientific community's ability to maximize the research potential of the International Space Station, including an assessment of the relative costs and benefits of—

(A) dedicating an annual mission of the Space Shuttle to life and microgravity research during assembly of the International Space Station; and

(B) maintaining the schedule for assembly in place at the time of enactment.

(b) REPORT.—Not later than 1 year 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 the results of the study conducted under this section.

SEC. 217. REMOTE SENSING FOR AGRICULTURAL AND RESOURCE MANAGEMENT.

The Administrator shall—

(1) consult with the Secretary of Agriculture to determine data product types that are of use to farmers which can be remotely sensed from air or space;

(2) consider useful commercial data products related to agriculture as identified by the focused research program between the National Aeronautics and Space Administration's Stennis Space Center and the Department of Agriculture; and

(3) examine other data sources, including commercial sources, LightSAR, RADARSAT I, and RADARSAT II, which can provide domestic and international agricultural information relating to crop conditions, fertilization and irrigation needs, pest infiltration, soil conditions, projected food, feed, and fiber production, and other related subjects.

SEC. 218. INTEGRATED SAFETY RESEARCH PLAN.

(a) REQUIREMENT.—Not later than March 1, 2000, the Administrator and the Administrator of the Federal Aviation Administration shall jointly prepare and transmit to the Congress an integrated civil aviation safety research and development plan.

(b) CONTENTS.—The plan required by subsection (a) shall include—

(1) an identification of the respective research and development requirements, roles, and responsibilities of the National Aeronautics and Space Administration and the Federal Aviation Administration;

(2) formal mechanisms for the timely sharing of information between the National Aeronautics and Space Administration and the Federal Aviation Administration, including a requirement that the FAA-NASA Coordinating Committee established in 1980 meet at least twice a year; and

(3) procedures for increased communication and coordination between the Federal Aviation Administration research advisory committee established under section 44508 of title 49, United States Code, and the NASA Aeronautics and Space Transportation Technology Advisory Committee, including a proposal for greater cross-membership between those 2 advisory committees.

SEC. 219. 100TH ANNIVERSARY OF FLIGHT EDUCATIONAL INITIATIVE.

(a) EDUCATION CURRICULUM.—In recognition of the 100th anniversary of the first powered flight, the Administrator, in coordination with the Secretary of Education, shall develop and provide for the distribution, for use in the 2000–2001 academic year and thereafter, of an age-appropriate educational curriculum, for use at the kindergarten, elementary, and secondary levels, on the history of flight, the contribution of flight to global development in the 20th century, the practical benefits of aeronautics and space flight to society, the scientific and mathematical principles used in flight, and any other topics the Administrator considers appropriate. The Administrator shall integrate into the educational curriculum plans for the development and flight of the Mars plane.

(b) REPORT TO CONGRESS.—Not later than May 1, 2000, the Administrator shall transmit a report to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on activities undertaken pursuant to this section.

SEC. 220. INTERNET AVAILABILITY OF INFORMATION.

The Administrator shall make available through the Internet home page of the National Aeronautics and Space Administration the abstracts relating to all research grants and awards made with funds authorized by this Act. Nothing in this section shall be construed to require or permit the release of any information prohibited by law or regulation from being released to the public.

II. PURPOSE OF THE BILL

The purpose of the bill is to authorize appropriations for fiscal years 2000, 2001, and 2002 for the National Aeronautics and Space Administration. The requested levels for (1) High Performance Computing and Communications (HPCC) and (2) Information Technology for the 21st century (IT2) have been taken out of this bill and will be dealt with in a separate, Committee-wide information technology bill. H.R. 1654 contains the following authorizations: $13,625,600,000 in FY2000; $13,747,100,000 in FY2001; and $13,839,400,000 in FY2002.

	By fiscal year: in millions of dollars—		
	2000	2001	2002
Original authorization	13,800.0	13,958.2	14,057.0
Less HPCC/IT2 cut	−174.4	−211.1	−217.6
H.R. 1654 authorization	13,625.6	13,747.1	13,839.4

III. Background and Need for the Legislation

The National Aeronautics and Space Administration was created in 1958 to help win the Cold War. In 1999, 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 1990s. 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 Administration's FY2000 budget request cuts NASA's funding by $87 million from the FY1999 appropriated level to $13.578 billion, before projecting a funding increase to $13.752 billion in FY2001 and a flat budget of $13.750 billion in FY2003 and beyond. H.R. 1654 addresses the need for stability by providing NASA with a budget that grows by 1% annually (taking into account the funding levels for HPCC and IT2). Thus, H.R. 1654 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 failed to live up to their obligations to fund and construct up to half of the Station's habitable volume. Consequently, the estimated cost to complete the International Space Station has risen from $17.4 billion to $24.7 billion. Moreover, NASA delayed the first element launch by a year and the completion date has been delayed by more than two years. As important, the Administration has continually cut funding for the International Space Station research activities, reducing the ability of the U.S. scientific community to fully utilize the research potential of the International Space Station. H.R. 1654 restores some of these budget cuts and contains measures to prevent additional transfers from Station research to Station development. Thus, the legislation is necessary to ensure that the International Space Station reaches its full scientific potential.

Finally, the bill makes investments in advanced space transportation technology that will accelerate the development of next-generation, low-cost launch vehicles. The health of U.S. government and commercial space efforts depends entirely on its ability to reliably and affordably access space. That inability has been used in the past to justify the use of foreign launch vehicles by U.S. commercial firms, indirectly resulting in the transfer of critical space technology to potential military adversaries and current commercial competitors. H.R. 1654 will make such transfers less likely when the investments it makes in space transportation begin to re-

sult in new space launch capabilities. Thus, H.R. 1654 is necessary to improve the health of the U.S. aerospace industry that serves U.S. civil and national security goals in space.

IV. Summary of Hearings

The Subcommittee on Space and Aeronautics held five formal authorization hearings during February and March of 1999 regarding the Fiscal Year 2000 budget request for the National Aeronautics and Space Administration (NASA).

FY2000 BUDGET REQUEST: THE SCIENCES AT NASA

On February 11, 1999, the Subcommittee on Space and Aeronautics held its first authorization hearing titled "FY2000 Budget Request: The Sciences at NASA." Witnesses included: Dr. Edward Weiler, Associate Administrator for Space Science, NASA; Dr. Ghassem Asrar, Associate Administrator for Earth Science, NASA; Dr. Arnauld E. Nicogossian, Associate Administrator for Life and Microgravity Sciences and Applications, NASA; and Dr. Claude Canizares, Chairman of the National Research Council's Space Studies Board.

PURPOSE OF THE HEARING

The hearing was intended to profile NASA's science programs in the context of the FY2000 budget request. Testimony before the Subcommittee focused on: (1) new initiatives in the offices of Space Science, Life and Microgravity Sciences and Applications, and Earth Science as laid out in the FY2000 budget; (2) an explanation of problems occurring within Space Science, Life and Microgravity Sciences and Applications, and Earth Science programs and NASA's plans for resolving them; (3) a summary of the manner in which the offices of Space Science, Life and Microgravity Sciences and Applications, and Earth Science and their priorities have changed in response to the Government Performance and Results Act; (4) a summary of NASA's accomplishments during the past year and those goals it hopes to achieve in FY2000; (5) a summary of the Space Studies Board's report "Supporting Research and Data Analysis in NASA's Science Programs"; and (6) recommendations about improving the management of research funds within NASA to ensure that each individual mission's potential to contribute to our knowledge base is fully utilized.

KEY ISSUES

Dr. Edward Weiler, Associate Administrator for Space Science, NASA, began his testimony by profiling several recent Space Science highlights through the utilization of the Committee on Science's multimedia displays in the main hearing room. Visual graphics were used to display photographs taken by the Hubble Space Telescope of a collision between an elliptical galaxy and a spiral galaxy. This phenomenon is of particular interest because of the resulting birth of stars and the existence of a super-massive black hole at the center of the galactic collision. Hubble Telescope pictures were also displayed of the faintest and farthest objects ever observed by humans. Additional images included Coronal

Mass Ejection Events, the Mars Polar Lander, Mars Climate Orbiter, the Mars Global Surveyor, and a new class of stars discovered by the Gamma Ray Observatory. Five new Space Science activities were identified in the President's FY2000 budget request. These programs included Mars Network communications capabilities, Mars Micromissions, Self-Sustaining Robotic Networks, Gossamer Spacecraft, and Next Decade Planning.

Dr. Arnauld E. Nicogossian, Associate Administrator for Life and Microgravity Sciences and Applications, highlighted the major accomplishments of 1998: (1) the results of Neurolab to be presented in April 1999 at the National Academy of Science's Symposium on the Decade of the Brain; (2) the findings discovered from the Mir studies regarding bone mass loss; (3) research conducted on infectious diseases by the NASA ground-based bioreactor at the NASA/NIH Center for Three-Dimensional Tissue Culture; and (4) work on evaluating distant learning, consultation, and surgical training technology for a potential virtual hospital. He testified that the most important challenge facing Life and Microgravity Sciences and Applications will be to develop and sustain their research community while resources are focused on the International Space Station (ISS).

Dr. Ghassem Asrar, Associate Administrator for Earth Science, described several examples of science and application results within the Earth Science Enterprise's Topical Rainfall Measuring Mission (TRMM), for the first time scientists can: (1) accurately measure precipitation over the global tropical ocean; (2) measure lightning strikes on a global scale; (3) record algae blooms in the world's oceans; and (4) bring this data to users such as farmers, fisheries, and federal agencies by using the Internet. Dr. Asrar summarized his testimony by stating that the Earth Science Enterprise balances funding across observation, research and data analyses, applications, and advanced satellite technology to ensure the nation has the tools to answer scientific questions about the Earth.

Dr. Claude Canizares, Chairman of the National Research Council's (NRC) Space Studies Board, focused his testimony on the Space Studies Board's report entitled "Supporting Research and Data Analysis (R&DA) in NASA Science Programs." The R&DA portions of NASA science activities are very important to NASA's research and these program's contributions include a wide range of NASA science programs. The NRC recommends NASA's science offices should use various means to improve their overview of R&DA activities, periodically evaluate their efficiency, and to seek a balance among them. Dr. Canizares concluded his testimony by stating that the Space Studies Board has consistently held that the best way to assure high quality research at NASA is to: (1) rely heavily on the peer review process; and (2) keep the authority for primary science allocation decisions at NASA Headquarters.

FY2000 BUDGET REQUEST: NASA POSTURE

On February 24, 1999, the Subcommittee on Space and Aeronautics held its second authorization hearing titled "FY2000 Budget Request: NASA Posture." NASA Administrator Daniel S. Goldin testified regarding the Fiscal Year 2000 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 the 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. The purpose of this hearing was to receive testimony from the Administrator regarding the President's fiscal year 2000 budget request for the agency.

KEY ISSUES

Administrator Goldin testified that the FY2000 budget request of $13.578 billion will give America a robust space and aeronautics program. Using the Science Committee's multimedia displays in the Committee's main hearing room, Mr. Goldin's testimony focused on: (1) the launch of the first two elements of the International Space Station (ISS), the Functional Cargo Block (FGB) and the Unity node; (2) Space Science highlights included, the Lunar Prospector, Deep Space 1, the Stardust mission, and the Chandra observatory; (3) Earth Science highlights included, Landsat 7, Quikscat, and Pathfinder programs; (4) the current status of the Reusable Launch Vehicle (RLV) program's flagship X–33 project; and (5) information on ISS's impact on other programs. Mr. Goldin then continued his testimony with NASA's future plans. These plans include: (1) an intelligent synthesis environment at NASA for research and development; (2) future experiments aboard ISS once it is completed; (3) a virtual presence throughout the solar system with a fleet of ever-smaller robotic spacecraft; (4) the Next Generation Space Telescope; (5) an Interplanetary Internet; (6) future Earth Science programs to help better understand our planet; (7) developing aeronautical technology to help reduce fatal aircraft accident rates by a factor of five in 10 years and by a factor of ten in 20 years; (8) the Ultra-Efficient Engine Technology program to reduce fuel consumption and improve performance; and (9) using the X–34 vehicle to test scramjet technology at speeds up to Mach 10. The NASA Administrator summarized his testimony by explaining that because NASA doesn't think small and plans for the long term, the agency's budget is an investment in the next millennium.

FY2000 BUDGET REQUEST: HUMAN SPACE FLIGHT

On February 25, 1999, the Subcommittee on Space and Aeronautics held its third authorization hearing titled "FY2000 Budget Request: Human Space Flight." Witnesses included: Mr. Joe Rothenberg, Associate Administrator, Office of Space Flight, NASA; Mr. Richard D. Blomberg, Chairman, Aerospace Safety Advisory Panel; Dr. James D. Richardson, Study Director, Potomac Institute for Policy Studies; and Ms. Marcia Smith, Specialist in Aerospace and Telecommunications Policy, Congressional Research Service.

PURPOSE OF HEARING

The hearing was intended to profile NASA's Human Space Flight program in the context of the FY2000 budget request. Testimony before the Subcommittee focused on: (1) funding requirements for the International Space Station (ISS) in FY2000 and beyond; (2) management challenges in terms of Russia's continuing failures to honor its obligations to the ISS partnership; (3) NASA's plans to commercialize ISS; (4) the steps NASA is taking to ensure that life and microgravity science opportunities are maximized during ISS assembly; (5) the development status of ISS; (6) the prospect for additional changes to the design of ISS through the end of the program; (7) the status and progress of Shuttle upgrade efforts; (8) changes in the Shuttle workforce composition, including past and anticipated workforce reductions; (9) the impact on the Shuttle launch schedule of any additional delays in or changes to ISS assembly sequence; and (10) the status of phase 4 upgrades to the Space Shuttle.

KEY ISSUES

Mr. Joe Rothenberg, Associate Administrator, Office of Space Flight, NASA, testified that with the exception of Russia, the International Space Station's (ISS) partners are delivering their hardware on time. Mr. Rothenberg reported that he has taken management steps to control the annual costs as well as the total cost of ISS. These included: (1) establishment and budgeting for a more realistic development and assembly complete schedule; and (2) a Headquarters Center Contractor Cost Management Team which has weekly insight into prime contractor costs. He assured the Subcommittee that rephasing of the research facility developments has not cut the research and analysis portion of the budget and the higher priority facilities, human research, biotechnology, and gravitational biology facilities have been maintained. In order to provide more research opportunities during assembly Mr. Rothenberg reported that he is reviewing the Space Shuttle manifest and they have added STS–107 as a dedicated research flight. Mr. Rothenberg also reported on the accomplishments and status of the Space Shuttle fleet including: (1) five successful Space Shuttle flights in 1998; and (2) the super light weight external tank and the new SSME Block II engine have increased the Space Shuttle's performance.

Mr. Richard D. Blomberg, Chairman, Aerospace Safety Advisory Panel, summarized the activities of the Aerospace Safety Advisory Panel. Mr. Blomberg reported that the panel believes that safety in the short term is well served but raised concerns about the future. These concerns included: (1) scheduled staff reductions will affect the Space Shuttle and the International Space Station (ISS) programs unless retiring experienced personnel are replaced with adequately trained staff; (2) the Space Shuttle and ISS are hampered by a dearth of physical resources with which to meet contingencies; (3) the Extra-Vehicular Activity (EVA) project lacks sufficient operational assets to meet unplanned contingencies (EVA crews should be provided with additional radiation and meteoroid shielding, and a better understanding of Russian EVA training pro-

cedures and protocols is needed); (4) Space Shuttle and ISS hardware are largely obsolete but not unsafe (newer technology would likely significantly reduce safety risks); and (5) new General Purpose Computers (GPC) are needed for the Space Shuttle fleet because the existing devices are outmoded and not upgradable.

Dr. James D. Richardson, Study Director, Potomac Institute for Policy Studies, summarized the Potomac Institute's study on commercialization of the International Space Station which was completed in early 1997. The study found that commercialization of human orbital space could yield significant benefits. He reported that the benefits to NASA's mission of commercialization include: (1) better and more affordable space assets; (2) increased utilization of the Space Shuttle, the ISS, and any future RLVs; (3) release of NASA's resources for applications to new science frontiers; (4) leveraged private investment; (5) improved innovation and importation of commercial technology to space endeavors; and (6) increased public support for space operations. The national benefits of commercialization were listed as: (1) enhancement of U.S. industry competitiveness; (2) spin-offs of new technologies to non-space industries; and, finally, (3) national prestige. Opportunities for space-based commercial ventures involved privatization of government functions of the ISS, commercial research ventures including biomedicine and materials, and near-term commercial opportunities in education, entertainment, and advertisement. Major problems with commercialization ventures were cited as high launch and operations costs, low flight frequency, long lead times for launch, and expensive indemnification against flight failure. The Potomac Institute's study concluded that a strategy of privatization to commercialization is a logical means of achieving NASA's goals.

Ms. Marcia Smith, Specialist in Aerospace and Telecommunications Policy, Congressional Research Service, testified that the Space Station program, as it began in 1984, was originally estimated to cost $8 billion. That program was terminated in 1993 and replaced with the International Space Station (ISS) program at an estimated cost of $17.4 billion. However since 1998, that estimate has risen to between $23.4 billion and $26 billion depending on whether assembly can be completed by June 2004 or October 2005. The original completion date was June 2002. The major components of the ISS cost increases include: (1) the Crew Return Vehicle (CRV) at a cost of $1.04 billion; (2) Russian program assurance, for which NASA has added $800 million; (3) extra funding to cover U.S. cost overruns, an example of which was Boeing's cost overrun of $828 million; (4) additional cash payments to Russia, including a $200 million transfer to Russia for ISS cooperation; and, (5) an estimated $3 billion in costs associated with schedule slips. Ms. Smith identified two enacted policies that could have increased costs. The first was the requirement to build the ISS with a flat budget of $2.1 billion per year and second came the decision to place the Russians in the critical path of the program. Ms. Smith concluded her testimony by suggesting that a council on ISS and commercialization be established to address three fundamental issues: (1) what is meant by commercialization and privatization; (2) what goals commercialization or privatization are expected to meet and how they will be measured; and (3) do all the inter-

national partners need to agree on the above or can the answer be different for each one?

FY2000 BUDGET REQUEST: AERO-SPACE TECHNOLOGY

On March 3, 1999, the Subcommittee on Space and Aeronautics held its fourth authorization hearing titled "FY2000 Budget Request: Aero-Space Technology." Witnesses included: Mr. Sam Armstrong, Associate Administrator, Office of Aero-Space Technology, NASA and Mr. Gary Payton, Deputy Associate Administrator (Space Transportation Technology), Office of Aero-Space Technology, NASA.

PURPOSE OF HEARING

The hearing was intended to examine NASA's Aero-Space Technology Enterprise in the context of the FY2000 budget request. Testimony before the Subcommittee focused on: (1) NASA's role in the Administration's Aviation Safety Initiative; (2) progress made on the initiative's goals to date; (3) the Administration's termination of NASA's High Speed Research program and the Advanced Subsonic Technology program, and the implications these cancellations have for the future of aeronautical research at NASA; (4) NASA's three new focused programs in aeronautics, and the rationale for their initiation; (5) the status of, plans, and funding requirements for NASA's current space transportation technology programs, including X–33 and X–34; (6) the status of, plans, and funding requirements for Future-X; (7) the role of the Advanced Space Transportation Program as a wellspring of technology for government and commercial application; (8) current plans regarding NASA support for the commercial space transportation industry, including VentureStar; and, (9) current plans regarding NASA support for the Department of Defense, including the Military Space Plane initiative.

KEY ISSUES

Mr. Sam Armstrong, Associate Administrator, Office of Aero-Space Technology, NASA, used the Science Committee's multimedia displays to highlight the accomplishments of the Office of Aero-Space Technology. These accomplishments included: (1) the unmanned Pathfinder aircraft's record flight to 80,000 feet; (2) high speed flight research conducted on the TU–144 Russian Supersonic Transport; (3) improved airport ground handling and taxi instructions for aircraft; (4) development of a laser radar used to detect clear air turbulence; (5) the Ultra-Efficient Engine Technology program; (6) synthetic vision; and (7) the X–34 hypersonic test vehicle.

Mr. Gary Payton, Deputy Associate Administrator (Space Transportation Technology), Office of Aero-Space Technology, NASA, testified that the X–34 hypersonic test vehicle was currently undergoing testing at Dryden Flight Research Center. The Reusable Launch Vehicle (RLV) program's X–33 launch site at Edwards AFB has been completed ahead of schedule and below cost. The X–33 itself is still in a state of assembly and its aerospike engine is running six months behind schedule. Problems with the composite liquid hydrogen tank have forced the first flight to move to the sum-

mer of 2000. Mr. Payton further testified that the X–37 has been selected as the first of the Future-X programs. NASA plans to fly the X–37 in a Space Shuttle orbiter, deploy the vehicle for 2 to 3 days on orbit, and have it return to Earth under its own command. Additionally, recent ground tests of the rocket-based combined cycle engine have produced results that may potentially lead to a more cost-effective launch system. Mr. Payton summarized his testimony by stating that the main objective of the Office of Aero-Space Technology is to dramatically decrease the cost of space access.

FY2000 BUDGET REQUEST: REGULATIONS AND OPERATIONS

On March 11, 1999, the Subcommittee on Space and Aeronautics held its fifth and final authorization hearing titled "FY2000 Budget Request: Regulations and Operations." Witnesses included Mr. Keith Calhoun-Senghor, Director, Office of Space Commercialization, Technology Administration, Department of Commerce; Ms. Patti Grace Smith, Associate Administrator, Office of Commercial Space Transportation, Federal Aviation Administration, Department of Transportation; Mr. Bruce L. Mahone, Director, Office of Space Policy, Aerospace Industries Association; and Mr. Joseph Rothenberg, Associate Administrator, Office of Human Space Flight, National Aeronautics and Space Administration.

PURPOSE OF HEARING

The hearing was intended to examine the space communications activities within NASA, regulatory activities at the Office of Commercial Space Transportation, and promotion of commercial space within the Office of Space Commercialization. All of these were reviewed within the context of the President's FY2000 budget request. Testimony before the Subcommittee focused on: (1) the Office of Space Commercialization's progress and plans for promoting the U.S. commercial space sector; (2) the role of the Office of Space Commercialization in dealing with commercial remote sensing, communications satellite export licenses, and related issues; (3) the problems and challenges facing the U.S. commercial space sector which may require changes in program funding, policy, legislation, or international agreements; (4) an assessment of the U.S. commercial launch industry's state of health and share of the world market; (5) an assessment of the U.S. commercial satellite industry's state of health and share of the world market, particularly as it applies to commercial remote sensing; (6) the projected trends in the U.S. share of the world market for the industries listed above; (7) any suggested regulatory or legislative actions to help preserve the U.S. share of the world market for these industries; (8) a brief overview of the Consolidated Space Operations Contract (CSOC) and the Space Operations Management Office (SOMO); (9) comparing savings levels anticipated from CSOC prior to the contract award with currently predicted levels of savings; (10) identifying any barriers to the commercialization of SOMO activities which require legislative action to correct; (11) highlighting current regulatory activity within the Office of Commercial Space Transportation; (12) identifying any aspects of commercial space launch which are inhibited by the existence, or lack of, appropriate regulations; (13)

specifying required legislative action which would enable such barriers to be removed; and (14) a summary of the manner in which the different office's programs and priorities have changed in response to the Government Performance and Results Act.

KEY ISSUES

Mr. Keith Calhoun-Senghor, Director, Office of Space Commercialization, Technology Administration, Department of Commerce, testified that the Office of Space Commercialization conducts activities in four primary areas: (1) policy development; (2) market analysis; (3) international discussions and export promotion; and (4) outreach and education. Mr. Calhoun-Senghor further testified that the Office of Space Commercialization has had a major role in the following achievements in the last year: (1) passage of the Commercial Space Act of 1998; (2) the Administration's decision to add two additional signals to GPS; (3) the establishment of the Remote Sensing Interagency Working Group; and (4) progress towards the development of new proposals to stimulate private sector investment in new space transportation systems. The Office has begun a study of space technologies that are likely to have a significant impact on the commercial market in the coming century. Mr. Calhoun-Senghor reported that within the next 10 years, 1,700 satellites will be launched worldwide, and the space industry will experience a growth of a least 20 percent a year, adding as many as 70,000 new high-technology jobs.

Ms. Patti Grace Smith, Associate Administrator, Office of Commercial Space Transportation, Federal Aviation Administration, Department of Transportation began her testimony by thanking the Committee on Science for passage of the Commercial Space Act of 1998 (P.L. 105–303). Ms. Smith reported that the current regulatory activities of the Office of Commercial Space Transportation included: (1) a rule addressing the licensing requirements for launches from federal ranges; (2) a Notice of Proposed Rulemaking (NPRM) regarding licensing requirements for operations of launch sites; and, (3) an NPRM for licensing Reusable Launch Vehicles (RLVs) and reentry vehicles. OCST considers extension of the launch indemnification legislation the most desired legislation at this time. Ms. Smith further testified that the U.S. launch market now includes 47 percent of the world market. Launch revenues topped $1.1 billion in 1998. The key to the U.S. success has been the high number of commercial launches to Low Earth Orbit (LEO) over the past two years.

Mr. Bruce L. Mahone, Director, Office of Space Policy, Aerospace Industries Association, also testified that the U.S. has nearly 50 percent of the market share for launches. He noted that this percentage did not represent a majority share in actual dollar amounts. Mr. Mahone estimated that with new heavy-lift launch vehicles coming on line in the next few years, the U.S. would gain back much of the heavy lift business and a larger share of the dollar value of the world market. Several areas of concern included: (1) long-term renewal of the indemnification provisions of the Commercial Space Launch Act; (2) national launch range modernization; and (3) the need for an export control regime in which the

U.S. industry can export space hardware quickly but maintain U.S. national security.

Mr. Joseph Rothenberg, Associate Administrator, Office of Human Space Flight, National Aeronautics and Space Administration, related his dedication to motivating the Consolidated Space Operations Contract (CSOC) team to ensure that NASA takes full advantage of the available commercial communications and operations infrastructure. The Space Office and Management Office (SOMO) was established in 1995 to address the growing cost of NASA's space operations. Mr. Rothenberg reported that the solution to cost growth included: (1) the need to downsize the workforce and shift the NASA civil service personnel from operations into R&D; (2) ensure the agency is buying available commercial services in support of operations; (3) take advantage of continued advances in technology to reduce operations costs; and, (4) to turn routine space operations over to the contractors. CSOC has had some difficulties with start-up but NASA continues to estimate that a savings of $1.4 billion will be realized over the 10 year life of the contract. Mr. Rothenberg concluded his testimony by detailing the responsibilities of the SOMO Board of Directors. The directors consist of representatives from SOMO, Space Science, Earth Science, and Human Space Flight. Their mission is to ensure the needs of the user community are being met by both SOMO and CSOC contractors.

V. Committee Actions

The Committee met on May 13, 1999, to mark up the bill H.R. 1654, the National Aeronautics and Space Administration Act of 1999. The bill was introduced on May 3, 1999 by Space and Aeronautics Subcommittee Chairman Rohrabacher. Original cosponsors included Science Committee Ranking Member Brown, Space and Aeronautics Subcommittee Ranking Member Gordon, Mr. Weldon of Florida, Mr. Cook, Mr. Nethercutt, and Mr. Etheridge. Amendments to the bill were offered in the following order:

1. En bloc amendment offered by Mr. Rohrabacher to make technical corrections to the Aeronautics Research and Technology Base funding levels and to require a study by the National Academy of Sciences to review NASA's efforts and outside entities' efforts to determine the extent of life in the universe. Adopted by voice vote.

2. Amendment to restore funding for the HPCC and IT2 Programs offered by Mr. Gordon to restore the funding for HPCC and IT2 in Space Science, Earth Science, and Aero-Space Technology. Amendment was withdrawn.

3. Amendment on National Space Grant College and Fellowship Program offered by Mr. Etheridge and Mr. Udall to increase by $15.9 million the overall funding level for Academic Programs in FY2000, from $128.6 million to $144.5 million and designate $25 million for the National Space Grant College and Fellowship Program. Amendment was withdrawn.

4. Amendment on National Space Grant College and Fellowship Program offered by Mr. Etheridge, Mr. Miller of California, and Mr. Udall to increase the funding for the National Space Grant College and Fellowship Program in fiscal year 2000 from the request level of $13.5 million to $20 million. This amendment did not

increase the overall funding of Academics Programs. Adopted by a voice vote.

5. Amendment on Historically Black Colleges and Universities offered by Ms. Jackson-Lee to designate Minority University Research and Education at $62.1 million in fiscal years 2000 and 2001 and $62.8 million in fiscal year 2002. Within this program, Historically Black Colleges and Universities (HBCU) is authorized at $33.6 million in fiscal years 2000 and 2001 and $34 million in fiscal year 2002. Adopted by a voice vote.

6. Amendment to promote commercialization of the International Space Station (ISS) offered by Mr. Cook to direct the NASA Administrator to allocate resources towards encouraging commercial participation in ISS, have his staff consider how their decisions on policies and program priorities will impact commercial participation in the ISS, and publish an annual list of opportunities for commercial participation in ISS. Amendment was withdrawn.

7. Amendment to conduct a study of the status of life and microgravity research as it relates to the International Space Station offered by Mr. Nethercutt to direct the National Academy of Sciences and National Academy of Public Administration to review readiness of the life and microgravity science community to maximize the scientific potential of the Space Station, identify limitations of the community's readiness for ISS, and study costs and benefits of planning an annual dedicated life and microgravity Shuttle mission during ISS assembly. Adopted by a voice vote.

8. Amendment on Remote Sensing for Agricultural and Resource Management offered by Mr. Smith of Michigan to direct NASA to consult with the Secretary of Agriculture to determine types of satellite data which can be useful for agricultural planning and identify commercial remote sensing products which provide such data. Adopted by a voice vote.

9. Amendment on Remote Sensing for Agricultural and Resource Management-Information Development offered by Mr. Smith of Michigan to direct NASA to consult with the Secretary of Agriculture to determine types of satellite data which can be useful for agricultural planning and identify commercial remote sensing products which provide such data. The amendment directs NASA to develop a plan to inform farmers and other prospective users of these products. Amendment was withdrawn.

10. Amendment on Integrated Safety Research Plan offered by Mr. Gutknecht requiring NASA and the FAA jointly prepare and transmit to Congress an integrated civil aviation safety R&D plan that defines the roles and responsibilities of each agency, requires the timely sharing of critical information, and recommends procedures to increase the communication between the agencies' industry advisory committees. Adopted by a voice vote.

11. Amendment on the 100th Anniversary of Flight Educational Initiative offered by Mr. Etheridge to instruct the NASA Administrator, in coordination with the Secretary of Education, to develop an educational curriculum in recognition of the 100th anniversary of the first powered flight. Adopted by a voice vote.

12. Amendment on Internet Availability of Information offered by Ms. Biggert requiring the NASA Administrator to post on NASA's

Internet home page, the abstracts of research grants and awards funded by the agency. Adopted by a voice vote.

13. Amendment to terminate Triana offered by Mr. Weldon of Florida and Mr. Nethercutt to cancel the Triana satellite, transfer the Triana funding of $32.6 million to Life and Microgravity Sciences and Applications, and provide $2.5 million for termination costs. Adopted by a roll call vote: yea—21 to nay—18.

14. Amendment to terminate the International Space Station (ISS) offered by Mr. Sanford to terminate the ISS and provide $500 million for termination costs. Amendment was defeated by voice vote and then withdrawn.

15. Amendment to remove limitation on funding for Ultra-Efficient Engine Technology (UEET) offered by Mr. Larson to remove the limitation on funding for the UEET, a new focused program, in the Office of Aero-Space Technology. Amendment was withdrawn.

16. Amendment on aircraft noise reduction technology offered by Mr. Weiner to provide additional funding for aircraft noise reduction from within the Aeronautical Research and Technology Base for FY2000–2002. Amendment was defeated by a roll call vote: yea—17 to nay—17.

17. Amendment to strike Earth Science program limitation to remove the requirement for NASA to spend $50 million for the commercial purchase of Earth science data unless 5 percent of the funding for the Earth Observing System and Earth Probes is allocated to commercial data purchases. Mr. Gordon moved to strike the last word to explain that Mr. Brown had intended to offer the amendment and asked that Mr. Brown's comments be made a part of the record. Amendment was not offered.

18. Amendment to amend the Trans-Hab section offered by Mr. Lampson to alter the prohibition on funding for Trans-Hab. The amendment prohibits funding for an inflatable structure (1) to replace any Space Station component or (2) that would otherwise accommodate humans in space; until NASA produces a report. Amendment was withdrawn.

19. Report Language on Photonics Research offered by Mr. Capuano to encourage NASA to continue, and seek additional partnerships that merge competitively awarded academic research and corporate development in a way that strengthens and accelerates the photonics product development process to directly contribute to NASA's defined four strategic enterprises. Agreed to by a voice vote.

Mr. Rohrabacher moved that the Committee report the bill, H.R. 1654, as amended, to the House, that the staff prepare the legislative report and make technical and conforming changes, and that the Chairman take all necessary steps to bring the bill before the House for consideration. The motion was adopted by roll call vote, 27–13.

The Chairman noted that Committee Members have two subsequent calendar days in which to submit supplemental, minority, or additional views on the measure. The Chairman asked and received unanimous consent to report the bill in the form of a single amendment in the nature of a substitute reflecting amendments adopted during the markup and that, pursuant to Clause 1 of Rule

XXII of the Rules of the House of Representatives, the Committee authorize the Chairman to offer such motions as may be necessary in the House to go to conference with the Senate on H.R. 1654.

VI. Summary of Major Provisions of the Bill

- Authorizes appropriations for all NASA programs for FY2000–2002;
- Authorizes the International Space Station at the requested levels for each of the three years;
- Authorizes at the requested levels, Space Shuttle Operations, Payload and Utilization Operations, Mission Communication Services, Research and Program Management, and Space Communication Services;
- Does not provide funding for High Performance Computing and Communications and Information Technology for the 21st Century so that these programs can be authorized in separate Committee-wide information technology legislation;
- Provides increases for Space Shuttle upgrades, education, advanced space transportation technology, space science, life and microgravity research, and the NASA Inspector General;
- Prohibits funding for the Triana satellite;
- Provides $50 million in FY2000 and FY2001 for commercial Earth science data buys unless NASA demonstrates that it has incorporated commercial data buys into its procurement process;
- Requires NASA to consider the impact on U.S. industry of a foreign entity providing part of a space mission;
- Prohibits funding for Trans-Hab, an inflatable structure that is being reviewed by NASA as a potential replacement for the Space Station's habitation module;
- Prohibits funding for creation of a government-owned corporation to perform the functions of the Consolidated Space Operations Contract;
- Requires NASA's Chief Financial Officer to conduct an independent cost analysis for projects that are expected to cost more than $100 million before any funds may be obligated for Phase B work;
- Requires NASA to purchase commercially available space goods and services to the fullest extent feasible and not to compete with the private sector;
- Requires an independent study to prioritize Phase III and Phase IV upgrades within 3 separate categories: safety, applicability to reusable launch vehicles, and those that have a payback period within twelve years;
- Requires NASA to develop a plan for integration of R&D and experimental demonstration activities for aeronautics and space transportation technology;
- Defines commercial space policy terms;
- Requires an independent study to identify and evaluate the benefits and costs of the broadest possible range of commercial and scientific applications of the Space Shuttle's external tanks;
- Requires NASA to establish a human space flight commercialization/technology program of ground-based and space-based R&D in innovative technologies;

• Requires a review from the National Academy of Sciences on international efforts to determine the extent of life in the universe, enhancements that can be made to NASA's efforts to determine the extent of life in the universe, and recommendations on possible coordination/integration of NASA's initiatives with those of outside entities;
• Requires a study from the National Research Council and the National Academy of Public Administration on the readiness of the life and microgravity research community to use the International Space Station, limitations the life and microgravity scientists face in using the Station, and the costs and benefits of planning an annual dedicated life and microgravity Shuttle mission during Station assembly;
• Requires NASA to consult with the Secretary of Agriculture to determine commercial remote sensing data products that are useful to farmers;
• Requires a joint plan on civil aviation safety research and development from NASA and the Federal Aviation Administration;
• Requires NASA to develop an educational curriculum on the history of flight in recognition of the 100th anniversary of the first powered flight; and
• Requires NASA to post abstracts from NASA-funded research grants and awards to its Internet home page.

VII. Sectional Analysis and Committee Views

SECTION 1. SHORT TITLE; TABLE OF CONTENTS

This Act may be referred to as the "National Aeronautics and Space Administration Authorization Act of 1999."

SECTION 2. FINDINGS

The Congress finds that: NASA should continue to pursue actions and reforms to reduce institutional costs; NASA must continue on its current course of returning to its role as the nation's leader in basic scientific, air, and space research; 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; NASA and DoD can reduce the cost of space missions by more effectively leveraging their mutual capabilities; the Deep Space Network will continue to be a critically important part of the nation's scientific and exploration infrastructure and NASA should ensure it is adequately maintained and upgraded; and the Hubble Space Telescope is an important national astronomical research facility that should be maintained and enhanced as appropriate to serve as a scientific bridge to the next generation of space-based observatories.

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 contained 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, and 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 fifty percent owned by U.S. nationals or a subsidiary of a foreign company and the Secretary of Commerce 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. INTERNATIONAL SPACE STATION

Sectional analysis and recommendation

In FY2000 $2,482,700,000 are authorized of which $394,400,000 shall only be for Space Station research or for Life and Microgravity Sciences and Applications. The fenced amount is to be administered by the Office of Life and Microgravity Sciences and Applications. In FY2001 $2,328,000,000 are authorized of which $465,400,000 shall only be for Space Station research or for Life and Microgravity Sciences and Applications. The fenced amount is to be administered by the Office of Life and Microgravity Sciences and Applications. In FY2002 $2,091,000,000 are authorized of which $469,200,000 shall only be for Space Station research or for Life and Microgravity Sciences and Applications. The fenced amount is to be administered by the Office of Life and Microgravity Sciences and Applications.

Committee views

The International Space Station (ISS) is the centerpiece of NASA's Human Exploration and Development of Space (HEDS) strategic enterprise. An international partnership involving over a dozen countries, the ISS possesses the potential to enable revolutionary discoveries in a variety of scientific disciplines by fully exploiting the unique environment of microgravity.

While NASA has been working on a space station involving international partners since 1984, the current configuration was established during 1993 and 1994, when the Clinton Administration decided to invite Russia to participate in the program. At the time, Congress raised concerns about placing Russia in the program's critical path and the Administration committed that the United States would have an independent capability to design, develop, assemble, and operate the station regardless of Russia's role. Initially, the first element, the U.S.-financed, Russian-built Functional

Cargo Block (FGB) was scheduled for launch in November 1997. ISS was to be completed by June 2002, operate at its full science capacity for ten years, and cost $17.4 billion between FY1994 and June 2002 with annual operating costs of $1.3 billion thereafter.

Unfortunately, since late 1995, the Russian government has failed to provide adequate or timely funding to the Russian Space Agency so that it can meet its obligations to provide hardware to the program. Additionally, the Administration did not honor its commitment to Congress to design and build a space station capable of being built independently of the Russians. NASA and its partners are dependent on RSA for propulsion, early command and control, life support, reboost, and assured crew return. NASA also depends on Russia for long-term logistics support to the ISS. As a result, Russia is deeply embedded in the critical path and passes all of its problems on to its other partners. Largely due to the Administration's failure to honor its commitment to the Congress and Russia's failure to meet its obligations to the ISS, the program's development cost has risen from $17.4 billion to at least $24.7 billion, according to an outside audit conducted in 1998 at the request of Congress. (Internal NASA documents attribute $5 billion of this cost growth to difficulties caused by Russia.) In many ways, even this figure represents a low estimate of the ISS program's development cost, since it does not capture the cuts the Administration has made to the program's science budgets in order to fund hardware development or the hardware responsibilities that NASA has convinced other partners to pay for in exchange for increasing their research opportunities. Finally, the first element's launch was delayed a year; the third element—the Russian Service Module—is not expected to be launched until December 1999, nearly 20 months late; and, the assembly complete date is currently not anticipated before October 2004.

In order to address these problems, the Committee has argued in favor of removing Russia from the ISS critical path by investing in independent U.S. capabilities, principally by investing in a long-term U.S. propulsion capability capable of replacing the Russian Service Module. The Administration had previously rejected this solution, but now has apparently embraced the idea since the FY2000 budget request includes funding for NASA to develop an independent U.S. propulsion capability and NASA has begun procuring long-lead items for this module. The Committee also noted the report of the Cost Assessment and Validation Task Force of the NASA Advisory Council in the Spring of 1998, which reported that the Administration had underfunded the program from its inception and recommended that NASA eliminate program content in order to keep its costs down. Finally, the Committee has expressed consistent opposition to continuing Administration cuts to the ISS research budget, noting the concerns of the National Research Council, the NASA–NIH Advisory Committee, the Federation of American Societies for Experimental Biology, the American Society for Gravitational and Space Biology, and the Association of American Universities Space Science Working Group that such cuts undermine the science community's ability to maximize the scientific potential of the ISS. In FY1999, the Committee recommended and the House of Representatives passed a NASA Authorization which

directed that ISS research funds be managed by the Office of Life and Microgravity Sciences and Applications (OLMSA) within the Science, Aeronautics, and Technology appropriations account and that such funds be protected from additional transfers to ISS development. The FY1999 appropriations bill endorsed this recommendation and directed NASA to separate the ISS into its own appropriations account in order to prevent unilateral transfers from science to development within the NASA budget. Despite these clear signals from Congress, NASA declined to transfer responsibility for managing the ISS research budget to OLMSA in FY1999.

H.R. 1654 reaffirms Congressional support for ISS by providing full funding for the International Space Station at the level of the President's request and restates Congressional direction and the priority of science by separating the ISS research budget from ISS development activities and directing that it be managed by OLMSA. As later sections of the bill indicate, the Committee is also endorsing the recommendations of the Cost Assessment and Validation Task Force to control cost growth through design discipline.

SECTION 102. LAUNCH VEHICLE AND PAYLOAD OPERATIONS

Section 102 (1) and (2). Space Shuttle Operations; Space Shuttle Safety and Performance Upgrades

Sectional analysis and recommendation

In FY2000 $2,547,400,000 are authorized for Space Shuttle operations and $456,800,000 are authorized for safety and performance upgrades. Of the amount authorized for upgrades, $18,000,000 shall not be obligated until 45 days after the Section 207 report on Shuttle upgrades is submitted to Congress. In FY2001 $2,649,900,000 are authorized for Space Shuttle Operations, and $407,200,000 are authorized for safety and performance upgrades. In FY2002 $2,629,900,000 are authorized for Space Shuttle Operations, and $414,000,000 are authorized for safety and performance upgrades. This authorization represents an increase in the Space Shuttle safety and performance upgrades program of $18,000,000 in FY2000, $24,000,000 in FY2001, and $29,000,000 in FY2002.

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 materials 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

Internal budget constraints have limited the agency's ability to institute additional safety and performance upgrades to the Space Shuttle. A recently released study on Shuttle upgrades by the National Research Council (NRC) has commended NASA on the way the agency prioritizes and implements upgrades. The report, however, does note the NRC's reservations about the implementation process for those upgrade programs which would fundamentally alter the existing mold lines of the Shuttle "stack."

The NASA Administrator has testified that if Shuttle program managers require additional funds for safety and performance upgrades, they would be provided. To date, Congress has not received such a request. United Space Alliance, the prime contractor for the Space Flight Operations Contract (SFOC), has identified a group of additional upgrades it deems beneficial which are beyond those for which NASA sets aside approximately $100 million annually. The Committee encourages NASA to devote the additional resources provided to high priority upgrades such as the Electric Auxiliary Power Unit and the Health-monitoring system for the Space Shuttle Main Engine. Other upgrades, which may have applications for other vehicles as well as the Space Shuttle, could be funded through the Advanced Space Transportation Technology program. Some of the increase in funds in the Advanced Space Transportation Technology budget line may be used to fund needed technology risk reduction efforts intended to support long-term Space Shuttle sustainability, depending upon the results of the study in Section 207 and further interaction between the Committee and NASA.

A replacement for the Space Shuttle has not materialized, and may not before the end of the next decade. Sufficient resources should be dedicated to safety and performance upgrades to ensure the safety and integrity of the system. At the same time, such improvements should not be a disincentive to the development of a Shuttle replacement.

Congress urges the NASA Administrator, in cooperation with the Space Flight Operations Contractor, to continue to jointly determine the priority for the implementation of Shuttle upgrades. Further, though the Value Engineering Clause currently in effect between NASA and United Space Alliance incentivizes the SFOC contractor to invest in Shuttle upgrades, Congress encourages the NASA Administrator along with industry to formulate long-term proposals to properly incentivize reinvestment by contractors beyond the scope of the contract.

The 1998 Annual Report of the Aerospace Safety Advisory Panel has noted the aging of aircraft associated with the training of this nation's astronauts. According to the report, both the Shuttle training aircraft and NASA's fleet of T–38s are rapidly approaching the end of their safe service lives with no replacements scheduled. Despite the aging of these aircraft, the report notes the enviable safety record established by NASA and recommends that plans should be made to replace the Shuttle training aircraft.

The T–38 fleet is in the process of various upgrades which will allow these aircraft to fulfill their function for the foreseeable future. However, the utilization rate of these aircraft is expected to

become greater due to the increased flight hour requirements of an astronaut corps projected to grow over the next few years. This increase in operational requirements will accelerate the aging of these aircraft and may adversely affect safety. The Committee therefore encourages the NASA Administrator to explore options that would offset the demands of increased flight hour requirements on these aircraft.

Section 102(3). Payload and Utilization Operations

In FY2000 $169,100,000 are authorized; in FY2001 $182,900,000 are authorized; and in FY2002 $184,500,000 are authorized for Payload and Utilization Operations. This program supports the processing and flight of Shuttle payloads.

SECTION 103. SCIENCE, AERONAUTICS, AND TECHNOLOGY

Section 103(1). Space Science

Sectional analysis and recommendation

In FY2000 $2,202,400,000 are authorized of which $472,000,000 shall be for the Research Program. The Hubble Space Telescope is authorized at $170,400,000 an increase of $30,000,000 over the budget request. In FY2001 $2,315,200,000 are authorized of which $475,800,000 shall be for the Research Program. In FY2002 $2,411,800,000 are authorized of which $511,100,000 shall be for the Research Program and $5,000,000 shall be for a space science data buy. For each of the fiscal years 2000–2002, $10,500,000 are authorized for the Near Earth Object Survey and $12,000,000 are authorized for Space Solar Power technology. High Performance Computing and Communications and Information Technology for the 21st Century are cut from Space Science in the following amounts: −$43,200,000 in FY2000; −$50,600,000 in FY2001; and −$51,600,000 in FY2002. These two programs will be dealt with in a separate, Committee-wide authorization bill on information technology.

Committee views

NASA's space science activity encompasses a range of scientific inquiries and space missions to improve understanding of: (1) the connection between the Sun and the Earth; (2) the structure and evolution of the universe; (3) the origins, nature and extent of life in the universe; and (4) our solar system.

Although the space science activity has enjoyed consistent bipartisan support from the Committee and Congress for several years, the Committee has expressed concern about some aspects of the research program. Most notably, NASA has a tendency to request insufficient funds to adequately process and analyze data from its space science missions. Drawing on its engineering heritage, the Agency sometimes tends to overemphasize building flight hardware at the expense of funding scientific investigators to maximize the science potential of NASA's missions. The flight rate for space science missions has risen dramatically in recent years, and under the new budget appears as though it will continue increasing. Yet, the space science research and analysis budget is flatlined through 2004. As a percentage of the total space science budget, research

and analysis is actually falling from 9% in FY1999 to just under 7% in FY2004. Similarly, the space science mission operations budget is also projected to fall from $139 million in FY1998 to $76 million in FY2004, a decline from 7% of the FY1998 budget to slightly less than 3% of the space science budget in FY2004. As a result, the data collected by these missions is often underutilized. For example, NASA's budget for data processing and analysis in the successful Lunar Prospector mission appears inadequate to develop some of the Lunar mineral maps capable of being extracted from the mission's data products. Past hearings have drawn attention to this problem, which the National Research Council's Space Studies Board reviewed extensively in its 1998 report "Supporting Research and Data Analysis in NASA's Science Programs." As important, when some programs run into development difficulties, NASA's generally finds additional resources in the space science budget by transferring the funds out of its science activities. In order to prevent the costs of the emergency Hubble Space Telescope repair mission from adversely affecting other space science programs, the bill contains $30 million over and above the President's request to pay for this mission in FY2000.

The Committee understands the critical role photonic research plays in NASA's efforts to develop the Next Generation Space Telescope, the Origins program, and the Space Communications program. The Committee notes that NASA has worked with academic institutions and corporate entities to foster cutting-edge research and development of photonic-related ideas and technologies. Therefore, the Committee encourages NASA to continue these partnerships and seek additional partnerships that merge competitively awarded academic research and corporate development in a way that strengthens and accelerates the photonics product development process to directly contribute to NASA's defined four strategic enterprises.

Near Earth Object Survey: The threat to life on Earth due to asteroids is a subject of ongoing debate and discussion. If one of the many large bodies of rock orbiting the sun should intersect Earth's orbit, the results could be potentially cataclysmic. A number of scientific theories tie the extinction of the dinosaurs to an asteroid impact from space. This subject began receiving much more serious consideration after 1994, when the Shoemaker-Levy Comet slammed into the surface of Jupiter, creating visible impact sites about as large as the diameter of the Earth.

The first step to protect against such an event is to find and catalog these objects as they orbit the sun. In 1995, the Near Earth Objects Survey Working Group, chaired by the late Dr. Eugene Shoemaker, examined levels of effort required to conduct such a survey. The Near Earth Object Survey is currently funded as an interagency effort at a lower level of funding than that recommended by the group report.

This Committee has had a long-standing concern under both Democratic and Republican leadership that NASA funding levels to identify such objects are not sufficient to satisfy the metric identified in the Shoemaker report: the discovery of 90% of near Earth objects larger than 1 kilometer diameter within 10 years. In testimony before the Subcommittee, NASA has twice committed to

achieving the Shoemaker metric (on May 21, 1998 and on February 24, 1999).

The Committee recognizes that the odds of an object larger than 1 kilometer striking the Earth are extremely remote. However, the consequences—the possible end of human life on Earth—are extremely great. Indeed, in testimony before the Subcommittee on May 21, 1998, scientists testified that an individual is therefore more likely to die from an asteroid strike than by being struck by lightning.

An added benefit of the Near Earth Object Survey program is that smaller objects which strike much more often are also detected. For example, an object which impacted Siberia in 1908 had the explosive equivalent of over 1,000 times that of the Hiroshima bomb—flattening trees over an area twice the size of the Washington Beltway. Such an object is statistically expected to strike the Earth once per century. The Near Earth Object Survey, according to NASA researchers, can also discover and catalog these smaller objects, and potentially warn of an impact early enough to evacuate the area well ahead of time.

However, the Committee notes with great concern NASA's failure to submit a budget for the Near Earth Object Survey that is sufficient to achieve the Shoemaker metric to which NASA has repeatedly committed.

The discovery of near Earth objects (NEO's) is a linear function. That is to say, two telescopes of the same type can be expected to yield twice the discovery rate of one telescope acting alone. This allows a determination to be made of the adequacy of current funding levels to accomplish the necessary NEO detection rate.

The first half of FY1999 ended on March 31st, 1999. The rate-of-discovery of large NEO's during that period was less than ⅙th of what is necessary to discover 90% of large NEO's in the 10 year timeframe. At the beginning of fiscal year 1999, NASA's NEO budget more than doubled from $1.5 million to $3.5 million annually. This increase allows for additional telescope time to be scheduled. Because of the long lead-time for such scheduling, the new discovery rate has not yet ramped up to the predicted doubled rate. Once this rate has doubled, the large NEO discovery rate will double from less than ⅙th the necessary rate to ⅓rd the necessary rate.

The Committee therefore concludes that NASA's current funding level for NEO detection is about one-third the level necessary to achieve the Shoemaker metric to which NASA has committed. Accordingly, the funding level is tripled from $3.5 million to $10.5 million.

Space Solar Power technology: In 1997 NASA released its "Fresh Look Study" of Space Solar Power and NASA reprogrammed $2 million, with the Committee's encouragement, to continue its analysis of the required technologies and their cost-effective application for both near-term space applications and long-term energy generation potential. The President's FY1999 NASA Budget requested $5 million for Space Solar Power as part of the Cross Enterprise Technology program in the Office of Space Science, and Administrator Goldin indicated during his Posture hearing on February 5, 1998,

that NASA planned to request an additional $5 million in FY2000. Congress then increased this amount to $15 million for FY1999.

The continuing analyses conducted during FY1998 resulted in roadmaps for critical path technologies for Space Solar Power including: solar power generation; wireless powerless transmission; power management and distribution; structures, materials, and controls; thermal management and controls; robotic maintenance and operations; platform systems; ground segment systems; in-space transportation and infrastructure; and systems integration. Not surprisingly, a measured program of space solar power technology investments, guided by systems studies and roadmaps, could nevertheless enable significant interim applications within five years: ultra-lightweight structures for large aperture in-space observatories and interferometers; 200 watts/kilogram solar power generation for government and commercial Earth-orbiting platforms; ground-to-space power beaming for space science; autonomous deployment of space systems; improved in-space servicing of Earth-orbiting systems; automated ground and space systems operations (vehicle management); cooperative robots for science/exploration missions; and ultra-large lightweight optics.

While the long-term goal of space solar power generation and transmission to Earth as a new, environmentally-clean form of energy during the 21st century is exciting and worth continued funding, the Committee believes that the shorter-term benefits are sufficient to justify continuing the technology analysis, development, and demonstration activities begun during FY1999. The Committee has therefore provided $12 million per year over FY2000–2002 for this purpose, and will review NASA's progress on this focused technology effort, including NASA's level of success in leveraging other private and public resources, especially those of the Departments of Defense and Energy.

Summary: These recommendations will result in net increases to the space science budget, which reflect the Committee's continuing prioritization of space science activities. However, the Committee does note some warning signs in the Space Science enterprise, most notably in NASA's inability to constrain continuing cost growth and program delays in the AXAF observatory and the budgetary disappearance of the New Millennium program, which NASA originally initiated to address its historical inability to develop new technology for space science. While such problems appear to be at an early stage, the Committee does want to draw NASA's attention to them before they have a significant impact on its budget.

Section 103(2). Life and Microgravity Sciences and Applications

Sectional analysis and recommendation

In FY2000 $333,600,000 are authorized, an increase of $77,400,000 over the budget request. Of this amount $5,000,000 are authorized for sounding rocket vouchers. In FY2001 $335,200,000 are authorized, an increase of $70,000,000 over the budget request. In FY2002 $344,000,000 are authorized, an increase of $80,800,000 over the budget request. For each of the fiscal years 2000–2002, $2,000,000 are authorized for breast and ovarian cancer research and other women's health issues.

Committee views

Funds budgeted for Life and Microgravity Science and Applications involve investigations in Advanced Human Support Technology, Biomedical Research and Countermeasures, Gravitational Biology and Ecology, Microgravity Research, Space Product Development, Occupational Health Research, Mission Integration, and Space Medicine. Early in the International Space Station (ISS) program, the Office of Life and Microgravity Sciences and Applications (OLMSA) managed the research accounts for the International Space Station, where much of this research will take place in the future. Unfortunately, in order to pay for increasing ISS development costs without appearing to overrun its budget projections, the Administration in the past has cut funding for research into ISS-based life and microgravity research and transferred management responsibility from the scientific community in OLMSA to the engineering community within the ISS program office. These cuts totaled approximately $462 million between FY1997 and FY1999. In the FY2000 budget request, the Administration paid some of these previously transferred funds back into the ISS research account, and then cut the ISS research budget by another $387 million between FY1999 and FY2004. When all of the budget impacts are considered, these transfers resulted in a net reduction of $280 million from life and microgravity science and applications activities between FY2000 and FY2004 when the FY2000 budget request is compared against the FY1999 budget request.

In the period FY2000–2002, the Committee seeks to restore $228.2 million of these Administration cuts to science. However, rather than restoring these funds to the ISS research budget, the Committee has placed them in the OLMSA budget in order to give NASA greater flexibility in undoing the damage done to the research community by earlier Administration cuts. In this manner, the Committee is promoting maximum flexibility to deal with a constantly changing ISS assembly sequence so that damage to the science agenda caused by ISS delays is minimized. In addition, to partially address the two-year gap in flight opportunities that the life and microgravity research community is experiencing in FY1999 and FY2000, the bill sets aside $5 million in FY2000 for OLMSA to use sounding rockets to give life and microgravity researchers more opportunities to fly their experiments in microgravity.

Section 103(3). Earth Science

Sectional analysis and recommendation

In FY2000 $1,382,500,000 are authorized; in FY2001 $1,413,300,000 are authorized; and in FY2002 $1,365,300,000 are authorized. These authorizations are subject to the limitations in sections 126 and 130. Section 126 authorizes $50,000,000 in FY2001 and FY2002 for commercial data purchases of Earth science data. Section 130 prohibits using funding in the bill for the Triana program, except for $2,500,000 in FY2000 for termination costs. High Performance Computing and Communications is cut from Earth Science in the following amounts: −$44,000,000 in FY2000; −$49,500,000 in FY2001; and −$55,200,000 in FY2002.

This program will be dealt with in a separate, committee-wide authorization bill on information technology.

Program description

NASA's Earth Science Enterprise (formerly Mission to Planet Earth) is the largest single component of the U.S. Global Change Research Program (USGCRP), averaging about 70% of USGCRP's total budget. The components of the Earth Science program can be summarized into four basic categories: (1) Earth Observing System (EOS); (2) Earth Observing System Data Information System (EOSDIS); (3) Earth Probes; and (4) Science programs.

Committee views

The Committee remains concerned over problems and delays which plagued the Earth Science Enterprise in 1998. While scientists did have a successful year with science data made available to them such as the prediction of El Nino, a new prediction of La Nina, radar measurements of Antarctica, and cloud measurements from Hurricane Bonnie, this data came from satellites built by other countries that included NASA instruments. The Earth Observing System, a series of satellites (AM–1, PM–1, Chem-1, and others) which represent the flagships of the Earth Science Enterprise, was unable to launch any of the three satellites (AM–1, Landsat-7, and QuikScat) scheduled for launch in 1998.

The Committee recognizes that the QuikScat delay was due to a launch vehicle problem and that Landsat-7 was subsequently launched on April 15, 1999. These delays, however, underscore the Committee's concern about the over-reliance on acquiring satellite data rather than the conduct of scientific research. Indeed, this concern is epitomized by NASA's planned acquisition of data that will be equivalent to the entire Library of Congress every two weeks during just the AM–1 and Landsat-7 era—before PM–1 and Chem-1 have even launched.

Section 103(4). Aero-Space Technology

In FY2000 $999,300,000 are authorized; in FY2001 $908,400,000 are authorized; and in FY2002 $994,800,000 are authorized for Aero-Space Technology. This budget line contains three separate activities: Aeronautical Research and Technology, Advanced Space Transportation Technology, and Commercial Technology.

Aeronautical research and technology

Sectional analysis and recommendation

In FY2000 $532,800,000 are authorized with no funds for the Ultra-Efficient Engine (a decrease of $50,000,000 from the budget request) and $412,800,000 are authorized for the Research and Technology Base (an increase of $50,000,000 over the budget request and a decrease of $63,000,000 for HPCC and IT2). In FY2001 $524,000,000 are authorized with no funds for the Ultra-Efficient Engine (a decrease of $50,000,000 from the budget request), $399,800,000 are authorized for the Research and Technology Base (an increase of $50,000,000 over the budget request and a decrease of $84,200,000 for HPCC and IT2), and $54,200,000 are authorized

for Aviation Systems Capacity (a decrease of $5,000,000 from the budget request). In FY2002 $519,200,000 are authorized with no funds for the Ultra-Efficient Engine (a decrease of $50,000,000 from the budget request), $381,600,000 are authorized for the Research and Technology Base (an increase of $50,000,000 over the budget request and a decrease of $85,300,000 for HPCC and IT2), and $67,600,000 are authorized for Aviation Systems Capacity (a decrease of $10,000,000 from the budget request). High Performance Computing and Communications and Information Technology for the 21st Century are cut from Aeronautics in the following amounts: −$87,200,000 in FY2000; −$111,000,000 in FY2001; and −$110,800,000 in FY2002 (a portion of the cut comes from the Research and Technology Base and a portion comes from the HPCC focused program within Aeronautics). HPCC and IT2 will be dealt with in a separate, committee-wide authorization bill on information technology.

Program description

NASA has changed the name of its Aeronautics and Space Transportation Enterprise to Aero-Space Technology with the submission of its FY2000 budget. The core of NASA's aeronautical research efforts can be found in the Research and Technology Base where the focus is leading-edge research in propulsion and structures. In addition, focused programs are structured to provide further research into programs which NASA deems appropriate. Though NASA claims that its aeronautical research and technology focused programs are a high priority, the agency's abrupt cancellation of the High Speed Research and Advanced Subsonic Technology focused programs late last year is a direct contradiction. NASA's claims that such focused programs are disciplined in terms of duration, are questionable, particularly in the case of the High Speed Research program. That program was supposed to be completed in FY2002 until NASA proposed it be extended through FY2007 at a total estimated cost of over $2.6 billion.

Committee views

Ultra Efficient Engine Technology: NASA's FY2000 budget request included the Ultra Efficient Engine Technology (UEET) Program, a new start which the agency stated would build on breakthrough technology developed in the High Speed Research, Advanced Subsonic Technology, and Research and Technology Base programs to spawn a new generation of high efficiency, low-emissions U.S. aircraft. As stated above, NASA has terminated the High Speed Research and Advanced Subsonic Technology programs early in FY1999. Therefore, to protect aeronautics research programs in the future it is the view of the Committee that the valuable research that this program encompasses should be pursued within the Research and Technology Base. These programs include, Ultra Low NOx combustors and ceramic matrix composite liners; advanced turbomachinery; low-noise fan, core, and nozzle designs; advanced materials and structures which includes research into propulsion and airframe integration; and the system analysis tools required to validate these technologies. The Committee provides the funding requirements of this program through FY2002 and rec-

ognizes that a long-term funding commitment to meet the technology goals of the program will require cost sharing by the commercial sector.

Aircraft Noise Reduction: With the elimination of the Ultra Efficient Engine Technology program as a focused research program, the budget for this program has been returned to the Research and Technology Base. The Committee has avoided imposing any restrictions on how those funds are spent other than to encourage the agency to continue the research that was proposed. For this reason, any attempt to redirect some or all of the funds either internally or externally to that program is counterproductive. In the case of aircraft noise reduction, NASA's aeronautical research budget for this research in FY2000 is $25,000,000. According to NASA, redirecting additional funding to this program would adversely impact other research programs of equal merit.

Aviation Safety: On July 25, 1996, the President established the White House Commission on Aviation Safety and Security. On February 12, 1997, the final report of the Commission was delivered to the President. The principle 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 10 years.

NASA's role in this effort will be primarily in the area of human factors research in that the predominance of aviation accidents involve human error. NASA will also be looked upon to provide expertise in areas it has already conducted research in, such as more efficient terminal area control and advanced air traffic control systems. Originally, the Research and Technology base was to be the source of funding aviation safety until it became a separate focused program beginning in FY2002. In testimony before the House Science Committee in February 1999, the NASA Administrator accelerated this program and changed its priority within the Aeronautics Enterprise.

Aviation System Capacity: NASA's FY2000 budget also contains funding for the Aviation Systems Capacity program, which is a newly created line within the focused programs. This work used to be carried out within the recently canceled Advanced Subsonic Technology focused program. The Aviation Systems Capacity program will conduct research into the modernization and improvements to the Air Traffic Management System and the introduction of new vehicle classes which can potentially reduce congestion. NASA characterizes the nature of the research in the Aviation System Capacity program as "modernization and improvements" to the existing air traffic system through efficient and flexible routing, and scheduling and sequencing of aircraft in all weather conditions. The Committee has reservations that this research should be a focused program within Aeronautical Research and Technology.

However, since the goals of the Aviation Systems Capacity program are put forth as national goals, the nation's resources should be fully utilized to attain them. And, though the FAA is the agency responsible for the U.S. air transportation system, it may not possess the world-class R&D facilities to achieve them. NASA does. Therefore, these facilities and expertise should be made available to the FAA on a reimbursable basis. This legislation takes the first steps toward a more appropriate division of responsibilities by

transferring a small portion of the funding in support of this program from NASA to the FAA.

Advanced space transportation technology

Sectional analysis and recommendation

In FY2000 $334,000,000 are authorized of which $61,300,000 shall be for the Future-X Demonstration Program, an increase of $30,000,000 over the budget request; and $105,600,000 shall be for the Advanced Space Transportation Program, an increase of $50,000,000 over the budget request. In FY2001 $249,400,000 are authorized of which $109,000,000 shall be for the Future-X Demonstration Program, an increase of $35,000,000 over the budget request; and $134,400,000 shall be for the Advanced Space Transportation Program, an increase of $39,000,000 over the budget request. In FY2002 $340,000,000 are authorized, an increase of $134,000,000 over the budget request.

Committee views

The Paramount Goal of Cheap Access To Space: After maintaining safety of the Space Shuttle for the astronauts who fly on it, the Committee continues to believe that the highest priority in federal civil space transportation is the aggressive, near-term reduction of the high 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 regulatory, procurement, and other 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.

Inexpensive, reliable, and plentiful access to space is an urgent as well as important priority for several reasons. One is the pressing need to reduce costs borne by the American taxpayer for ongoing and planned NASA activities in human space flight, space science, and other R&D programs, as well as meeting broader federal requirements for commercially-developed space transportation services. Another is the challenge of redressing the growing shortfall in domestic space transportation capacity and reliability, which has recently been shown to have national security as well as economic implications.

In the longer term, the Committee believes that cheaper, better, and more capable commercially-developed and operated space transportation systems are essential to America's strategic vision of opening the space frontier to science and commerce.

Advanced Space Transportation Technology—In General: Over the past two years NASA's Advanced Space Transportation Technology (ASTT) initiatives have made considerable progress and suffered some setbacks, and now face significant budgetary and organizational (as well as technical and programmatic) challenges.

The Committee continues to appreciate the Administrator's leadership in this critical activity, as well as the vision and determination of NASA personnel working on these initiatives at NASA

Headquarters, Marshall Space Flight Center, other field centers, and various industry locations, as well as the vital contributions made by many U.S. Air Force personnel.

Because the Committee believes Advanced Space Transportation Technology is so important, it is providing a total of over $282 million in additional resources to this activity during FY2000–2002 over the runout of the FY2000 budget request. In general, while the Committee recommends some specific priorities for these funds, particularly in FY2000 and FY2001, the Committee shares the Office of Management and Budget's concern that NASA focus the preponderance of its Advanced Space Transportation Technology resources on pursuing experimental technology demonstrations which will enable near-term cost reductions ("factor of 10") in meeting NASA's human space flight as well as cargo transportation requirements.

X–33 and X–34: Progress continues to be made on NASA's two ongoing reusable launch vehicle advanced technology demonstration projects, the flagship X–33 and smaller X–34 programs, but both efforts have been frustrated by technical and schedule challenges. The Committee understands that these problems are to be expected in experimental vehicle programs which are intended to push the state of the art in one or more technologies on a lower-cost, subscale basis. In the case of the X–33 particularly, this has led to some cost growth which has been absorbed almost entirely by additional private investment and modest technical content reductions.

The Committee wishes to stress its continuing confidence in the X–33 and X–34 industry teams which are striving to break down the technical barriers to cheap access to space, and notes that these are both industry-led programs. However, the Committee will exercise careful oversight of these important and challenging projects, including several setbacks that have arisen over the past year. To the extent that delays or other problems have arisen because of how NASA initially designed these projects, or has continued to manage the government's participation in them, the Committee will at a later date seek to work with the Administrator to promote effective reforms of similar future experimental vehicle activities.

Regarding the X–34, the Committee again commends NASA's decision to purchase a second test vehicle, but is concerned about NASA's inability to fund a variable-thrust engine so that the X–34 could serve as a more effective hypersonic test-bed. The Committee also is worried about the continuing changes in location of the X–34 test flights, and in particular about reports of efforts by some NASA field center employees to lobby for such changes.

Despite a slip of over a year and numerous technical and management challenges in the X–33 program, the Committee notes with favor the continuing financial and management commitment of the industry team leader, Lockheed Martin, and in particular Lockheed Martin Skunk Works.

The Committee has stated in the past that the X–33 program has been under-funded for the quantity and difficulty of technical and programmatic challenges it faces. For example, the schedule impact of a December 1998, bonding failure in one of the X–33's lightweight, multi-lobed composite fuel tanks was dramatically exacer-

bated by the lack of sufficient funding for X–33 structural spare parts.

Future-X: The Committee notes with favor the selection for negotiation in late 1998 of Boeing's Advanced Technology Vehicle concept as the first Pathfinder-class Future-X advanced technology demonstrator, the X–37. In particular the Committee is gratified by NASA's fruitful cooperation with the Air Force to build on the success of the X–40A Space Maneuvering Vehicle demonstrator, and by the Air Force's investment of $19.6 million in improving the X–37 program. At the same time, the Committee is perplexed about NASA's failure to complete negotiations, after more than five months, with the X–37 industry team on a technically challenging and aggressively-scheduled project of great and urgent importance to national security space capabilities as well as to human space flight cost reduction.

Just as the Air Force has contributed to the X–37, the Committee wishes NASA to support the Air Force in pursuing a second test article which can further address both national security and civil/commercial operability and component technology demonstration goals.

The Committee is strongly supportive of the frequent (once every 18 months) selection of Pathfinder-class Future-X concepts to meet the Administrator's announced intention to "darken the skies with X vehicles." For that reason, the Committee is providing Future-X an additional $30 million in FY2000, $35 million in FY2001, and access to an overall ASTT increase of $134 million in FY2002.

While the Committee does not want to unduly restrict NASA's flexibility in pursuing any meritorious Future-X concepts, the Committee prefers that this additional funding be focused on meeting what it believes are under-funded challenges in demonstrating innovative concepts and applications of existing system technologies to produce breakthroughs in the operability of space transportation systems. In the past the Committee has commended the benefits of the streamlined, airplane-style operations of the former DC–X program and the low cost-per-test-flight of the X–34, and recommends that overcoming this fundamental challenge to the commercial space transportation industry, particularly for and with the emerging reusable launch vehicle companies, be given a higher priority in ASTT. Furthermore, the Committee recommends that NASA pursue innovative partnerships, including technical assistance and procurement outreach, with these emerging commercial space transportation companies so they can provide NASA credible and innovative proposals for Future-X vehicles and flight experiments which will be mutually beneficial if selected for development.

Advanced Space Transportation Program—In General: The Committee continues to believe that among NASA's most important investments is the ASTT initiative's analogue to the Aeronautics Research and Technology Base: the Advanced Space Transportation Program (ASTP). This is the wellspring of subsystem and component technologies and advanced concepts for the focused advanced technology demonstrations of the RLV and Future-X experimental vehicle programs, and the seed corn of our future ability to move into and through the space frontier.

The Committee has nearly doubled the ASTP budget in FY2000, increasing the President's request by $50 million to $105.6 million, and grows it further to $134.4 million in FY2001. The Committee notes that these additional funds could be used for two existing and two new space transportation technology base activities and encourages NASA to do so.

ASTP—RLV Focused: Recent technology content reductions within the RLV technology portion of the X–33 program, the need to reduce technology risk of many proposed longer-term Space Shuttle upgrades, and the Committee's long-standing view that NASA should demonstrate technologies to support multiple competing Reusable Launch Vehicle concepts (possibly including an upgraded Space Shuttle system) because of the urgent need to reduce the cost of transporting both humans and cargo into space all lead the Committee to encourage NASA to use the additional funds provided for ASTP in FY2000 for the existing RLV Focused program.

Furthermore, the Committee expects that NASA will continue this activity beyond FY2000, since it is clear that the technology risk of a commercially-developed Shuttle-class RLV will not have been completely reduced by then. The purpose of this activity should be to continue to demonstrate flight-weight and flight-performance technologies on a full-scale component or subsystem basis without building full-scale manufacturing prototypes of elements of a particular operational system.

ASTP—Rocket Propulsion Operability Demonstrations and Advanced Propulsion Focused: Administrator Goldin and other NASA and industry officials have testified repeatedly before the Committee that the high cost and limited capabilities of current launch systems is due in large part to the historical under-investment by the government and private sector over the past 20 years in both rocket and more advanced propulsion technologies. Indeed, until the X–33 program's XRS–2200 Aerospike and the X–34 project's FASTRAC, no "new" rocket engines had been developed in the U.S. since the Space Shuttle Main Engine in the 1970's.

To achieve the public goal of price reduction and innovation through competition, NASA should make the growth of the entrepreneurial commercial space transportation industry a top priority in its advanced space transportation technology efforts, particularly with respect to propulsion investments. The Committee encourages NASA to play a role similar to that of the National Advisory Committee on Aeronautics in providing substantial technical assistance and federal facilities access—on a non-reimbursable basis when appropriate—to United States commercial rocket engine developers, particular those aiming at enabling the emerging reusable launch vehicle industry. In addition, NASA may wish to work with industry to bring mature, highly-operable rocket engine technology that has been developed elsewhere to the United States for domestic testing and dissemination. The Committee therefore encourages NASA to use some of the increased funding for ASTP in FY2000 to establish a rocket propulsion operability demonstration activity at the Marshall Space Flight and Stennis Space Centers.

ASTP—Space Transportation Research: The NASA Administrator has testified that one of the most exciting and important activities underway at the space agency is the pursuit of fundamental, revo-

lutionary space transportation technologies such as laser launch and anti-matter propulsion. The Committee strongly believes that such long-term investments create the technology development and demonstration opportunities of the next decade and beyond, and therefore are central to long-term American leadership in space transportation, and encourages the Administrator to allocate a small fraction of the additional funds provided to ASTP to the space transportation research activity based at the Marshall Space Flight Center.

Future Space Launch Studies: While the Committee has traditionally preferred the building and testing of hardware to the production of paper, the Committee wishes to strongly praise the work of NASA's Chief Engineer and the Space Transportation Council in carrying out the initial two phases of the Space Transportation Architecture Studies, as well as the participation of all industry study contractors and evaluators.

The Committee shares the sense of urgency expressed by the Executive Office of the President in reaching a decision (by December 1999) between developing an X–38–based Crew Rescue Vehicle capability for the International Space Station or an alternative architecture which also supports redundant, reliable, and low-cost human crew and cargo transportation to and from the Space Station.

Commercial technology

In FY2000 $132,500,000 are authorized; in FY2001 $135,000,000 are authorized; and in FY2002 $135,600,000 are authorized.

Section 103(5). Mission Communications Services

Sectional analysis and recommendation

In FY2000 $406,300,000 are authorized; in FY2001 $382,100,000 are authorized; and in FY2002 $296,600,000 are authorized.

Program description

This function consists primarily of groundstation, mission control, and ground network interfacing services that NASA uses to carry out its strategic enterprises.

Committee views

The Committee remains concerned over whether the predicted savings in the Consolidated Space Operations Contract will materialize as predicted by NASA. The Committee remains further concerned that commercialization and privatization efforts are conducted in a manner consistent with sections 129 and 209.

While NASA has cited the benefits of the Consolidated Space Operations Contract (CSOC), the Committee expressed numerous concerns prior to the contract award that such a large, consolidated effort might limit competition for CSOC subcontracts. The recent solicitation, for example, of a polar connectivity ground station raised several questions about unfair ties between companies bidding on the subcontract and the prime CSOC contractor. The Committee will closely examine the CSOC subcontracting process to ensure a level playing field for all participants.

Section 103(6). Academic Programs

Sectional analysis and recommendation

In FY2000 $128,600,000 area authorized, an increase of $28,600,000 over the budget request. Of this amount $11,600,000 shall be for Higher Education within the Teacher/Faculty Preparation and Enhancement Programs, an increase of $3,000,000 over the budget request; $20,000,000 shall be for the National Space Grant College and Fellowship Program, an increase of $6,500,000 over the budget request; and $62,100,000 shall be for Minority University Research and Education, an increase of $16,200,000 over the budget request (within this amount $33,600,000 shall be for Historically Black Colleges and Universities, an increase of $5,600,000 over the budget request). In FY2001 $128,600,000 are authorized, an increase of $28,600,000 over the budget request. Of this amount $62,100,000 shall be for Minority University Research and Education, an increase of $16,200,000 over the budget request (within this amount $33,600,000 shall be for Historically Black Colleges and Universities, an increase of $5,600,000 over the budget request). In FY2002 $130,600,000 are authorized, an increase of $30,600,000 over the budget request. Of this amount $62,800,000 shall be for Minority University Research and Education, an increase of $16,900,000 over the budget request (within this amount $34,000,000 shall be for Historically Black Colleges and Universities, an increase of $6,000,000 over the budget request).

Committee views

The Committee is committed to providing an adequate level of funding for NASA's education program. It is vital to inspiring students in mathematics and science and to reaching out to groups that are not heavily represented in these fields. The Committee is pleased to be able to provide a level that is significantly above the budget request level. H.R. 1654 authorizes 29% more in FY2000 and FY2001 and 31% more in FY2002 than the budget request for education.

Section 103(7). Future Planning (Space Launch)

Sectional analysis and recommendation

In FY2001 $144,000,000 are authorized and in FY2001 $280,000,000 are authorized.

Committee views

In the President's FY1998 budget submission for NASA, a "Future Planning" line was created, reportedly by taking funding out of the Advanced Space Transportation Technology runout. In the FY1999 budget this planning line—often referred to as a "wedge"—was focused on "Space Launch," with the announced intention of setting aside a block of funding over several years for technology risk reduction or other investments in a "Next Generation Launch System."

During 1998 substantial controversy erupted within the U.S. aerospace community over what this Future Planning (Space Launch) money was actually for: further technology risk reduction

or financial subsidies for the proposed, X-33-derived VentureStar RLV, major life-extending Space Shuttle systems upgrades, continuing investments in post-X-33 experimental technology demonstrations (Future-X), or something else entirely.

Fortunately, recent progress on the NASA-industry Space Transportation Architecture Studies—particularly the proposals by the "non-primes"—has begun to focus the debate. While the final conclusions and independent assessment of the Space Transportation Architecture Studies reports have not been released as of mid-May in 1999, extensive briefings by NASA and industry lead the Committee to conclude that there are a variety of innovative options for appropriate federal investments in dramatically reducing NASA's cost of human space flight by leveraging private investments in highly reliable expendable and reusable space launch systems while maintaining or improving crew safety.

The Committee recommends that NASA continue to work with industry to rapidly assess its options vis-à-vis a commercially-developed Cargo/Crew Transfer Vehicle which would benefit from existing industry investments in the Air Force Evolved Expendable Launch Vehicle, as well as VentureStar and other potential single or multi-stage fully reusable systems for boosting a Cargo/Crew Transfer Vehicle to the International Space Station. In that context, the Committee reasserts its belief that NASA should not plan to spend the current "wedge" funding on future-generation RLV technologies, but rather focus these resources on solving the near-term, "factor of 10" cost reduction challenge.

SECTION 104. MISSION SUPPORT

Section 104(1). Safety, Reliability, and Quality Assurance

In FY2000 $43,000,000 are authorized; in FY2001 $45,000,000 are authorized; and in FY2002 $49,000,000 are authorized. NASA's agency-wide efforts to develop policies and practices to ensure safe operations and practices, quality controls, and reliable flight systems are funded under this account.

Section 104(2). Space Communication Services

Sectional analysis and recommendation

In FY2000 $89,700,000 are authorized; in FY2001 $109,300,000 are authorized; and in FY2002 $174,200,000 are authorized.

Program description

This function provides the communications relay services that NASA uses to carry out its strategic enterprises, both in space and on the ground. Its primary cost component is the Tracking Data and Relay Satellite (TDRS) and its affiliated launch costs.

Committee views

The Committee remains concerned over whether the predicted savings in the Consolidated Space Operations Contract will materialize as predicted by NASA. The Committee remains further concerned that commercialization and privatization efforts are conducted in a manner consistent with sections 129 and 209.

Section 104(3). Construction of Facilities

In FY2000 $181,000,000 are authorized; in FY2001 $181,000,000 are authorized; and in FY2002 $191,000,000 are authorized, an increase of $10,000,000 over the budget request. The Construction of Facilities line provides funding for facilities modifications, upgrades, and minor construction.

Section 104(4). Research and Program Management

In FY2000 $2,181,200,000 are authorized; in FY2001 $2,195,000,000 are authorized; and in FY2002 $2,261,600,000 are authorized. This budget line funds personnel and related costs, supporting costs, travel, and research operations support.

SECTION 105. INSPECTOR GENERAL

In FY2000 $22,000,000 are authorized; in FY2001 $22,000,000 are authorized; and in FY2002 $22,000,000 are authorized, an increase of $1,200,000 over the budget request in each fiscal year. 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 106. TOTAL AUTHORIZATION

The bill authorizes a total amount in each fiscal year which is not to be exceeded. In FY 2000 $13,625,600,000 are authorized; in FY 2001 $13,747,100,000 are authorized; and in FY 2002 $13,839,400,000 are authorized.

SECTION 107. AVIATION SYSTEMS CAPACITY

In FY 2001 $5,000,000 are authorized for aviation systems capacity within the Federal Aviation Administration. This offsets the $5,000,000 reduction in FY 2001 from NASA's budget for aviation systems capacity. This activity encompasses research into the modernization and improvements to the Air Traffic Management System and the introduction of new vehicle classes which can potentially reduce congestion. NASA characterizes the nature of the research in the Aviation System Capacity program as "modernization and improvements" to the existing air traffic system through efficient and flexible routing, and scheduling and sequencing of aircraft in all weather conditions.

SUBTITLE B—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 International Space Station; Launch Vehicle and Payload Operations; 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 $1,000,000 until 30 days have passed following a report to the House and Senate authorizing committees. If funds under this section are used for grants (to institutions of higher education or to nonprofit organizations whose primary purpose is the conduct of scientific research) to buy or construct additional research facilities, title to such facilities shall be vested in the U.S. The exception is when the Administrator determines that the national program of aeronautics and space activities will be best served by vesting title in the grantee institution or organization.

SECTION 122. AVAILABILITY OF APPROPRIATED AMOUNTS

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

SECTION 123. REPROGRAMMING FOR CONSTRUCTION OF FACILITIES

This section 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 a 30–day review period by the House and Senate authorizing committees after the Administrator submits a written report.

SECTION 124. LIMITATION ON OBLIGATION OF UNAUTHORIZED APPROPRIATIONS

This section requires the Administrator to submit reports to the Congress and the Comptroller General on FY 2000, FY 2001, and FY 2002 appropriations for programs not authorized under subtitle A of this bill or that exceed authorized amounts for specific programs. The FY 2000 report is to be submitted within 30 days after the later of the enactment of an appropriations Act for FY 2000 and the enactment of this Act. The FY 2001 and FY 2002 reports are to be submitted 30 days after the enactment of an appropriations Act for FY 2001 or FY 2002. Section 124 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 the close of the comment period.

SECTION 125. USE OF FUNDS FOR SCIENTIFIC CONSULTATIONS OR EXTRAORDINARY EXPENSES

This section 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 126. EARTH SCIENCE LIMITATION

Sectional analysis and recommendation

$50,000,000 in both fiscal years 2001 and 2002 shall be for the Commercial Remote Sensing Program at Stennis Space Center for commercial data purchases. This requirement shall remain unless NASA integrates data purchases into the Earth science research procurement process. Integration shall be demonstrated by the obligation of at least 5% of the aggregate amount appropriated in FY 2001 and FY 2002 for the Earth Observing Systems and Earth Probes for the purchase of Earth science data from the private sector.

Committee views

The Committee has long endorsed the procurement of commercial remote sensing data (commonly referred to as a data purchase) as an inexpensive, flexible, convenient way of obtaining science data for Earth Science Enterprise researchers. The procurement of such data can provide the exact same information to researchers without requiring the construction of a separate, dedicated satellite. In some cases this can enable the exact same research at one-hundredth the cost of obtaining the data.

The current Earth Science Enterprise data purchase program is spending $50 million of FY 1997 funds to obtain airborne and satellite data. This program's funding initiated with the President's FY 1997 budget request presented to Congress. The current program seeks data types which have already been endorsed in a scientific peer-review process conducted at Goddard Space Flight Center as useful to Earth Science researchers.

While NASA has stated on at least three occasions that "data purchases are now an integral part of NASA's Earth Science Enterprise data acquisition strategy," (August 7, 1998 letter to Subcommittee; September 10, 1998 testimony to Subcommittee; February 11, 1999 testimony to Subcommittee), NASA still has a ways to go before this is truly the case. As evidence of such a normalized data buy effort, two different NASA Associate Administrators for Earth Science have verbally indicated to Committee staff their intention to spend at least $50 million on commercial data in the FY1999 budget cycle. As of May 1999, however, it appears that this will not be the case, as NASA has subsequently indicated that such funds will not be available.

Moreover, a March 31, 1999 NASA Inspector General report indicates that the data purchase program "has helped achieve ESE [Earth Science Enterprise] goals" but that "because the private sector was unaware of the questions NASA scientists seek to answer, commercial providers could only speculate about the types of products needed by Agency Earth Scientists."

Because of this disconnect between commercial data products offered in the FY1997 data purchase program and the baseline science requirements, the report concludes that future Congressionally mandated data purchase programs would not be warranted. However, it is precisely because NASA failed to communicate baseline requirements for commercial data, and recognizing the many benefits to be gained from a properly executed program, that this

Committee directs NASA to solicit commercial data in FY2001 and FY2002, with the implication that NASA should publish with this solicitation the science data baseline requirements.

The Committee recognizes and commends the current NASA Associate Administrator for Earth Science's dedication to implementing data purchases as a truly normal way of doing business. Accordingly, to ensure the availability of funds for this effort, section 126 sets aside $50 million in fiscal years 2001 and 2002 unless NASA spends 5% of the aggregate funding levels identified for Earth Observing System and Earth Probes satellites on commercial data alternatives.

It is further the Committee's view that NASA concerns over the availability of commercial data to conduct Earth Science are unfounded. This position is supported by the National Academy of Public Administration's January 1998 report, "Geographic Information for the 21st Century," which indicates that the commercial remote sensing industry can address a market of $4 billion annually.

Earlier drafts of section 126 prohibited the expenditure of funds for Earth Observing System follow-on studies until the Administrator certified that at least $50 million were available for commercial data purchases in FY2000 and FY2002. This restriction had been drafted out of concern that until commercial data purchases were truly an "integral part" of acquiring data, they could not be properly included in future Earth Observing System architectures. This restriction was subsequently removed in an effort to seek compromise after discussions with the Office of Management and Budget and NASA and internal discussions among the Committee staff.

SECTION 127. COMPETITIVENESS AND INTERNATIONAL COOPERATION

Sectional analysis and recommendation

Requires the Administrator to solicit comment through the Commerce Business Daily 45 days prior to entering into an obligation to conduct a space mission in which a foreign entity will participate. The foreign participation may be as a supplier of the spacecraft, spacecraft system, or launch system. Solicitation of comment on the potential impact of such participation is to be used in the Administrator's evaluation of the costs and benefits of entering into an obligation to conduct the space mission. Further, the Administrator shall consider the national interests of the United States as described in section 2(6) prior to entering into such an obligation.

Committee views

The Committee has supported international cooperation in space activity for years and continues to do so. When governments were the only significant organizations undertaking space activity, such cooperation could be undertaken in a manner to benefit the taxpayers of all the countries involved. In recent years, however, a commercial space sector has grown. The growth of this industry also benefits the taxpayers by creating new jobs, creating new space capabilities useful to consumers, reducing the costs of government space activities, and generating tax revenue. In 1996, worldwide spending on commercial space activity exceeded spend-

ing on government activity for the first time in history. International government-to-government space cooperation may have consequences for the growth of the U.S. commercial space industry. Those consequences may be beneficial, but they also may harm U.S. competitiveness if foreign governments use such activities to aid their commercial space industries. This section of the bill directs NASA to try and determine those consequences in advance by soliciting comments through Commerce Business Daily. It also directs NASA to take the broad U.S. national interests (as defined earlier in the bill) into account prior to starting an international cooperative effort.

SECTION 128. TRANS-HAB

Sectional analysis and recommendation

No funds authorized by this bill shall be used for definition, design, or development of an inflatable space structure ("Trans-Hab") to replace any component on the current Space Station assembly sequence (released by NASA on February 22, 1999). Further, no FY2000 funds authorized by this bill shall be obligated for the definition, design, or development of an inflatable space structure for humans.

Committee views

The International Space Station includes a module specially designed as a crew quarters known as the Habitation module. The pressure vessel for this module has already been completed and is in storage awaiting outfitting and integration for launch. The total cost of the Habitation module is $186.9 million, $17 million of which has already been spent. In 1997, NASA tentatively began studying a replacement structure for the Habitation module. Instead of a rigid pressure vessel, NASA conceived of an inflatable structure known as Trans-Hab, which it has spent approximately $2.5 million defining. Initially, NASA projected the Trans-Hab would cost about half the price of the Habitation module, but it has since raised those estimates. Trans-Hab is now estimated to cost $250 million, representing a three-fold cost increase just during the definition phase.

NASA believes that the Trans-Hab would have advantages over the Habitation module. First, the Trans-Hab is intended to have a larger pressurized volume, essentially giving the ISS greater storage space. Second, NASA believes that the Trans-Hab would have additional protection against radiation, although the Habitation module already meets or exceeds both of NASA's requirements for stowage and radiation shielding.

Section 128 prohibits NASA from obligating any funds in FY 2000–2002 to replace a baselined ISS module with an inflatable, crew-rated structure. It is intended to halt work on Trans-Hab. The section also prohibits NASA from obligating any funds in FY2000 to define, design, or develop inflatable structures for human use in order to prevent NASA from continuing Trans-Hab under another guise. The prohibition is lifted in FY2001 because the Committee does not want to preclude research and development of inflatable

structures for other missions. The Committee is recommending this action for several reasons.

First, Trans-Hab costs more than the Habitation module. The taxpayers simply cannot afford costly additions to a program that is already at least $7.3 billion over budget and more than two years behind schedule.

Second, the Cost Assessment and Validation Task Force and General Accounting Office both have noted in past reports that continual design changes this late in the development process have contributed to cost growth in the ISS program. By halting Trans-Hab, the Committee is promoting fiscal and engineering discipline on a program that often appears to be out of control. At a time when outside experts are recommending cutting content to meet cost goals, it makes no sense to add content that increases costs.

Third, NASA has never successfully designed, developed, or operated an inflatable, crew-rated structure. Thus, the Trans-Hab involves increased cost, technical, and programmatic risk to the ISS program at a time when the Station is suffering from too much uncertainty caused by Russia's instability. Additionally, because NASA has little experience with such structures, the projections of cost and benefits are immature. Given the ISS program's history, the benefits of Trans-Hab are likely to be less than advertised while its costs are likely to grow above the $250 million NASA currently anticipates.

Fourth, the Committee has made clear its dissatisfaction with the Office of Human Space Flight's practice of cutting the ISS science budget in an effort to fund hardware. NASA currently funds Trans-Hab activities outside of the ISS budget. This might be interpreted as an attempt to artificially deflate the true costs of the Space Station and raises concerns about the credibility of NASA's past justification for transferring funds out of science accounts to pay for hardware, since the agency appears able to find resources when it plans to use them for hardware but not when it needs them to minimize its cuts in the ISS research budget. The Committee believes that repaying past Administration cuts to the ISS science budget is a higher priority than funding new flight hardware.

Finally, the Trans-Hab appears to be a technical solution in search of a problem. Since the existing Habitation module either meets or exceeds the ISS requirements, there is no reason to contemplate its replacement. NASA initially argued that Trans-Hab would benefit future attempts to mount a human expedition to Mars. After the White House and Members of Congress reaffirmed their opposition to a human expedition to Mars until after the Space Station is successfully completed, NASA dropped that justification for the effort and began justifying Trans-Hab as a safety enhancement. However, if NASA were truly concerned about safety, it might be better served by using additional resources to shield the Service Module against the threat of orbital debris, since the Service Module does not meet minimum NASA standards for safety in this area, whereas the existing Habitation module does meet or exceed existing requirements for radiation shielding.

SECTION 129. CONSOLIDATED SPACE OPERATIONS CONTRACT

Sectional analysis and recommendation

No funds authorized by this Act shall be used to create a government-owned corporation to carry out the functions of the Consolidated Space Operations Contract.

Committee views

The President's National Space Policy stipulates that NASA will "seek to privatize or commercialize its space communications operations no later than 2005." In an attempt to pursue this strategy, and in an effort to reduce costs, NASA has consolidated and streamlined these ground support efforts into one contract known as the Consolidated Space Operations Contract (CSOC).

While the Consolidated Space Operations Contract has created one overarching infrastructure to conduct communications, NASA has not yet demonstrated true privatization or commercialization of this function. Awarding one government contract in place of 16 existing contracts certainly signifies consolidation. However, NASA cannot be said to have privatized this function until the private sector sells services to the government instead of systems. Merely awarding contracts to industry to build or operate hardware does not satisfy the criteria for privatization.

To encourage NASA to pursue truly commercial solutions, this section prohibits the use of a government-owned corporation. This concept, first described by NASA in written testimony provided for a March 11, 1999 hearing, would create a government-owned corporation that utilizes existing NASA assets. Such a setup, however, would not represent true privatization because of continued government ownership of those assets. Moreover, the continued use of existing equipment by a government entity which would actually compete with private interests would actively discourage commercial development of a more efficient space communications infrastructure.

NASA requested that the Committee only restrict the pursuance of a government-owned corporation to the terms described in the March 11, 1999 testimony. This testimony explains that NASA is currently investigating a number of options for "commercialization," including a government corporation. The testimony further states that if the investigation should conclude that such a setup would be feasible, "enabling legislation will be required."

Because such a government corporation fails to meet the criteria for true commercialization as defined in section 209 on commercial space definitions (i.e., it does not presuppose privatization), NASA should not pursue this option as part of its study. Accordingly, this section prohibits NASA from proceeding with an approach which could interfere with the natural evolution of the commercial space communications industry, and therefore potentially raise future space commercialization service costs to the federal government.

SECTION 130. TRIANA FUNDING PROHIBITION

Sectional analysis and recommendation

No funds authorized by this Act may be used for the Triana program, except $2,500,000 of FY2000 funds may be used for termination costs.

Committee views

This section, was part of an amendment offered at the Committee markup by Rep. Dave Weldon and Rep. George Nethercutt. The full amendment terminated the Triana satellite within the Earth Science Enterprise and transferred $32,600,000 of FY2000 funds to the Life & Microgravity Sciences and Applications program. $2,500,000 in FY2000 funds are reserved for termination costs.

The Triana satellite was conceived by the Vice President of the United States, who first announced it in a speech at the Massachusetts Institute of Technology on March 13th, 1998. Triana was initially announced as an Earth-pointing camera to provide live pictures of the Earth for the Internet. After its announcement, the satellite evolved to include a science mission. The science payloads were selected by NASA scientists after the decision to proceed with Triana had already been made.

TITLE II—MISCELLANEOUS PROVISIONS

SECTION 201. REQUIREMENT FOR INDEPENDENT COST ANALYSIS

This section requires the NASA Chief Financial Officer to conduct independent cost analyses of projects estimated to cost in excess of $100,000,000 in total project costs, and to report the results of the analyses to Congress. The cost analysis is to occur before the project enters Phase B. 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 202. NATIONAL AERONAUTICS AND SPACE ACT OF 1958 AMENDMENTS

This section strikes Section 102(f) of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451) which declares that NASA's efforts be directed toward the development of advanced automobile propulsion systems. This section also amends Section 206(a) of the 1958 Act 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.

SECTION 203. COMMERCIAL SPACE GOODS AND SERVICES

This section seeks to encourage the continued growth of the U.S. commercial space sector by directing NASA to purchase commercially available space goods and services to the fullest extent feasible and not to compete with the private sector, except as required

for reasons of national security or public safety. The section also defines the conditions under which a space good is to be treated as commercially available.

SECTION 204. COST EFFECTIVENESS CALCULATIONS

This section defines the mechanism by which NASA will determine whether it is more cost-effective to perform a function internally or to out-source it to the private sector. Generally, it directs NASA to compare the price a private-sector will charge the government to perform an activity with the full-cost of doing the same activity internally.

SECTION 205. FOREIGN CONTRACT LIMITATION

Sectional analysis and recommendation

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.

Committee views

NASA contract NAS15–10110 governs NASA's relationship with the Russian Space Agency when NASA pays the Russian Space Agency for various space goods and services. Section I.8 of the contract discusses the rights of the U.S. Government and the Russian Government in the event that either party decides to terminate the contract. One paragraph grants the Russian Space Agency the right to seek to recover lost "profits" in the event that NASA terminates the contract for convenience. Setting aside the definition of "profit" in a contract between governments and the appropriateness of accepting an obligation on the part of the American taxpayer to compensate a foreign government for lost profit in the event that the American government needs to terminate such a contract, NASA rarely gives U.S. contractors such charitable terms. This section prohibits NASA from entering into any contracts with a foreign government in which terminated the contract.

SECTION 206. AUTHORITY TO REDUCE OR SUSPEND CONTRACT PAYMENTS BASED ON SUBSTANTIAL EVIDENCE OF FRAUD

This section amends 10 U.S.C. 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 the Department of Defense, 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 a 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 207. SPACE SHUTTLE UPGRADE STUDY

This section directs the Administrator to make arrangements for an independent study to reassess the priority of all Phase III and Phase IV Shuttle upgrades. The study shall establish relative pri-

orities of the upgrades within 3 categories: (1) upgrades for safety; (2) upgrades that may have applicability to reusable launch vehicles; and (3) upgrades that have a payback period within the next 12 years. The study is to be transmitted to Congress within 180 days after enactment of this Act.

SECTION 208. AERO-SPACE TRANSPORTATION TECHNOLOGY INTEGRATION

Sectional analysis and recommendation

This section requires the Administrator to develop a plan for integrating the activities (research, development, and experimental demonstrations) of aeronautics transportation technology and space transportation technology. The plan must ensure that unique capabilities are not lost. The report is to be transmitted to Congress within 90 days after enactment of this Act and annually thereafter for 5 years.

Committee views

In H. Rept. 105–233, which accompanied H.R. 1275, the Committee stated: "* * * 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."

In written testimony before the Committee on March 3, 1999, Associate Administrator for Aero-Space Technology Spence Armstrong indicated that the Aeronautics Research and Technology Base and Advanced Space Transportation Program were to be merged to create greater synergies between the advanced structures, materials, guidance and controls, and propulsion technologies of future experimental air- and spacecraft. Furthermore, Administrator Goldin has testified repeatedly that to achieve NASA's goals for opening the space frontier, space transportation systems must become more like airplanes in terms of safety, reliability, operability, and cost.

Finally, given the trend in commercial aviation towards commodity manufacturing, NASA's aeronautics research and flight test centers are left with an industrial partnership base that is less interested in maximizing the adoption of new technologies. Commercial space transportation, however, is at the early stages of industrial evolution, and could benefit tremendously from the unique expertise and capabilities of NASA's Aeronautics R&D team.

The Committee therefore is directing NASA to develop a plan for fully integrating the Aeronautics and Advanced Space Transportation Technology portions of the Aero-Space Technology Enterprise, and to report back annually to the Congress on its progress in bringing the resources of the Aeronautics research centers to bear on the challenges of advanced space transportation technology.

SECTION 209. DEFINITIONS OF COMMERCIAL SPACE POLICY TERMS

Requires the Administrator to ensure that the usage of terminology in NASA policies and programs is consistent with the pro-

vided definitions for (1) commercialization, (2) commercial purchase, (3) commercial use of federal assets, (4) contract consolidation, and (5) privatization.

SECTION 210. EXTERNAL TANK OPPORTUNITIES STUDY

(a) Requires the Administrator to enter into arrangements for an independent study to identify and evaluate the benefits and costs of a broad range of commercial and scientific applications stemming from retaining the Shuttle's external tanks in Earth orbit after the Shuttle is launched. The study shall evaluate (1) the use of privately owned external tanks as a venue for commercial advertising, (2) the use of external tanks to achieve scientific or technology demonstration missions, and (3) the use of external tanks as low-cost infrastructure in Earth orbit (including augmentation of the Space Station) or on the Moon. A report on the study shall be submitted to Congress within 90 days after the date of enactment of this Act. The report shall include recommendations as to government and industry improvements to the external tank which would maximize its cost effectiveness.

(b) Requires the Administrator to conduct an internal study based on the conclusions of the independent study. The internal study shall review what would be required for the safe and economical use of the external tank for applications identified in the independent study. The internal study shall look at improvements to the current external tank and other in-space transportation or infrastructure capability developments. The report shall be submitted to Congress within 45 days after the report in subsection (a) is submitted to Congress.

(c) Requires the Administrator to solicit comment from industry on what, if any, changes in law or policy would be required to achieve the applications identified in the independent study. The comments shall be submitted to Congress within 90 days after the report in subsection (a) is submitted to Congress.

SECTION 211. ELIGIBILITY FOR AWARDS

This section requires the Administrator to exclude from consideration for grant agreements, for a period of five years, any person who received funds (appropriated for a fiscal year after FY1999) for a project not subject to a competitive, merit-based award process. This shall not apply to federal funds received by a person due to membership in a class specified by law for which assistance is awarded according to a formula provided by law.

SECTION 212. NOTICE

If any funds authorized by this bill are subject to a reprogramming action that requires notice be given to the House or Senate appropriations committees, notice shall concurrently be provided to the House and Senate authorizing committees. If any program, project, or activity of NASA is preparing to undergo any major reorganization, the Administrator shall notify the House and Senate authorizing and appropriating committees no later than 15 days prior to such reorganization.

SECTION 213. UNITARY WIND TUNNEL PLAN ACT OF 1949 AMENDMENTS

This section is amended to reflect the fact that the Unitary Wind Tunnel Act of 1949, as amended in 1958 does not include provisions for hypersonic facilities. It is further amended to include research and engineering centers along with laboratories for construction or expansion of wind tunnel facilities covered under the Act.

SECTION 214. INNOVATIVE TECHNOLOGIES FOR HUMAN SPACE FLIGHT

Sectional analysis and recommendation

This section requires the Administrator to establish a Human Space Flight Commercialization/Technology program of ground-based and space-based research and development in innovative technologies. At least 75% of the amount appropriated for such program shall be awarded through broadly distributed announcements of opportunity. The Administrator shall include as part of NASA's budget request to Congress for FY2001, a plan for the implementation of the program.

Committee views

In the FY2000 budget request, the White House Office of Management and Budget added $20 million in FY2001 for NASA's Human Space Flight program to conduct a "commercialization/technology" program. NASA provided no information about this augmentation of its outyear budget, but discussions with OMB determined that the White House intends NASA to use the funds, which increase to $50,000,000 in FY2003, to introduce the principles of "faster, cheaper, better" which have governed reforms in NASA's science programs. The Committee agrees that the Human Space Flight program has escaped or avoided the same kinds of reforms that NASA has made most successfully in space science to result in "faster, cheaper, better" programs and endorses the White House budget augmentation by explicitly authorizing it and directing the Administrator to develop a plan for submission with the FY2001 budget to establish a "Human Space Flight Commercialization/ Technology program of ground- and space-based research and development of innovative technologies. The section also directs that at least 75 percent of the amount appropriated for the program shall be awarded through competitive bidding.

SECTION 215. LIFE IN THE UNIVERSE

Sectional analysis and recommendation

Section 215 directs the Administrator to make arrangements for the National Academy of Sciences to review international efforts to determine the extent of life in the universe and enhancements that can be made to NASA's efforts to determine the extent of life in the universe. The review is to look at NASA's astrobiology initiatives within the Origins program and other entities' initiatives, including the Search for Extraterrestrial Intelligence Institute. The review is also to include recommendations about possible enhancements to NASA's initiatives and possible coordination or integration of NASA's initiatives with those of outside entities.

Committee views

NASA is concurrently running two initiatives related to the search for life in the universe. Its Origins program is a broad effort to look for other places in the universe with conditions that appear to be amenable to supporting life. Its astrobiology programs focus more on the mechanics of life itself as opposed to the environment in which it is created. Progress in one initiative has the potential to assist research in the other initiative. The recent debate over evidence of microbial life on Mars and the possibility that Jupiter's moon Europa is covered with oceans capable of sustaining life are just some of the recent developments in these areas.

SECTION 216. RESEARCH ON INTERNATIONAL SPACE STATION

Sectional analysis and recommendation

Section 216 was added as an amendment offered by Representative Nethercutt to H.R. 1654 during the Committee's markup of the bill. The measure directs NASA to enter into a contract with the National Research Council (NRC) and National Academy of Public Administration (NAPA) to conduct a joint review of the readiness of the science community to maximize the International Space Station's research potential, identify limitations of the community's readiness for ISS, and study the costs and benefits of planning an annual dedicated life and microgravity Shuttle mission during ISS assembly.

Committee views

For some time, NASA has transferred funds out of its International Space Station (ISS) research budgets and into hardware development to pay for cost growth in the development program, most of which has resulted from the need to compensate for Russia's continuing failures to live up to its obligations to the ISS partnership. This has raised concerns in the scientific community and within the Science Committee that the research community will not be prepared to fully utilize the ISS for science when the facility becomes available, largely because the preparatory work that must be undertaken will have been underfunded. To address this issue, last year the Science and Appropriations Committees both recommended that NASA undertake a Shuttle mission dedicated to life and microgravity science in FY1999 to fill in the two-year gap in flight opportunities created by delays in the ISS assembly sequence. The appropriations process increased NASA's FY1999 budget to accommodate the mission, but NASA declined to undertake it, citing cost concerns and the impact such a flight might have on the International Space Station. However, NASA offered Congress three different estimates of the cost of performing such a mission.

The NRC and NAPA have conducted joint studies in the past on issues involving both science and policy issues, which makes them appropriate for this review, given both its scientific and fiscal aspects. Their review is also intended to generate recommendations for improving the readiness of the scientific community to use the International Space Station, including conducting an assessment of the costs and benefits of conducting an annual Shuttle mission

dedicated to life and microgravity research while the International Space Station is being assembled. The study will assist NASA, the White House, and the Congress in making decisions about funding priorities as ISS is built.

SECTION 217. REMOTE SENSING FOR AGRICULTURAL AND RESOURCE MANAGEMENT

Section 217 was added to the bill as an amendment offered by Mr. Smith of Michigan during the Committee's markup of H.R. 1654. The Committee has long encouraged the use of commercial remote sensing data by NASA. Studies conducted by Rand Corporation and described in testimony before the Subcommittee on Space and Aeronautics on September 10, 1998, describe numerous other government agencies which can benefit from such commercial products. Moreover, many private citizens who are constituents of such agencies can also benefit.

One example which epitomizes such a would-be beneficiary of commercial remote sensing data is the agricultural community. NASA and the U.S. Department of Agriculture (USDA) have an existing agreement to study agricultural uses of commercial data at the Stennis Space Center, NASA's lead center for commercial remote sensing. NASA has further announced 13 research grants under the NASA-USDA partnership on May 10, 1999.

Within the context of such agreements, NASA is directed to consult with the Secretary of Agriculture to determine types of satellite data which can be useful for agricultural planning, both from commercial sources and radar imagery satellites such as LightSAR and RADARSAT. The radar imagery, in particular, provides data which has direct application to determining crop yields.

One particular benefit from this data would be the determination of international crop yields, particularly in the Southern Hemisphere. Farmers would be able to assess the global crop production months before they must make their own selection of crops to plant that season. This would enable them to grow additional crops of which a global shortfall exists, and avoid crops which are overabundant.

SECTION 218. INTEGRATED SAFETY RESEARCH PLAN

Section 218 was added to the bill as an amendment offered by Mr. Gutknecht during the Committee's markup of H.R. 1654. This section requires both agencies to jointly prepare and transmit to Congress an integrated civil aviation safety research and development plan in order to enhance the effectiveness of joint NASA/FAA undertakings by ensuring proper coordination between the agencies and that resources are used in the most cost-effective manner. The plan shall define the roles and responsibilities of each agency, require the timely sharing of critical information, and recommend procedures to increase the communication between the agencies' industry advisory committees.

In the past, joint FAA and NASA research efforts have produced valuable aviation safety technology. Currently, the FAA and NASA are engaged in 18 joint safety projects and tasks. Both agencies are working to achieve the national safety goal of reducing the fatal aviation accident rate by 80% in ten years. The FAA and NASA

have different roles in these efforts. However, it is imperative that the agencies clearly delineate the research undertaken by each agency so that their goals can be achieved in the most efficient manner.

SECTION 219. 100TH ANNIVERSARY OF FLIGHT EDUCATIONAL INITIATIVE

Section 219 was added to the bill as an amendment offered by Mr. Etheridge during the Committee's markup of H.R. 1654. The 100th anniversary of the first powered flight will occur in 2003, which presents a unique opportunity for stimulating interest in math, science, and engineering in our schools. This legislation instructs the NASA Administrator, in coordination with the Secretary of Education, to develop an educational curriculum in recognition of the 100th anniversary of the first powered flight. The subjects are to include the history of flight, the contribution of flight to global development in the 20th century, the practical benefits of aeronautics and space flight to society, the scientific and mathematical principles used in flight, and other topics the Administrator considers appropriate.

Plans for the development and flight of the Mars plane are to be integrated into the curriculum, which will necessitate that the NASA Administrator provide for the distribution of the curriculum for use in the 2000–2001 academic year and thereafter. Further, the NASA Administrator shall transmit a report to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on activities undertaken pursuant to this section not later than May 1, 2000.

SECTION 220. INTERNET AVAILABILITY OF INFORMATION

Section 220 was added to the bill as an amendment offered by Ms. Biggert during the Committee's markup of H.R. 1654. This section requires the Administrator to make available through NASA's Internet home page, abstracts of all grants and awards made with funds authorized by this Act. This requirement shall not apply to information prohibited by law or regulation from being released to the public.

VIII. COST ESTIMATE

Rule XIII, clause 3(d)(2) 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 five fiscal years following such fiscal year (or for the authorized duration of any program authorized by such bill or joint resolution, if less than five 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, House Rule XIII, clause 3(d)(3)(B) provides that this requirement does not apply when a cost estimate

and comparison prepared by the Director of the Congressional Budget Office under section 402 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 House Rule XIII, clause 3(c)(3). A cost estimate and comparison prepared by the Director of the Congressional Budget Office under section 402 of the Congressional Budget Act of 1974 has been timely submitted prior to the filing of this report and is included in Section IX of this report pursuant to House Rule XIII, clause 3(c)(3).

Rule XIII, clause 3(c)(2) 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. 1654 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. 1654 does authorize additional discretionary spending, as described in the Congressional Budget Office report on the bill, which is contained in section IX of this report.

IX. Congressional Budget Office Cost Estimate

U.S. Congress,
Congressional Budget Office,
Washington, DC, May 17, 1999.

Hon. F. James Sensenbrenner, Jr.,
Chairman, Committee on Science,
House of Representatives, Washington, DC.

Dear Mr. Chairman: The Congressional Budget Office has prepared the enclosed cost estimate for H.R. 1654, the National Aeronautics and Space Administration Authorization Act of 1999.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contacts are Kathleen Gramp (for federal costs) and Lisa Cash Driskill (for the state and local impact).

Sincerely,

Barry B. Anderson
(For Dan L. Crippen, Director).

Enclosure.

H.R. 1654—National Aeronautics and Space Administration Authorization Act of 1999

Summary: H.R. 1654 would authorize appropriations for the National Aeronautics and Space Administration (NASA) for fiscal years 2000 through 2002 and establish federal policies related to those activities. The bill also would authorize an additional $5 million for 2001 for Federal Aviation Administration (FAA) research on aviation systems capacity. Under this bill, NASA would be directed to prepare several reports, including studies regarding the

space station, the space shuttle, remote sensing data, and civil aviation. Some of those reports would have to be prepared in consultation with the FAA, the U.S. Department of Agriculture, and the Department of Education. Other provisions would impose conditions on NASA's expenditures and procurement practices.

Assuming appropriation of the authorized amounts, CBO estimates that implementing H.R. 1654 would result in discretionary spending totaling $41 billion over the 2000–2004 period. The legislation would not affect direct spending or receipts; therefore, pay-as-you-go procedures would not apply. H.R. 1654 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA) and would impose no costs on state, local, or tribal governments.

Estimated cost to the Federal Government: The estimated budgetary impact of H.R. 1654 is shown in the following table. 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 patterns for these activities. CBO estimates that the costs incurred by other agencies to participate in certain studies would not be significant. The costs of this legislation fall within budget functions 250 (general science, space, and technology) and 400 (transportation).

	By fiscal year, in millions of dollars—					
	1999	2000	2001	2002	2003	2004
SPENDING SUBJECT TO APPROPRIATION						
Spending by NASA under current law:						
Budget authority[1]	13,665	0	0	0	0	0
Estimated outlays	13,670	5,195	718	285	0	0
Proposed changes:						
Authorization level[2]	0	13,626	13,752	13,839	0	0
Estimated outlays	0	8,480	13,004	13,558	5,250	697
Spending under H.R. 1654:						
Authorization level[1, 2]	13,665	13,626	13,752	13,839	0	0
Estimated outlays	13,670	13,675	13,722	13,843	5,250	697

[1] The 1999 level at the amount appropriated for NASA for that year

[2] The authorization level proposed for 2001 includes $5 million for aviation capacity research at the FAA.

Pay-as-you-go considerations: None.

Estimated impact on State, local, and tribal governments: H.R. 1654 contains on intergovernmental mandates as defined in UMRA and would impose no costs on state, local, or tribal governments. Some of the money authorized by the bill would be for research and development at academic institutions, including public colleges and universities.

Estimated impact on the private sector: This bill would impose no new private-sector mandates as defined in UMRA.

Estimate prepared by: Federal Costs: Kathleen Gramp; Impact on State, Local, and Tribal Governments: Lisa Cash Driskill.

Estimate approved by: Robert A. Sunshine, Deputy Assistant Director for Budget Analysis.

X. Compliance With Public Law 104–4

H.R. 1654 contains no unfunded mandates.

XI. Committee Oversight Findings and Recommendations

Rule XIII, clause 3(c)(1) 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.

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

Rule XIII, clause 3(c)(4) 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 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.

XIII. Constitutional Authority Statement

Rule XIII, clause 3(d)(1) 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. 1654.

XIV. Federal Advisory Committee Statement

H.R. 1654 does not establish, or authorize the establishment of, any advisory committee.

XV. Congressional Accountability Act

The Committee finds that H.R. 1654 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).

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

In compliance with clause 3(e) 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 italic, existing law in which no change is proposed is shown in roman):

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)*.

* * * * * * *

TITLE II—COORDINATION OF AERONAUTICAL AND SPACE ACTIVITIES

* * * * * * *

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.

* * * * * * *

SECTION 2307 OF TITLE 10, UNITED STATES CODE

§ 2307. Contract financing

(a) * * *

* * * * * * *

(i) ACTION IN CASE OF FRAUD.—(1) * * *

* * * * * * *

(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.

* * * * * * *

UNITARY WIND TUNNEL PLAN ACT OF 1949

* * * * * * *

SEC. 101. The Administrator of the National Aeronautics and Space Administration (hereinafter referred to as the "Administrator") and the Secretary of Defense are hereby authorized and directed jointly to develop a unitary plan for the construction of [transsonic and supersonic] *transsonic, supersonic, and hypersonic* wind-tunnel facilities for the solution of research, development, and evaluation problems in aeronautics, including the construction of facilities at educational institutions within the continental limits of the United States for training and research in aeronautics, and to revise the uncompleted portions of the unitary plan from time to time to accord with changes in national defense requirements and scientific and technical advances. The Administrator and the Secretaries of the Army, the Navy, and the Air Force are authorized to proceed with the construction and equipment of facilities in implementation of the unitary plan to the extent permitted by appropriations pursuant to existing authority and the authority contained in titles I and II of this Act. Any further implementation of the unitary plan shall be subject to such additional authorizations as may be approved by Congress.

* * * * * * *

SEC. 103. (a) The Administrator is hereby authorized to expand the facilities at his existing [laboratories] *laboratories and centers* by the construction of additional [supersonic] *transsonic, supersonic, and hypersonic* wind tunnels, including buildings, equipment, and accessory construction, and by the acquisition of land and installation of utilities.

* * * * * * *

(c) The facilities authorized by this section shall be operated and staffed by the Administrator but shall be available primarily to industry for testing experimental models in connection with the development of aircraft and missiles. Such tests shall be scheduled and conducted in accordance with industry's requirements and allocation of [laboratory] *facility* time shall be made in accordance with the public interest, with proper emphasis upon the requirements of each military service and due consideration of civilian needs.

* * * * * * *

XVII. COMMITTEE RECOMMENDATIONS

On May 13, 1999, a quorum being present, the Committee favorably reported the National Aeronautics and Space Administration Authorization Act of 1999, by a rollcall vote of Yeas–27; Nays–13; and recommends its enactment.

XVIII. MINORITY VIEWS

Although H.R. 1654 contains a number of positive positions, the bill as reported out of the Committee is flawed. We believe that it needs revision if it is to provide a constructive guide for the nation's civil space program.

One of the bill's most egregious problems is the way it has been politicized by an amendment that would terminate the Triana earth observation spacecraft project. The Triana project was competitively awarded and its scientific content has been peer-reviewed. It offers important scientific and educational benefits. It is being managed by one of the nation's most distinguished research institutions—the Scripps Institution of Oceanography. However, all those positive aspects apparently are outweighed in the eyes of the Majority by the fact that the Triana project originally was proposed by the Vice President. It is deeply disturbing that the Majority has been willing to turn legislation that traditionally has been non-partisan into a vehicle for a partisan attack on the Vice President. Such tactics should have no place on a Committee charged with the bipartisan stewardship of America's space and aeronautics activities.

There are several other provisions that should be reexamined and modified before H.R. 1654 is ever enacted into law. Among these are the bill's prohibition against any funding for the High Performance Computing and other information technology initiatives contained in the President's request. The Chairman has provided assurances that authorizations for those activities will be forthcoming in a separate bill; we wish to emphasize that the removal of those funds from this bill should not be read as any negative judgment as to their importance, and we support their inclusion in NASA's budget.

Another area of concern is the bill's prohibition against any funding for the Ultra Efficient Engine Technology focused program. Long-term R&D efforts in engine technology, including the construction of engineering models when appropriate, are vitally important to both our national security and to our continued competitiveness in worldwide aerospace markets. We should not abandon those efforts. In addition, we support NASA's aviation safety and system capacity research, as well as research directed towards aircraft noise and emissions reduction.

More broadly, we believe that aeronautical research and development activities will remain appropriate and critical elements of NASA's overall mission for many years to come. The Federal government needs to maintain its commitment to aeronautical R&D and to the facilities needed to support that R&D. In that regard, we view the plan requested in Section 208 as one which should be focused on identifying those opportunities where the synergy between aeronautical and space transportation technologies could be

enhanced through integration. We do not view it as signaling any diminution of the Committee's support for a robust, long-term aeronautical R&D enterprise at NASA, and it should not be interpreted as such.

An additional problem with the bill is the inclusion of the Earth Science Limitation in Section 126. While we strongly support the development of a healthy and growing U.S. commercial remote sensing industry and the goal of commercial data purchases when appropriate, we believe that the earmarks contained in Section 126 are both ill-advised and ultimately unworkable. The provision as written will needlessly disrupt NASA's vital Earth Science research program while doing little to advance genuine commercialization.

In the area of Human Space Flight, the bill's message is mixed. On the one hand, the bill contains a provision (Section 214) offered by the Minority to encourage the identification of innovative technologies that could help make the human exploration and development of space "faster, cheaper, and better". Following the model of NASA's New Millennium and Discovery program, we believe that the Human Exploration and Development of Space (HEDS) enterprise needs to "cast its net" widely to capture promising technologies being conceived and developed at universities, industry, other Federal laboratories, and of course at NASA Centers. We believe that a series of ground-based, and where appropriate space-based, experiments could do much to enhance our capabilities and reduce the cost of human space exploration.

On the other hand, the bill as a provision (Sec. 128) that would appear to send a message to NASA that the Committee does not wish to encourage such innovations. While directed at legitimate concerns that TransHab should not be developed without proper justification, cost controls, and Congressional oversight, the provision would seem to rule out activities that would allow Congress to make informed decisions on the merit of the TransHab concept.

We are encouraged that the bill adds additional funding for NASA's educational programs. However, the funding level in the bill is still below the Fiscal Year 1999 appropriation for this account.

We also are encouraged that the bill includes additional space science funding for the emergency Hubble Space Telescope (HST) repair mission. We sought the inclusion of such additional funding to ensure that HST remains productive without having NASA have to cannibalize the rest of the space science program. With the constrained budgets inherent in the "faster, cheaper, better" approach, there is less margin provided in the budgets for unexpected problems. Since space research can never be totally free of such unexpected problems, we recognize that in the future the Committee may have to consider whether provision of additional resources is necessary to ensure that the ongoing space science and Space Shuttle programs are not unduly disrupted by events beyond NASA's control, such as recent industry-wide launch failures.

Finally, we think it important to note that when funding allocations or programmatic priorities not specified in the underlying bill are included in the Committee report, they do not represent any consensus of the Committee, and they should not be viewed as such by the affected agency.

GEORGE E. BROWN, JR.
JERRY COSTELLO.
DEBBIE STABENOW.
ZOE LOFGREN.
NICK LAMPSON.
LYNN N. RIVERS.
MARK UDALL.
BART GORDON.
EDDIE BERNICE JOHNSON.
SHEILA JACKSON LEE.
JIM BARCIA.
DAVID WU.
LYNN WOOLSEY.
MICHAEL E. CAPUANO.
ANTHONY D. WEINER.
BOB ETHERIDGE.

DISSENTING VIEWS

I commend my colleague, the Honorable Dana Rohrabacher, for the significant effort he has made in bringing forward a comprehensive NASA Authorization Act. Yet, section 128 of his efforts omits TransHab, a proposed replacement for the International Space Station habitation module. TransHab is important enough to the space program and to the Ninth Congressional District of Texas that I feel the need to file these dissenting views.

NASA is currently reviewing the technical issues surrounding the TransHab structure. TransHab appears to have a number of highly desirable qualities and technologies that make it an attractive candidate both for International Space Station consideration and for potential commercial applications such as significant crew safety advantages over the currently baselined habitation module. NASA, therefore, should be permitted to continue research to develop and design TranHab and to contribute some modest amount of technology maturation funding, if required, to develop a commercial partnership. Several companies have already shown their interest by responding to a TransHab concept solicitation.

NASA plans to pursue this concept only if the difference in cost between the Hab and the TransHab can be mitigated by commercial participation. I, therefore, recommend that we authorize TransHab but postpone the obligation of funds for its design or development or any other inflatable replacement for International Space Station components scheduled for launch until the NASA Administrator provides the House Committee on Science and the Senate Committee on Commerce, Science, and Transportation with a report that includes the following: an independently validated cost and schedule estimate for proposed design or development program, a description of the procurement approach to be used, and a funding plan with increments tied to the achievement of clearly defined programmatic milestones.

In closing, I am very concerned that we not do anything in this bill that would preclude NASA from doing the research necessary to determine the viability of TransHab or any other inflatable concepts.

NICK LAMPSON.

ADDITIONAL VIEWS

I commend my colleague, the Honorable Dana Rohrabacher, for the significant effort he has made in bringing forward the NASA Authorization Act. I would, however, like to express my concerns regarding the amount of funding dedicated to Aircraft Noise Reduction Technology Research at NASA.

While I commend NASA for their efforts in this field, the time has come to increase funding for noise reduction research to a level commensurate with the problem. As our skies become more and more crowded, airplane noise presents a more sigificant concern to the weary residents surrounding our nation's airports. An increase in funding for this technology would allow NASA to support negotiations on Stage IV noise reductions—the next generation of aircraft noise control efforts currently being developed.

As Aircraft Noise Reduction efforts reach this next level of development, aircraft designers and manufacturers, standards writers, and government decision-makers must be armed with the best information available. Higher funding for this family of technologies is clearly the most important signal this Congress can send that it takes this problem seriously.

ANTHONY D. WEINER.

PROCEEDINGS OF THE FULL COMMITTEE MARKUP ON H.R. 1654, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT OF 1999

Thursday, May 13, 1999

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
Washington, DC.

The Committee met, pursuant to notice, at 9:38 a.m., in Room 2318, Rayburn House Office Building, Hon. F. James Sensenbrenner, Jr. (Chairman of the Committee) presiding.

Chairman SENSENBRENNER [presiding]. The Committee on Science will be in order.

Pursuant to notice, the Committee on Science is meeting today to consider the following: first, H.R. 1654, the NASA Authorization Act of 1999; second, H.R. 1655, the Department of Energy Research, Development, and Demonstration Authorization Act of 1999; third, H.R. 1656, the Department of Energy Commercial Application of Energy Technology Authorization Act of 1999; fourth, H.R. 1742, the Environmental Protection Agency Office of Research and Development and Science Advisory Board Authorization Act of 1999; sixth, the—excuse me, fifth, the EPA Office of Air and Radiation Authorization Act of 1999, and, last the NIST Authorization Act of 1999.

I ask unanimous consent for the authority to recess the Committee at any point, and, without objection, it is so ordered. Let me also say that it is my hope that this morning we will be able to finish at least the first two bills, and if we get done with those, it is not my intention to bring the Committee back this afternoon but to recess the Committee, and we will find a mutually aggreable time, either tommorrow if we have votes or next week, to act on the rest of the bills and report them out to the Floor for action. So, if we get done with the first two bills, the members can get a pass for this afternoon, which I think would be welcomed by most.

H.R. 1654

Chairman SENSENBRENNER. The first bill we will take up this morning is H.R. 1654, the NASA Authorization Act of 1999. This is a 3-year authorization covering the activities of our Civil Space Program in Fiscal Years 2000, 2001, and 2002. When combined with a separate authorization for NASA's high performance com-

puting and communications activities, this bill represents an annual 1 percent increase for NASA over the President's request.

The bill provides full funding for the International Space Station and fences the station's research account so the science community will be prepared to use the station when it is completed. Section 128 of the bill also prohibits NASA from continuing to spend money on Trans-Hab, a possible replacement for the station's habitation module, because Trans-Hab costs more, and we simply don't have the money. The bill contains modest increases for Space Science, Life and Microgravity research, space transportation technologies and full funding for Earth science and shuttle operations. Within the aeronautics budget, the bill cancels the Ultra-Efficient Engine Technology Program rather than creating a new start for this focus program, the bill redirects the engine technology funding into our research and technology base where fundamental aeronautic research is conducted.

In addition, the bill contains several policy provisions, most notably, some definitions for commercial space activity so that various Government agencies will mean the same thing when they use terms such as "commercialization and privatization." There is a mandated study for the shuttle external tank, possibly as a supplement to our orbital research capabilities. A second study will review and prioritize various shuttle upgrades in order to assist the Congress and the Administration in making policy about the shuttle's future in coming years.

We do have a few amendments on the roster this morning, so I won't go into greater detail, but before moving forward, I do want to mention some good news. The Senate Commerce Committee has introduced and marked up its NASA authorization for the next 3 fiscal years as well. In the past, the Senate has not moved so quickly on our Space Program, so I take this as an encouraging sign that we will be able to send an authorization to the President for signature this year, which will be the first time, I think, in 5 to 7 years. So, with that, let me yield to the gentleman from Texas, Mr. Hall, for his opening statement.

Mr. HALL. Mr. Chairman, thank you. I will yield in a moment to the Ranking Democrat. I have good news too. George Brown, who has been quite ill, is at home; he's doing well; he's been to his office, and he's up and around and expressed a desire to thank all of you for your——

[Applause.]

And I like an awful lot about the bill that we have here, but I'm going to like them better if we get some amendments on it. [Laughter.]

I yield to Bart Gordon.

Chairman SENSENBRENNER. The gentleman from Tennessee.

Mr. GORDON. Thank you. Good morning. Since we have a very busy markup schedule, I will be brief in my remarks. I believe that H.R. 1654, the NASA Authorization Act of 1999, while by no means free of problems, is a reasonable constructed piece of legislation, as introduced, and I ask to co-sponsor it. I appreciate the willingness of the Subcommittee Chair to work with the minority to address some of our concerns with the original draft of the bill. I think that our discussions prior to its introduction by the Chairman have led

to an improved bill. I am particularly pleased that bill, as introduced now, allocates additional funding for NASA's education programs. As you know, members on this side of the aisle have been very supportive of these programs, and we appreciate your willingness to respond to our concerns over the funding levels in the draft bill, and I appreciate the Chairman's agreement to include a provision that I requested to increase the funding for NASA's Teacher-Faculty Preparation Enhancement Program. This program offers important benefits to our primarily undergraduate colleges and technical institutions and can lead to long-term research opportunities for the students and the faculty of these schools.

Now, while I have agreed to co-sponsor H.R. 1654, I am still concerned about some aspects of the bill. One issue is the removal form the bill of all the funding for the High Performance Computing Program and the Administration's Information Technology Initiative. I understand the funding for these activities is being removed from all the authorizing bills in the Committee's jurisdiction, and I hope that we will be able to get a better and additional clarification from Chairman Sensenbrenner today regarding his intentions in this matter.

Another area of concern is the limitation that has been put on the Earth Science Program in this bill. Although the provisions may be well intended, I believe that including the limitation will do real damage to the ongoing Earth Science Program while doing little to help the commercial remote sensing sector.

Finally, I am puzzled by actions taken in the Aeronautics budget to eliminate NASA's main Aircraft Engine Technology Program and to cut money form NASA's Aviation System Capacity Research Program. These actions do not appear to reflect any consensus derived form our hearing, either in the Space Subcommittee or in the Technology Subcommittee. I'm sure that we will discuss these matters during the markup, so I will not dwell anymore on them at this time.

In closing, I, again, want to thank the Chairman of the Subcommittee and of the full Committee for their willingness to work with us on this bill, and I look forward to a productive markup, but I would also like to ask unanimous consent to place George Brown's statement in the record.

Chairman SENSENBRENNER. Without objection, and, without objection, all members may place opening statements in the record at this point in time.

[The statements of Mr. Brown and Mr. Lampson follow:]

PREPARED STATEMENT OF HON. GEORGE E. BROWN, JR.

While I do not intend to make a lengthy statement, I would like to offer a few comments on H.R. 1654, the NASA Authorization Act of 1999. As you know, I have long been a strong supporter of the nation's civil space program, and I remain so. Our activities in space have offered countless benefits to our citizens and have done much to bring the world's peoples closer together. We need to work hard to ensure that our space program continues to deliver those benefits.

More broadly, the National Aeronautics and Space Administration—NASA—has been a very important part of the nation's research and development infrastructure. We need to do all we can to maintain its health and vitality. In that regard, I believe that H.R. 1654, while by no means a perfect bill, does represent a positive signal that the Science Committee supports an active and robust civil space program and a healthy commercial space sector. I thus am supporting H.R. 1654 as introduced.

I of course have long supported increases to NASA's budget, and I am encouraged that this bill does increase NASA's overall funding. In addition, I am pleased that both the Administration's multiyear funding plan and this bill support investments in advanced space transportation. Improved space transportation will allow us to do more in space, and to do it at reasonable cost.

In addition, the Majority has been willing to include several provisions that I sought to have included in the bill. Among them are findings on the importance of maintaining the Hubble Space Telescope and enhancing it as appropriate. We have gained much of importance from Hubble during its years of operation, and we need to ensure that it remains productive until the next generation of space observatories are on orbit. In that regard, I think we need to give serious consideration to enhancing it as appropriate so that it can serve as a scientific bridge to those future observatories, especially in the areas of near-infrared observations.

At the same time, we need to make sure that NASA has the necessary resources to do needed servicing of Hubble without having to cannibalize the rest of the space science program. That is why I sought inclusion of additional funding to cover the science costs of the extra Hubble servicing mission. At the end of the day, NASA will probably also need additional funding to cover the unexpected delays to the AXAF observatory resulting from unrelated launch vehicle problems, as well as to cover some of the Shuttle-related costs. As I have learned over the years, space research is not trouble-free, and we have to ensure sufficient reserves are available to deal with the unexpected.

NASA has worked hard to develop an exciting, effective, and balanced space science program, and I believe that Congress does not wish to see that balanced program unravel as a result of the current temporary problems. I see the extra money I have sought to include as an early signal of this Committee's commitment to a healthy space science program.

Another area of concern to me is the Deep Space Network (DSN). I know that NASA needs no encouragement from me to ensure that this critically important infrastructure is maintained. Yet I think that it is important to signal that this Committee recognizes the importance of the DSN for NASA's existing and planned solar system exploration missions—and that we want to make sure that upgrades required to satisfy future requirements are done in a timely manner.

Finally, H.R. 1654 includes a provision that I asked be included relating to innovative technologies for the human exploration and development of space. It is my strong belief that we need to apply the lessons of "faster, cheaper, better" to NASA's human space flight programs if we are ever going to get beyond low Earth orbit. In that regard, I think we need to cast the net widely for new, innovative technologies that can dramatically reduce the cost of human space exploration. I think that NASA's space science program has set a good example by means of its New Millennium and Discovery programs, and I have sought to mimic that approach in the provision included in the bill.

While there are other things I like about H.R. 1654, I do have an obligation to point out some of the areas where I have problems with the bill. While I doubt that all of them will be dealt with at today's markup, I hope that at least some will be. First, I would note the elimination of any funding for the High Performance Computing and Information Technology initiatives. Chairman Sensenbrenner has given his assurances that it is his intention to move standalone legislation in the near future. However, I remain concerned that the absence of these programs from the NASA bill could inadvertently send the wrong signal to the Appropriations committee. I thus want to make it abundantly clear that I support these programs.

Next, I believe that the Earth Science limitation included in the bill is ill-advised and ultimately unworkable. I think it should be removed. I am puzzled by the prohibition against NASA's aircraft engine focused technology program. I think that the arguments for continuing that research program are as compelling as the arguments for having NASA pursue research in space transportation engines. We should not walk away from our national commitment to aviation engine research. Similarly, we should not let a proper concern for cost discipline in the Space Station program inadvertently result in the stifling of all work on promising concepts such as inflatable crew structures.

Likewise, I do not understand why the Majority would propose cutting NASA's research in aviation system capacity—an area that NASA has been involved in productively for many years. And of course, I think we can never go wrong in investing in programs that promote science education. Finally, although I believe that the provisions in the bill regarding international cooperation represent an improvement over those in the earlier draft bill, I would like to hear from NASA and our international partners on the potential impact of the proposed provisions on future cooperation.

In closing, I want to thank Chairman Sensenbrenner, Chairman Rohrabacher, and Mr. Gordon for their efforts in bringing this bill to us today, and I look foward a productive markup.

PREPARED STATEMENT OF HON. NICK LAMPSON

Mr. Chairman, I am pleased the Committee has chosen to include a total of $25 million for new space shuttle upgrades in this bill.

The space shuttle is the most capable and versatile launch vehicle in the world. No other vehicle—either in use or in development—can do it what it does: Payload deployment; On-orbit assembly and research; Crew transfer; Satellite retrieval and repair; and Cargo return.

Because the shuttle is exposed to atmospheric flight for only a few minutes during a mission, the flight has only expended 25% of its design life. Like the reliable aircraft that meet our nation's commercial and military needs—the 737 and B–52 for example—the Space Shuttle's performance and reliability improves with upgrades.

Upgrades have been a critical part of the Shuttle program since its inception. Better management of the program by NASA and USA—along with upgrades—have led to significant improvements.

In FY92, the annual Space Shuttle budget was $3.9 billion—today it is $3 billion.

The Space Shuttle's on-time launch record is nearly perfect over the last three years.

To continue this trend, investments in upgrades that increase safety and efficiency—and drive technology—are critical. As has been proven with commercial and military aircraft, technology upgrades extend the life of aircraft—and spacecraft—and return great value to the taxpayer.

The $25 million in FY00 will allow the purchase of long-lead items so that the NASA and USA team can begin the process of further upgrading the Space Shuttle.

Thank you, Mr. Chairman.

Mr. GORDON. And, Mr. Chairman, finally, in conclusion, let me just say that the normal regular order in most committees is to a Subcommittee markup followed by a full Committee markup. It allows an opportunity to vent various issues; to let people—you know, make sure that we're not having unintended circumstances and consequences so we get the very best bill. It is of course the prerogative of the majority to decide whether they wanted to do that or not. In this Committee, we've decided not to do it, but I do want to report to our members that after a very cordial and good faith discussion with the Chairman and his staff, that we've come to an agreement to have good notice—at least 10 days—if possible, with a full draft before major markups particularly when you have several bills as coming up today. We can't do our job, either the minority or really members of the majority who aren't in the leadership there to look over the bills.

I think that, as I say, a good faith agreement has been developed. The majority has fulfilled that in this case. I want to say thank you for that, and I want to remind our members that we have a responsibility back; that when we have amendments and we have concerns, we need to give them timely notice, and if we'll all work together on this, we're going to have better legislation, and I think that we've got a good agreement, and I thank you for that, Mr. Chairman.

Chairman SENSENBRENNER. Will the gentleman yield?

Mr. GORDON. Yes, sir.

Chairman SENSENBRENNER. First, let me thank the gentleman from Tennessee. We had been working and soothing over some of the rough points that have come up at earlier markups, and I think we are on a good track. The bills have been available for circulation for a good period of time, and the Democrats have reciprocated in giving us their amendments in time for us to be able to review the

amendments and come back with comments on that, and I think that we are narrowing the issues and thus able to speed up consideration of the legislation.

With respect to Subcommittee markups, there have been a considerable number of Subcommittee hearings, although not legislatively focused, on the President's budget request, and it has been my feeling as far as the authorization bills are concerned that having a Subcommittee markup as well as a Full Committee markup would be a duplication of effort since the issues would largely be the same. And, furthermore, since the Appropriations Committee is going to be doing its thing so that we are able to have an August recess according to the speaker's admonition on the first day of the session, that we ought to make all deliberate speed to get our authorization bills out in order to influence what the Appropriations Committee does. So, I take responsibility for the call in not having Subcommittee markups on these authorization bills, but I think that it has been for good and sufficient reason.

Without objection, the bill is read the first time and open for amendment at any point.

[The information follows:]

H.R. 1654

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "National Aeronautics and Space Administration Authorization Act of 1999".

(b) TABLE OF CONTENTS.—

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

TITLE I—AUTHORIZATION OF APPROPRIATIONS

Subtitle A—Authorizations

Sec. 101. International Space Station.
Sec. 102. Launch Vehicle and Payload Operations.
Sec. 103. Science, Aeronautics, and Technology.
Sec. 104. Mission Support.
Sec. 105. Inspector General.
Sec. 106. Total authorization.
Sec. 107. Aviation systems capacity.

Subtitle B—Limitations and Special Authority

Sec. 121. Use of funds for construction.
Sec. 122. Availability of appropriated amounts.
Sec. 123. Reprogramming for construction of facilities.
Sec. 124. Limitation on obligation of unauthorized appropriations.
Sec. 125. Use of funds for scientific consultations or extraordinary expenses.
Sec. 126. Earth science limitation.
Sec. 127. Competitiveness and international cooperation.
Sec. 128. Trans-hab.
Sec. 129. Consolidated Space Operations Contract.

TITLE II—MISCELLANEOUS PROVISIONS

Sec. 201. Requirement for independent cost analysis.
Sec. 202. National Aeronautics and Space Act of 1958 amendments.
Sec. 203. Commercial space goods and services.
Sec. 204. Cost effectiveness calculations.
Sec. 205. Foreign contract limitation.

Sec. 206. Authority to reduce or suspend contract payments based on substantial evidence of fraud.
Sec. 207. Space Shuttle upgrade study.
Sec. 208. Aero-space transportation technology integration.
Sec. 209. Definitions of commercial space policy terms.
Sec. 210. External tank opportunities study.
Sec. 211. Eligibility for awards.
Sec. 212. Notice.
Sec. 213. Unitary Wind Tunnel Plan Act of 1949 amendments.
Sec. 214. Innovative technologies for human space flight.

SEC. 2. FINDINGS.

The Congress makes the following findings:

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

(2) The National Aeronautics and Space Administration must continue on its current course of returning to its proud history as the Nation's leader in basic scientific, air, and space research.

(3) The overwhelming preponderance of the Federal Government's requirements for routine, 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.

(4) 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, and human space systems.

(5) 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.

(6) 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—

(i) is undertaken in a manner that is sensitive to the desire of United States commercial providers to develop or explore space commercially;

(ii) is consistent with the need for Federal agencies to use space to complete their missions; and

(iii) is carried out in a manner consistent with United States export control laws.

(7) The National Aeronautics and Space Administration and the Department of Defense can cooperate more effectively in leveraging their mutual capabilities to conduct joint space missions that improve United States space capabilities and reduce the cost of conducting space missions.

(8) The Deep Space Network will continue to be a critically important part of the Nation's scientific and exploration infrastructure in the coming decades, and the National Aeronautics and Space Administration should ensure that the Network is adequately maintained and that upgrades required to support future missions are undertaken in a timely manner.

(9) The Hubble Space Telescope has proven to be an important national astronomical research facility that is revolutionizing our understanding of the universe and should be kept productive, and its capabilities should be maintained and enhanced as appropriate to serve as a scientific bridge to the next generation of space-based observatories.

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 Commerce 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. INTERNATIONAL SPACE STATION.

There are authorized to be appropriated to the National Aeronautics and Space Administration for International Space Station—

(1) for fiscal year 2000, $2,482,700,000, of which $394,400,000, notwithstanding section 121(a)—

(A) shall only be for Space Station research or for the purposes described in section 103(2); and

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

(2) for fiscal year 2001, $2,328,000,000, of which $465,400,000, notwithstanding section 121(a)—

(A) shall only be for Space Station research or for the purposes described in section 103(2); and

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

(3) for fiscal year 2002, $2,091,000,000, of which $469,200,000, notwithstanding section 121(a)—

(A) shall only be for Space Station research or for the purposes described in section 103(2); and

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

SEC. 102. LAUNCH VEHICLE AND PAYLOAD OPERATIONS.

There are authorized to be appropriated to the National Aeronautics and Space Administration for Launch Vehicle and Payload Operations the following amounts:

(1) For Space Shuttle Operations—
(A) for fiscal year 2000, $2,547,400,000;
(B) for fiscal year 2001, $2,649,900,000; and
(C) for fiscal year 2002, $2,629,000,000.
(2) For Space Shuttle Safety and Performance Upgrades—
(A) for fiscal year 2000, $456,800,000, of which $18,000,000 shall not be obligated until 45 days after the report required by section 207 has been submitted to the Congress;
(B) for fiscal year 2001, $407,200,000; and
(C) for fiscal year 2002, $414,000,000.
(3) For Payload and Utilization Operations—
(A) for fiscal year 2000, $169,100,000;
(B) for fiscal year 2001, $182,900,000; and
(C) for fiscal year 2002, $184,500,000.

SEC. 103. 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 2000, $2,202,400,000, of which—
(i) $10,500,000 shall be for the Near Earth Object Survey;
(ii) $472,000,000 shall be for the Research Program;
(iii) $12,000,000 shall be for Space Solar Power technology; and
(iv) $170,400,000 shall be for Hubble Space Telescope (Development);
(B) for fiscal year 2001, $2,315,200,000, of which—
(i) $10,500,000 shall be for the Near Earth Object Survey;
(ii) $475,800,000 shall be for the Research Program; and
(iii) $12,000,000 shall be for Space Solar Power technology; and
(C) for fiscal year 2002, $2,411,800,000, of which—
(i) $10,500,000 shall be for the Near Earth Object Survey;
(ii) $511,100,000 shall be for the Research Program;
(iii) $12,000,000 shall be for Space Solar Power technology; and
(iv) $5,000,000 shall be for space science data buy.
(2) For Life and Microgravity Sciences and Applications—
(A) for fiscal year 2000, $301,000,000, of which $2,000,000 shall be for research and early detection systems for breast and ovarian cancer and other women's health issues, and $5,000,000 shall be for sounding rocket vouchers;
(B) for fiscal year 2001, $335,200,000, of which $2,000,000 shall be for research and early detection systems for breast and ovarian cancer and other women's health issues; and
(C) for fiscal year 2002, $344,000,000, 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 Earth Science, subject to the limitations set forth in section 126—
(A) for fiscal year 2000, $1,415,100,000;
(B) for fiscal year 2001, $1,413,300,000; and
(C) for fiscal year 2002, $1,365,300,000.
(4) For Aero-Space Technology—
(A) for fiscal year 2000, $999,300,000, of which—
(i) $532,800,000 shall be for Aeronautical Research and Technology, with no funds to be used for the Ultra-Efficient Engine, and with $475,800,000 to be for the Research and Technology Base;
(ii) $334,000,000 shall be for Advanced Space Transportation Technology, including—
(I) $61,300,000 for the Future-X Demonstration Program; and
(II) $105,600,000 for Advanced Space Transportation Program; and
(iii) $132,500,000 shall be for Commercial Technology;
(B) for fiscal year 2001, $908,400,000, of which—
(i) $524,000,000 shall be for Aeronautical Research and Technology, with no funds to be used for the Ultra-Efficient Engine, and with $484,000,000 to be for the Research and Technology Base, and with $54,200,000 to be for Aviation System Capacity;
(ii) $249,400,000 shall be for Advanced Space Transportation Technology, including—
(I) $109,000,000 for the Future-X Demonstration Program; and

(II) $134,400,000 for Advanced Space Transportation Program; and

(iii) $135,000,000 shall be for Commercial Technology; and

(C) for fiscal year 2002, $994,800,000, of which—

(i) $519,200,000 shall be for Aeronautical Research and Technology, with no funds to be used for the Ultra-Efficient Engine, and with $466,900,000 to be for the Research and Technology Base, and with $67,600,000 to be for Aviation System Capacity;

(ii) $340,000,000 shall be for Advanced Space Transportation Technology; and

(iii) $135,600,000 shall be for Commercial Technology.

(5) For Mission Communication Services—

(A) for fiscal year 2000, $406,300,000;

(B) for fiscal year 2001, $382,100,000; and

(C) for fiscal year 2002, $296,600,000.

(6) For Academic Programs—

(A) for fiscal year 2000, $128,600,000, of which $11,600,000 shall be for Higher Education within the Teacher/Faculty Preparation and Enhancement Programs;

(B) for fiscal year 2001, $128,600,000; and

(C) for fiscal year 2002, $130,600,000.

(7) For Future Planning (Space Launch)—

(A) for fiscal year 2001, $144,000,000; and

(B) for fiscal year 2002, $280,000,000.

SEC. 104. 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 2000, $43,000,000;

(B) for fiscal year 2001, $45,000,000; and

(C) for fiscal year 2002, $49,000,000.

(2) For Space Communication Services—

(A) for fiscal year 2000, $89,700,000;

(B) for fiscal year 2001, $109,300,000; and

(C) for fiscal year 2002, $174,200,000.

(3) For Construction of Facilities, including land acquisition—

(A) for fiscal year 2000, $181,000,000, including—

(i) Restore Electrical Distribution System (ARC), $2,700,000;

(ii) Rehabilitate Main Hangar Building 4802 (Dryden Flight Research Center (DFRC)), $2,900,000;

(iii) Rehabilitate High Voltage System (Glenn Research Center), $7,600,000;

(iv) Repair Site Steam Distribution System (GSFC), $2,900,000;

(v) Restore Chilled Water Distribution System (GSFC), $3,900,000;

(vi) Rehabilitate Hydrostatic Bearing Runner, 70 meter Antenna, Goldstone (JPL), $1,700,000;

(vii) Upgrade 70 meter Antenna Servo Drive, 70 meter Antenna Subnet (JPL), $3,400,000;

(viii) Rehabilitate Utility Tunnel Structure and Systems (Johnson Space Center (JSC)), $5,600,000;

(ix) Connect KSC to CCAS Wastewater Treatment Plant (KSC), $2,500,000;

(x) Repair and Modernize HVAC System, Central Instrument Facility (KSC), $3,000,000;

(xi) Replace High Voltage Load Break Switches (KSC), $2,700,000;

(xii) Repair and Modernize HVAC and Electrical systems, Building 4201 (Marshall Space Flight Center (MSFC)), $2,300,000;

(xiii) Repair Roofs, Vehicle Component Supply buildings (MAF), $2,000,000;

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

(xv) Minor Construction of New Facilities and Additions to Existing Facilities at Various Locations, not in excess of $1,500,000 per project, $5,000,000;

(xvi) Facility Planning and Design, $19,200,000;

(xvii) Deferred Major Maintenance, $8,000,000;

(xviii) Environmental Compliance and Restoration, $40,100,000;

(B) for fiscal year 2001, $181,000,000; and
(C) for fiscal year 2002, $191,000,000.

(4) For Research and Program Management, including personnel and related costs, travel, and research operations support—
(A) for fiscal year 2000, $2,181,200,000;
(B) for fiscal year 2001, $2,195,000,000; and
(C) for fiscal year 2002, $2,261,600,000.

SEC. 105. INSPECTOR GENERAL.

There are authorized to be appropriated to the National Aeronautics and Space Administration for Inspector General—
(1) for fiscal year 2000, $22,000,000;
(2) for fiscal year 2001, $22,000,000; and
(3) for fiscal year 2002, $22,000,000.

SEC. 106. 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 2000, $13,625,600,000;
(2) for fiscal year 2001, $13,747,100,000; and
(3) for fiscal year 2002, $13,839,400,000.

SEC. 107. AVIATION SYSTEMS CAPACITY.

In addition to amounts otherwise authorized, there are authorized to be appropriated to the Administrator of the Federal Aviation Administration $5,000,000 for fiscal year 2001 for aviation systems capacity.

Subtitle B—Limitations and Special Authority

SEC. 121. USE OF FUNDS FOR CONSTRUCTION.

(a) AUTHORIZED USES.—Funds appropriated under sections 101, 102, 103, and 104(1) and (2), and funds appropriated for research operations support under section 104(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 $1,000,000, 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 104(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 section 104(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 section 104(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. 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 2000 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 2001 or 2002,

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 2000, 2001, or 2002 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. 125. USE OF FUNDS FOR SCIENTIFIC CONSULTATIONS OR EXTRAORDINARY EXPENSES.

Not more than $30,000 of the funds appropriated under section 103 may be used for scientific consultations or extraordinary expenses, upon the authority of the Administrator.

SEC. 126. EARTH SCIENCE LIMITATION.

Of the funds authorized to be appropriated for Earth Science under section 103(3) for each of fiscal years 2001 and 2002, $50,000,000 shall be for the Commercial Remote Sensing Program at Stennis Space Center for commercial data purchases, unless the National Aeronautics and Space Administration has integrated data purchases into the procurement process for Earth science research by obligating at least 5 percent of the aggregate amount appropriated for that fiscal year for Earth Observing System and Earth Probes for the purchase of Earth science data from the private sector.

SEC. 127. COMPETITIVENESS AND INTERNATIONAL COOPERATION.

(a) LIMITATION.—As part of the evaluation of the costs and benefits of entering into an obligation to conduct a space mission in which a foreign entity will participate as a supplier of the spacecraft, spacecraft system, or launch system, the Administrator shall solicit comment on the potential impact of such participation through notice published in Commerce Business Daily at least 45 days before entering into such an obligation.

(b) NATIONAL INTERESTS.—Before entering into an obligation described in subsection (a), the Administrator shall consider the national interests of the United States described in section 2(6).

SEC. 128. TRANS-HAB.

(a) REPLACEMENT STRUCTURE.—No funds authorized by this Act shall be obligated for the definition, design, or development of an inflatable space structure to replace any International Space Station components scheduled for launch in the Assembly Sequence released by the National Aeronautics and Space Administration on February 22, 1999.

(b) GENERAL LIMITATION.—No funds authorized by this Act for fiscal year 2000 shall be obligated for the definition, design, or development of an inflatable space structure capable of accommodating humans in space.

SEC. 129. CONSOLIDATED SPACE OPERATIONS CONTRACT.

No funds authorized by this Act shall be used to create a Government-owned corporation to perform the functions that are the subject of the Consolidated Space Operations Contract.

TITLE II—MISCELLANEOUS PROVISIONS

SEC. 201. REQUIREMENT FOR INDEPENDENT COST ANALYSIS.

Before any funds may be obligated for Phase B of a project that is projected to cost more than $100,000,000 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. 202. 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".

SEC. 203. 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. 204. 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. 205. 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. 206. AUTHORITY TO REDUCE OR SUSPEND CONTRACT PAYMENTS BASED ON SUBSTANTIAL EVIDENCE OF FRAUD.

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

SEC. 207. SPACE SHUTTLE UPGRADE STUDY.

(a) STUDY.—The Administrator shall enter into appropriate arrangements for the conduct of an independent study to reassess the priority of all Phase III and Phase IV Space Shuttle upgrades.

(b) PRIORITIES.—The study described in subsection (a) shall establish relative priorities of the upgrades within each of the following categories:

(1) Upgrades that are safety related.

(2) Upgrades that may have functional or technological applicability to reusable launch vehicles.

(3) Upgrades that have a payback period within the next 12 years.

(c) COMPLETION DATE.—The results of the study described in subsection (a) shall be transmitted to the Congress not later than 180 days after the date of the enactment of this Act.

SEC. 208. AERO-SPACE TRANSPORTATION TECHNOLOGY INTEGRATION.

(a) INTEGRATION PLAN.—The Administrator shall develop a plan for the integration of research, development, and experimental demonstration activities in the aeronautics transportation technology and space transportation technology areas. The plan shall ensure that integration is accomplished without losing unique capabilities which support the National Aeronautics and Space Administration's defined missions. The plan shall also include appropriate strategies for using aeronautics centers in integration efforts.

(b) REPORTS TO CONGRESS.—Not later than 90 days after the date of the enactment of this Act, the Administrator shall transmit to the Congress a report containing the plan developed under subsection (a). The Administrator shall transmit to the Congress annually thereafter for 5 years a report on progress in achieving such plan, to be transmitted with the annual budget request.

SEC. 209. DEFINITIONS OF COMMERCIAL SPACE POLICY TERMS.

The Administrator shall ensure that the usage of terminology in National Aeronautics and Space Administration policies and programs is consistent with the following definitions:

(1) The term "commercialization" means the process of private entities conducting privatized space activities to expand their customer base beyond the Federal Government to address existing or potential commercial markets, investing private resources to meet those commercial market requirements.

(2) The term "commercial purchase" means a purchase by the Federal Government of space goods and services at a market price from a private entity which has invested private resources to meet commercial requirements.

(3) The term "commercial use of Federal assets" means the use by a service contractor or other private entity of the capability of Federal assets to deliver services to commercial customers, with or without putting private capital at risk.

(4) The term "contract consolidation" means the combining of two or more Government service contracts for related space activities into one larger Government service contract.

(5) The term "privatization" means the process of transferring—

(A) control and ownership of Federal space-related assets, along with the responsibility for operating, maintaining, and upgrading those assets; or

(B) control and responsibility for space-related functions,

from the Federal Government to the private sector.

SEC. 210. EXTERNAL TANK OPPORTUNITIES STUDY.

(a) APPLICATIONS.—The Administrator shall enter into appropriate arrangements for an independent study to identify, and evaluate the potential benefits and costs of, the broadest possible range of commercial and scientific applications which are enabled by the launch of Space Shuttle external tanks into Earth orbit and retention in space, including—

(1) the use of privately owned external tanks as a venue for commercial advertising on the ground, during ascent, and in Earth orbit, except that such study shall not consider advertising that while in orbit is observable from the ground with the unaided human eye;

(2) the use of external tanks to achieve scientific or technology demonstration missions in Earth orbit, on the Moon, or elsewhere in space; and

(3) the use of external tanks as low-cost infrastructure in Earth orbit or on the Moon, including as an augmentation to the International Space Station.

A final report on the results of such study shall be delivered to the Congress not later than 90 days after the date of enactment of this Act. Such report shall include recommendations as to Government and industry-funded improvements to the external tank which would maximize its cost-effectiveness for the scientific and commercial applications identified.

(b) REQUIRED IMPROVEMENTS.—The Administrator shall conduct an internal agency study, based on the conclusions of the study required by subsection (a), of what—

(1) improvements to the current Space Shuttle external tank; and

(2) other in-space transportation or infrastructure capability developments,

would be required for the safe and economical use of the Space Shuttle external tank for any or all of the applications identified by the study required by subsection (a), a report on which shall be delivered to Congress not later than 45 days after receipt of the final report required by subsection (a).

(c) CHANGES IN LAW OR POLICY.—Upon receipt of the final report required by subsection (a), the Administrator shall solicit comment from industry on what, if any, changes in law or policy would be required to achieve the applications identified in that final report. Not later than 90 days after receipt of such final report, the Administrator shall transmit to the Congress the comments received along with the recommendations of the Administrator as to changes in law or policy that may be required for those purposes.

SEC. 211. ELIGIBILITY FOR AWARDS.

(a) IN GENERAL.—The Administrator shall exclude from consideration for grant agreements made by the National Aeronautics and Space Administration after fiscal year 1999 any person who received funds, other than those described in subsection (b), appropriated for a fiscal year after fiscal year 1999, under a grant agreement from any Federal funding source for a project that was not subjected to a competitive, merit-based award process, except as specifically authorized by this Act. Any exclusion from consideration pursuant to this section shall be effective for a period of 5 years after the person receives such Federal funds.

(b) EXCEPTION.—Subsection (a) 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.

(c) DEFINITION.—For purposes of this section, 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. 212. NOTICE.

(a) NOTICE OF REPROGRAMMING.—If any funds authorized 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. 213. UNITARY WIND TUNNEL PLAN ACT OF 1949 AMENDMENTS.

The Unitary Wind Tunnel Plan Act of 1949 is amended—

(1) in section 101 (50 U.S.C. 511) by striking "transsonic and supersonic" and inserting in lieu thereof "transsonic, supersonic, and hypersonic"; and

(2) in section 103 (50 U.S.C. 513)—

(A) by striking "laboratories" in subsection (a) and inserting in lieu thereof "laboratories and centers";

(B) by striking "supersonic" in subsection (a) and inserting in lieu thereof "transsonic, supersonic, and hypersonic"; and

(C) by striking "laboratory" in subsection (c) and inserting in lieu thereof "facility".

SEC. 214. INNOVATIVE TECHNOLOGIES FOR HUMAN SPACE FLIGHT.

(a) ESTABLISHMENT OF PROGRAM.—In order to promote a "faster, cheaper, better" approach to the human exploration and development of space, the Administrator shall establish a Human Space Flight Commercialization/Technology program of ground-based and space-based research and development in innovative technologies.

(b) AWARDS.—At least 75 percent of the amount appropriated for the program established under subsection (a) for any fiscal year shall be awarded through broadly distributed announcements of opportunity that solicit proposals from educational institutions, industry, nonprofit institutions, National Aeronautics and Space Administration Centers, the Jet Propulsion Laboratory, other Federal agencies, and other interested organizations, and that allow partnerships among any combination of those entities, with evaluation, prioritization, and recommendations made by external peer review panels.

(c) PLAN.—The Administrator shall include as part of the National Aeronautics and Space Administration's budget request to the Congress for fiscal year 2001 a plan for the implementation of the program established under subsection (a).

Chairman SENSENBRENNER. The first amendment on the roster is one by the Subcommittee Chair, the gentleman from California, Mr. Rohrabacher. For what purpose does the gentleman seek recognition?

Mr. ROHRABACHER. I have an amendment at the desk.

Chairman SENSENBRENNER. The clerk will report the amendment.

The Clerk. "Amendment to H.R. 1654 offered by Mr. Rohrabacher."

Chairman SENSENBRENNER. Without objection, the amendment is considered as read, and the gentleman from California is recognized for 5 minutes.

[The information follows:]

AMENDMENT TO H.R. 1654 OFFERED BY MR. ROHRABACKER

Page 13, line 13, strike "$475,800,000" and insert "$412,800,000".
Page 14, line 4, strike "$484,000,000" and insert "$399,800,000".
Page 14, line 22, strike "$466,900,000" and insert "$381,600,000".
Page 37, after line 16, insert the following new section:

SEC. 215. LIFE IN THE UNIVERSE.

(a) REVIEW.—The Administrator shall enter into appropriate arrangements with the National Academy of Sciences for the conduct of a review of—

(1) international efforts to determine the extent of life in the universe; and

(2) enhancements that can be made to the National Aeronautics and Space Administration's efforts to determine the extent of life in the universe.

(b) ELEMENTS.—The review required by subsection (a) shall include—

(1) an assessment of the direction of the National Aeronautics and Space Administration's astrobiology initiatives within the Origins program;

(2) an assessment of the direction of other initiatives carried out by entities other than the National Aeronautics and Space Administration to determine the extent of life in the universe, including other Federal agencies, foreign space agencies, and private groups such as the Search for Extraterrestrial Intelligence Institute;

(3) recommendations about scientific and technological enhancements that could be made to the National Aeronautics and Space Administration's astrobiology initiatives to effectively utilize the initiatives of the scientific and technical communities; and

(4) recommendations for possible coordination or integration of National Aeronautics and Space Administration initiatives with initiatives of other entities described in paragraph (2).

(c) REPORT TO CONGRESS.—Not later than 18 months after the date of the enactment of this Act, the Administrator shall transmit to the Congress a report on the results of the review carried out under this section.

Mr. ROHRABACHER. Mr. Chairman, I wanted to thank Bart Gordon and the Committee staff on both sides for helping to put this bill together, and I want to thank Bart and all the other members who co-sponsored this bill, and I would hope that others do sign up.

H.R. 1654, as introduced, is dramatically different from its original draft thanks to a lot of good ideas, again, coming from both sides of the aisle. We have agreed to many of those and to accept a number of the amendments put forward on the Democratic aside. Mr. Gordon and I have already discussed developing a bipartisan manager's amendment in coordination with Chairman Sensenbrenner and Mr. Brown to perfect this bill when it goes to the Floor.

At the last markup, I suggested that members should approach Subcommittee Chairmen with proposals before coming before a Committee mark, and let me note that several members took me up on that suggestion, and we have done our very best to accommodate those members who did concerns, so we've developed a cooperative relationship.

In particular, we are actively negotiating compromises regarding concerns on the Democratic side with the Earth Science limitation provision, and that's something is ongoing negotiations. I also spoke with Dan Golden Tuesday night, and he agreed to work with me as we continue this process on the Floor and in the conference with the Senate. So, I would hope that we don't lose momentum on all these good faith negotiations by fighting over some amendments that don't necessarily need to be fought over, but if we do, that is of course part of the Democratic process, and compromise and negotiation is, as well, part of the Democratic process.

I want to praise Mr. Larson, in particular, for coming to me last week to talk about his concerns, and as we go to the Floor, I believe that both of our sides in this discussion have been satisfied, and we are going to go out of our way to try to make sure that Mr. Larson's concerns are taken care of. I also want to thank Mr. Etheridge and Ms. Jackson Lee and Mr. Capuano, several other Republican members and their efforts and their staffs, as well, to work out compromises with the Subcommittee staff.

Briefly, my en bloc amendment does two things. First, it makes a technical correction to the level of funding for the Aeronautics Research and Technology base removing the HPCC and IT awarded money that was already taken out of the aeronautics top line. If we don't fix this, then we're telling NASA to cut an Administration priority like aviation safety or to overfund the research base.

Secondly, my amendment also requires that the NASA Academy of Sciences review NASA's Original Program and other research into the study of the extent of life in the universe. The amendment asks for the Academy's recommendations on how NASA can enhance these efforts. This is clearly the kind of advice we want the Academy to provide NASA and to Congress, so I would ask my colleagues for support of this as well.

Finally, Mr. Chairman, I understand that some amendments will be offered today which I had hoped to handle through, as I say, negotiations and compromise. Again, I would hope that the Earth Science limitation provision and Trans-Hab amendments could be

withdrawn and other solutions found, but we will continue to try to work on a cooperative basis on those problems.

So, I will continue to negotiate in good faith, and we've reached some compromises, and I think we can be very proud that we have a working relationship that is a bipartisan working relationship in this Committee and the Subcommittee, and, with that, I yield back the balance of my time.

Chairman SENSENBRENNER. The gentleman yields back the balance of his time.

The question is on the adoption of amendment number one by the gentleman from California, Mr. Rohrabacher.

All those in favor will signify by saying aye.

Opposed, no.

The ayes appear to have it. The ayes have it, and the amendment is agreed to.

PREPARED STATEMENT OF HON. LAMAR SMITH

I support Chairman Rohrabacher's amendment and appreciate his including language that calls for the National Academy of Sciences to conduct a review of international efforts to determine the extent of life elsewhere in the universe and of enhancements that can be made to NASA's Origins program.

The review will address a number of important areas including the direction of astrobiology within the Orgins program and activities of other government agencies and private groups in searching for life elsewhere in the universe. The review also will make recommendations on ways to integrate these efforts.

I urge the Committee to adopt the amendment.

Amendment number two is by the gentleman from Tennessee, Mr. Gordon.

Mr. GORDON. Mr. Chairman, as your staff has been notified, I do not intend to ask for a vote on my amendment.

Chairman SENSENBRENNER. Okay. Well, does the gentleman offer his amendment.

Mr. GORDON. Yes, I would.

Chairman SENSENBRENNER. The clerk will report the amendment.

The CLERK. "Amendment to H.R. 1654 offered by Mr. Gordon."

Chairman SENSENBRENNER. Without objection, the amendment is considered as read, and the gentleman from Tennessee is recognized for 5 minutes.

[The information follows:]

Page 11, line 6, strike "$2,202,400,000" and insert "$2,245,600,000".
Page 11, line 16, strike "$2,315,200,000" and insert "$2,365,800,000".
Page 11, line 24, strike "$2,411,800,000" and insert "$2,463,400,000".
Page 13, line 3, strike "$1,415,100,000" and insert "$1,459,100,000".
Page 13, line 4, strike "$1,413,300,000" and insert "$1,462,800,000".
Page 13, line 6, strike "$1,365,300,000" and insert "$1,420,500,000".
Page 13, line 8, strike "$999,300,000" and insert "$1,086,500,000".
Page 13, line 10, strike "$532,800,000" and insert "$620,000,000".
Page 13, line 24, strike "$908,400,000" and insert "$1,019,400,000".
Page 14, line 1, strike "$524,000,000" and insert "$635,000,000".
Page 14, line 17, strike "$994,800,000" and insert "$1,105,600,000".
Page 14, line 19, strike "$519,200,000" and insert "$630,000,000".
Page 19, line 13, strike "$13,625,600,000" and insert "$13,800,000,000".
Page 19, line 14, strike "$13,747,100,000" and insert "$13,958,200,000".
Page 19, line 15, strike "$13,839,400,000" and insert "$14,057,000,000".

Mr. GORDON. Mr. Chairman, I am concerned about the Committee's actions toward the Administration's proposed Information Technology for the 21st Century initiative and towards the HPCC initiative. As you know, today's NASA bill deletes all the funding for these programs. A similar action was taken in the NOAA bills considered 2 weeks ago. We touched on this issue at the earlier markup, and we were told that a larger information technology authorization bill would be done toward the middle of the year, and I understand that you have sent a letter to the Chairman of the Appropriations Committee stating your intention to move a 5-year authorization sometime in May.

However, before I can agree to the action proposed for this markup, I believe we need to have some clarification on how we will proceed. Therefore, I'd like to ask the Chairman the following questions: What is the timetable for action on an information technology authorization? What is the Appropriations Committee to make of our timetable? What would the Chairman have the Appropriations Committee do with these accounts in the interim? What is the scope of the bill's be? Will we deal just with the new proposal for IT2 or will it be included—will we include all the programs, both proposed and ongoing? And if funds are subsequently authorized for these programs in a separate bill, will we go back and raise the overall authorization for these agencies from which the funds were deleted? I cannot agree to an approach that does not increase the overall authorization levels for the affected agencies to accommodate the information technology programs. And, finally, what role will the majority have in the drafting of the legislation of these programs and in the organization and focusing of the hearings associated with these programs? I think the Chairman——

Chairman SENSENBRENNER. Will the gentleman yield? As spelled out in the Committee's views and estimates and in my letter to Chairman Young, which I ask unanimous consent to be included in the record at this point, I believe that the Committee should look holistically at computer research budgets of all the agencies under our jurisdiction.

[The information follows:]

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
Washington, DC, May 11, 1999.

Hon. C.W. BILL YOUNG,
Chairman, Committee on Appropriations,
H–218, The Capitol, Washington, DC.

DEAR CHAIRMAN YOUNG: I am writing to inform you of the Science Committee's actions on authorizing funding for computing and information technology research and development. This year, the Administration has proposed substantial increases for the High Performance Computing and Communications (HPCC) program and a new initiative, which includes HPCC funding, entitled Information Technology for the 21st Century (IT 2).

After reviewing the Appropriations Committee's recommendations, I have reached the conclusion that a single comprehensive long-term authorization for research on the fundamental science and engineering issues which form the foundation of our Nation's information economy is preferable to a short-term piece-meal approach. I have therefore excluded from our current round of authorization bills funding for HPCC and all increases associated with the IT 2 initiative. Instead, this month, I plan on introducing a single five-year bill to authorize computing and information technology research across all agencies within the Science Committee's jurisdiction.

The Science Committee remains committed to supporting the basic research needed to help ensure America maintains its preeminent position as the world's leader in the development and use of information technology. I look forward to working with you over the next few weeks to make sure the Nation's IT basic research needs are met.

Sincerely,

F. JAMES SENSENBRENNER, JR.,
Chairman.

Chairman SENSENBRENNER. I intend to propose a 5-year authorization for information technology research programs across all the relevant agencies within our jurisdiction. Now, we have some drafting problems with the bill, but the bill will be introduced before we break for the Memorial Day recess. It is my intention to have the Subcommittee of this Committee hold hearings on this legislation in the month of June. We will see how quickly the Subcommittee can have a complete record. If the Subcommittees move promptly, there is no problem, as far as I'm concerned, to have a Subcommittee and full Committee markup on this legislation before we break for the 4th of July recess.

The minority will be fully involved in the focusing of these hearings and fully involved in the drafting of whatever final product we send to the Floor of the consideration of the full House of Representatives as we have done with the other bills that have been considered by this Committee. So, there will be full minority input.

Finally, it is my intention to wrap all of the ongoing programs as well as the new IT programs in this bill just as we did with the Next Generation Internet bill, which was one of the crown jewels of this Committee's action in the last Congress.

Mr. GORDON. Thank you, Mr. Chairman. I withdraw my amendment.

Chairman SENSENBRENNER. Okay, the amendment is withdrawn.

The third amendment on the roster is one by the gentleman from North Carolina, Mr. Etheridge. For what purpose does the gentleman from North Carolina seek recognition?

Mr. ETHERIDGE. Mr. Chairman, I would withdraw that amendment and speak to it on the next one.

Chairman SENSENBRENNER. Okay. Then we get to amendment number four which is by the gentleman from North Carolina, the gentleman from California, Mr. Miller, and the gentleman from

Colorado, Mr. Udall. For what purpose does the gentleman from North Carolina seek recognition?

Mr. ETHERIDGE. Thank you, Mr. Chairman. I have an amendment at the desk.

Chairman SENSENBRENNER. The clerk will report the amendment.

The CLERK. "Amendment to H.R. 1654——"

Chairman SENSENBRENNER. And, without objection, the amendment is considered as read, and the gentleman from North Carolina is recognized for 5 minutes.

[The information follows:]

AMENDMENT TO H.R. 1654 OFFERED BY MR. ETHERIDGE, MR. GARY MILLER OF CALIFORNIA, AND MR. UDALL OF COLORADO

Page 15, line 15, insert ", and $20,000,000 shall be for the National Space Grant College and Fellowship Program" after "Enhancement Programs".

Mr. ETHERIDGE. Thank you, Mr. Chairman, and let me say at the start how much I appreciate your willingness to work on these broad issues of science and math education in America and the hearings we've had thus far. This Committee, under your leadership and the leadership of the Ranking Member and others, has really taken a leading role in my opinion in opening the national dialogue on the status of science and math education in this country.

This Committee and other organizations who have testified have struggled with the issue of how to improve the quality of math and science education and also how to promote it among our young people. As you know, recent studies have shown that our high school graduates are falling behind their counterparts in other countries in the areas of science and math, and last month, the Electronic Association released a report that found that the number of 3 graduates receiving post-secondary in engineering, computer science, math, business information systems, and physics have declined to 5 percent between 1990 and 1996 with nearly a 10 percent decline in Bachelor's degrees. We really are facing a major potential problem for the competitiveness in the 21st century.

I was disappointed when the Administration proposed a $38 million cut in NASA education and academic programs for next year. NASA has significant and successful educational efforts that should be strengthened not weakened. I was proud to co-sponsor legislation introduced by the Ranking Member to increase the authorization levels for these important programs, and I applaud the Chairman for providing in his mark a significantly higher authorization than the Administration's request, and I appreciate that. However, the bill before us still represents a $10 million cut in these important priorities. In my opinion, that's the wrong—this is the wrong time to reduce funding for efforts that are so vital to promoting math and science education in our schools, colleges, and universities.

Mr. Chairman, I was prepared to offer an amendment this morning—the previous amendment—that would have increased funding for NASA's education and academic initiatives by $5.9 million over the Fiscal Year 1999 levels from $138.6 million to $144.5 million. This amendment would have directed all of that increase to the

Space Program. Anticipating that this amendment would not have been accepted by the majority and in light of the long agenda that we face this morning, I am instead offering what I believe is a very important amendment to this bill with the help of my colleagues, Representatives Miller and Udall of—Miller of California and Udall of Colorado.

This amendment would earmark $20 million for space grants within the bill's authorization level for these programs. As you know, Mr. Chairman, there is over 700 space grant consortium members operating in all 50 States, the District of Columbia, and Puerto Rico. The K–12 Educational Assistance Program, student scholarships and research at many of our colleges and universities is focusing on aerospace and other programs that will engage our children and challenge them to become engineers, scientists, and, yes, astronauts.

Space Grant is a cost effective program, because it requires a two for one match for every federal dollar that is spent on this program. I know first-hand how important this program has been and the impact that it has made in North Carolina's programs. Space Grant plays an important role in preparing our students for the high-tech nature of the global economy they face today and the tremendous economy we're going to face in the 21st century. Thank you, Mr. Chairman.

Chairman SENSENBRENNER. Will the gentleman yield?

Mr. ETHERIDGE. Yes, Mr. Chairman.

Chairman SENSENBRENNER. We are prepared to accept this amendment. I think that it is constructive, and this program has a good one since it was first authorized 12 years ago. I would point out that the amendment does not increase the total authorization of this bill; it merely fences some of the money in the education account to make sure that NASA spends it on this program rather than something else.

So, I thank the gentleman for offering this amendment, and I hope it is speedily adopted.

Mr. ETHERIDGE. Mr. Chairman, I yield back the balance of my time, and ask that my remarks be included in the record.

Chairman SENSENBRENNER. Without objection.

[The statement of Mr. Etheridge follows:]

PREPARED STATEMENT OF HON. BOB ETHERIDGE

Mr. Chairman, I have an amendment at the desk. Mr. Chairman, let me start by saying how much I appreciate your willingness to work on the broad issue of science and math education in America. This committee, under your leadership and that of the Ranking Member and others, has taken a leading role in opening a national dialogue on the status of science and math education in America. This committee and organizations in this field have struggled with the issue of how to improve the quality of math and science education, including how to promote interest in science and math among our young people.

As you know, recent studies have shown that our high school graduates are falling behind their counterparts in other countries in the areas of science and math. Last month the American Electronics Association released a report that found that the number of graduates receiving post secondary degrees in engineering, computer science, math, business information systems and physics declined by five percent between 1990 and 1996, with a nearly ten percent decline in bachelors degrees. We are facing a potential crisis that if not addressed could devastate our economy and global competitiveness in the 21st Century.

I was very disappointed when the Administration proposed a $38 million cut in NASA education and academic programs for next year. NASA has significant and

successful education efforts that should be strengthened not weakened. I was proud to cosponsor legislation introduced by the Ranking Member to increase the authorization levels for these important programs, and I applaud the Chairman for providing in his mark a significantly higher authorization than the Administration's request. However, the bill before us still represents a $10 million cut in these important priorities. In my opinion, this is the wrong time to reduce funding for efforts that are so vital to promoting math and science education in our schools, colleges and universities.

Mr. Chairman, I was prepared to offer an amendment this morning that would have increased funding for NASA's education and academic initiatives by $5.9 million over the FY 1999 level from $138.6 million to $144.5. This amendment would have directed all of that increase to the Space Grant Program. Anticipating that this amendment would not have been accepted by the majority, and in light of the long agenda we face this morning, I am instead offering what I believe to be a very important amendment to this bill. This amendment will earmark $20 million for Space Grant within the bill's authorization level for these programs.

As you know Mr. Chairman, there are over 700 Space Grant Consortia members operating in all 50 states, the District of Columbia and Puerto Rico. The K thru 12 educational assistance programs, student scholarships and research at many of our colleges and universities focusing on aerospace and aeronautics helps engage our children and challenge them to become engineers, scientists and astronauts. Space Grant is cost effective by requiring a two-to-one local match for each federal dollar spent. I know first hand the impressive performance of North Carolina's Space Grant effort.

Space Grant plays an important role in preparing our students for the high tech nature of the global economy that exists today, and I believe it is worthy of this earmark and modest funding increase.

Thank you Mr. Chairman, although I would like to see more done in this area I do understand the tight budget we are operating under, and I look forward to continuing to work with you on these issues in the future.

Chairman SENSENBRENNER. The gentlewoman from Michigan.

Ms. STABENOW. Thank you, Mr. Chairman. I would strike the last word.

Chairman SENSENBRENNER. You're recognized for 5 minutes.

Ms. STABENOW. I appreciate very much your accepting this amendment. This is a very, very important program. As we have heard continually before this Committee, we have great needs in the area of math and science and people trained in technology that are able to take the jobs that are available today, and what we see through the National Space Grant College and Fellowship Program is an effort to both provide teacher training as well as hands-on programs to excite young people about science.

I want to take just a moment to commend the Michigan Space Grant Consortium that I'm very involved with, and we have been working together on hands-on science efforts through something called the Great Space Adventure, which they host in my district at various locations, and we've had thousands of children and parents who have come forward and are participating, working with NASA, having an opportunity to get first-hand experience about the fact that science can be fun and exciting, and we hope that they will be encouraged to take careers in those areas.

I'm also pleased and want to thank members of this Committee that joined me in signing a letter to the appropriators just a while back in March. We had over 50 members of both parties signing a letter in support of this increase in funding. So, I appreciate my colleagues who introduced it and to the Chairman for accepting it. I think that the Space Grant Consortium is a very, very important program for helping us meet our goals as it relates to math and science education.

Thank you; I yield back my time.

Chairman SENSENBRENNER. The question is on the——

Mr. UDALL. Mr. Chairman? Mr. Chairman?

Chairman SENSENBRENNER. Who seeks recognition?

Mr. UDALL. I move to strike the requisite number of words.

Chairman SENSENBRENNER. The gentleman is recognized for 5 minutes.

Mr. UDALL. Thank you, Mr. Chairman. Mr. Chairman, this provides needed support for the National Space Grant College and Fellowship Program managed by NASA. I believe that this program deserves special consideration because of its unique use of NASA's assets for education and public services purposes.

I'm joining Mr. Etheridge and Mr. Miller in offering this amendment to fence off $20 million for NASA's Space Grant Program from funds this bill allocates to space education. This is needed to prevent the termination of planned program expansion and the loss of much needed fellowships for students.

The funding level set by the amendment is on par with the $19.1 million appropriation for Fiscal Year 1999. Since its inception, NASA's National Space Grant College and Fellowship Program has served hundreds of thousands of students and teachers, increasing public awareness and appreciation for NASA and its mission by acting as the logical interface for NASA with America's colleges and universities.

The contributions of the Space Grant Program are especially important in two areas. It has a direct impact on education at the pre-K through graduate level especially in science and math, and it contributes to science literacy across the United States, which is essential to our Nation's success in the next century.

I'm particularly proud of our program in Colorado. The Colorado Space Grant Consortium works with over 600 K through 12 teachers in my state each helping them to inspire students in science, math, and technology. Student from colleges and universities throughout Colorado are working together to develop the Citizen Explorer Satellite Mission for a launch in December of this year, 1999. This mission is designed to involve K through 12 students throughout Colorado, this country, and the world.

With over 700 Space Grant Consortium member institutions in every state, as well as the District of Columbia and Puerto Rico, the Space Grant Program is cost effective, matching each federal dollar with $2 of local funding. Given the importance we as a nation place on education and especially given the emphasis we in this Committee have placed on the importance of science and math literacy, this is an investment that makes sense.

Mr. Chairman, I urge adoption of our amendment.

Chairman SENSENBRENNER. The question is on the adoption of the amendment by the gentleman from North Carolina.

Those in favor will signify by saying aye.

Opposed, no.

The ayes appear to have it. The ayes have it, and the amendment is agreed to.

The next amendment on the roster is an amendment by the gentlemowan from Texas, Ms. Jackson Lee. For what purpose does she seek recognition?

Ms. JACKSON LEE. Mr. Chairman, I have an amendment at the desk.

Chairman SENSENBRENNER. The clerk will report the amendment.

The CLERK. "Amendment to H.R. 1654——"

Chairman SENSENBRENNER. Without objection, the amendment is considered as read. The gentlewoman from Texas is recognized for 5 minutes.

[The information follows:]

AMENDMENT TO H.R. 1654 OFFERED BY MS. JACKSON-LEE OF TEXAS

Page 15, line 15, insert ", of which $62,100,000 shall be for minority university research and education, including $33,600,000 for Historically Black Colleges and Universities" after "Enhanced Programs".

Page 15, line 16, insert ", of which $62,100,000 shall be for minority university research and education, including $33,600,000 for Historically Black Colleges and Universities" after "$128,600,000".

Page 15, line 18, insert ", of which $62,800,000 shall be for minority university research and education, including $34,000,000 for Historically Black Colleges and Universities" after "$130,600,000".

Ms. JACKSON LEE. I thank the Chairman very much, and I'd like to offer an amendment that deals with the issue that we've heard a lot about in this Committee and that is education and opportunities for minority institutions and in particular Historically Black Colleges and Universities.

We have all heard the haunting statistics about the lack of minority participation in the scientific arena. We know that only 14 percent of all students enrolled in graduate science or engineering programs are minorities and that, of those, only 6 percent are African-American, only 4 percent are Hispanic. We also know that those minorities that are enrolled in the science graduate programs are more likely to work in the social or life sciences than in the hard sciences or engineering.

The situation is even worse once those students graduate. African-Americans and Hispanics make up less than 6 percent of the total science and engineering workforce, yet they make up almost 23 percent of the population. Furthermore, minorities who work in the hard sciences or in engineering tend to have much higher unemployment rates than do their white counterparts. We cannot allow this to remain, and we must encourage our scientific agencies, like NASA, to engage the minority community in order to rectify this particular problem.

As I noted earlier, we've had many hearings that suggested advocacy for increasing the opportunities for minorities in science; in fact, there was a great deal of enthusiasm. NASA has had these programs in the past, and they have been successful. Dan Goldin, himself, has supported the idea of focusing on encouraging minorities to participate in the hard sciences.

In my own district, of course, near the Johnson Space Center, I can assure you that once minorities are introduced to the sciences there is a great deal of enthusiasm as evidenced by the numbers or the increasing numbers of minority astronauts who have been a great service to encouraging interest in what can be done with science training.

This amendment is a reasonable one that preserves a proportion of overall education dollars that HBCUs and minority-servicing institutions received last year. Furthermore, it proportionally tracks NASA's academic programs overall in the outyears providing funding for those important programs through Fiscal Year 2002. With this amendment, HBCUs and Hispanic-serving institutions will have the stable funding necessary to allow them to continue to do good work.

Chairman SENSENBRENNER. Will the gentlewoman yield?

Ms. JACKSON LEE. I'd be happy to yield, Mr. Chairman, as I conclude——

Chairman SENSENBRENNER. We are prepared to accept this amendment. Let me say that there's no increase in the total authorization. This merely fences some funds within that authorization, so we're not busting any budget here.

Ms. JACKSON LEE. And I thank the Chairman very much, and I think the importance of embracing the dollars in particular for these institutions will be extremely helpful, and I think we'll see an enormous results from this sort of emphasis. With that, Mr. Chairman, I yield back.

Chairman SENSENBRENNER. The gentlewoman yields back the balance of her time.

For what purpose does the other gentlewoman from Texas, Ms. Johnson, seek recognition?

Ms. EDDIE BERNICE JOHNSON of Texas. Thank you, Mr. Chairman. I'd like to speak on this amendment as well as the one we just adopted. There is a dire need to get the minority community more engaged in science and engineering, and the African-Americans and Hispanics are vastly underrepresented in the hard science and engineering workforce, making up less than 6 percent of those who work in these fields, and it is true that even though Hispanics and African-Americans represent over 20 percent of our total workforce, the NASA programs have been one of the most effective ones in getting the attention of young people. As I Chair the Science and Technology braintrust of the Congressional Black Caucus and therefore have a number of interim meetings other than our annual meeting, bringing astronauts and several other employees from NASA to schools throughout my district, that is the one area that really does get their attention, and its academic programs have been successful in getting young children excited about science, and through the use of grants and scholarships have helped college students finance their education in the hard sciences and engineering. We ought to make sure that those who live in underprivileged areas and attend minority-serving institutions can utilize these tremendous programs.

The amendment is a reasonable one that preserve the proportion of overall education dollars back to the historically black colleges and universities and minority-serving institutions received last year, and, furthermore, it proportionately tracks NASA's academic programs overall in the outyears providing funding for these important programs through Fiscal Year 2000.

With this amendment, the historically black colleges and Hispanic-serving institutions will have the stable funding necessary to allow them to continue this work. African-Americans only rep-

resent 6 percent of the students enrolled in graduate level science and engineering programs and Hispanics only 4 percent even though most of those enrolled in these social or life sciences can be better served with more programs directed toward getting them into these fields. And, so we should be working proactively to motivate minority youngsters and to pursue the hard sciences and to help them get through school when they choose to pursue careers in engineering and science research.

So, I thank you, Mr. Chairman, very much for supporting this amendment, and I yield back.

Chairman SENSENBRENNER. The gentlewoman yields back the balance of her time.

The question is on agreeing to the amendment by the gentlewoman from Texas, Ms. Jackson Lee.

Those in favor will signify by saying aye.

Opposed, no.

The ayes appear to have it. The ayes have it, and the amendment is agreed to.

The next amendment on the roster, number six, is by the gentleman from Utah, Mr. Cook. For what purpose does he seek recognition?

Mr. COOK. Well, thank you, Mr. Chairman. After——

Chairman SENSENBRENNER. Do you have an amendment at the desk?

Mr. COOK. Well, after discussions with NASA, I have decided to withdraw the amendment.

Chairman SENSENBRENNER. Okay.

Mr. COOK. Hopefully, NASA will have a little time to understand this a little bit better. I would like to be able to offer this again, perhaps, on the Floor, but, for now, I withdraw the amendment.

Chairman SENSENBRENNER. The amendment is withdrawn.

Now, the next amendment, number seven, is by the gentleman from Washington, Mr. Nethercutt. For what purpose does he seek recognition?

Mr. NETHERCUTT. Mr. Chairman, I do have an amendment at the desk.

Chairman SENSENBRENNER. The clerk will report the amendment.

The CLERK. "Amendment to H.R. 1654 offered by Mr. Nethercutt."

Chairman SENSENBRENNER. Without objection, the amendment is considered as read, and the gentleman from Washington is recognized for 5 minutes.

[The information follows:]

Page 37, after line 16, insert the following new section:

SEC. 215. RESEARCH ON INTERNATIONAL SPACE STATION.

(a) STUDY.—The Administrator shall enter into a contract with the National Research Council and the National Academy of Public Administration to jointly conduct a study of the status of life and microgravity research as it relates to the International Space Station. The study shall include—

(1) an assessment of the United States scientific community's readiness to use the International Space Station for life and microgravity research;

(2) an assessment of the current and projected factors limiting the United States scientific community's ability to maximize the research potential of the International Space Station, including, but not limited to, the past and present availability of resources in the life and microgravity research accounts within

the Office of Human Spaceflight and the Office of Life and Microgravity Sciences and Applications, and the past, present, and projected access to space of the scientific community; and

(3) recommendations for improving the United States scientific community's ability to maximize the research potential of the International Space Station, including an assessment of the relative costs and benefits of—

(A) dedicating an annual mission of the Space Shuttle to life and microgravity research during assembly of the International Space Station; and

(B) maintaining the schedule for assembly in place at the time of enactment.

(b) REPORT.—Not later than 1 year 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 the results of the study conducted under this section.

Mr. NETHERCUTT. Thank you, Mr. Chairman. This amendment is a rather simple amendment. It requires NASA to contract with the National Research Council and the National Academy of Public Administration to conduct a study of the status of Life and Microgravity research as it relates to the International Space Station. I've had meetings, my staff and I both, with members of the space science community this year who are deeply concerned about the long-term viability of their discipline. As a result of delays in the assembly of the International Space Station, the research mission's face significant long-term gaps in research continuity.

The Associate Administrator for Life and Micro has reported that the number of primary investigators is increasing in Fiscal Year 1999 from 726 to 800. Flight opportunities are decreasing during the ISS assembly. I have doubts, Mr. Chairman, about whether this community can be sustained with the budget, and the staff has prepared here a chart that shows the declining administration of ISS research budgets; Fiscal Year 1999 through 2000, and it's a precipitous decline over the next years up to 2004.

The first step I think we need to do then is to address the funding level for Life and Microgravity, and Mr. Weldon and I will be pressing an amendment a little while later moving some $33 million or thereabouts from the Triana Program. But the second step is to refocus our efforts to ensure that a robust scientific community exists when the station is completed. Congress tried to remedy this concern last year appropriating additional funds for a shuttle mission dedicated to Life and Micro research. As the Chairman and the Committee members know, NASA declined to fly that mission claiming high cost, scheduling difficulties, and complications with ISS assembly. So, what this amendment does is provide the detailed study that Congress needs in order to evaluate the trade-offs between more research, the ISS schedule, and shuttle costs.

Two recent reports, Mr. Chairman, have demonstrated a need for such research. The NASA/NIH Advisory Subcommittee released their recommendations on flight opportunities bridging to Space Station. They recommend at least one shuttle mission per year with a majority of Life Sciences payload that will be flown prior to ISS completion. In April, the National Research Council reported similar findings. They noted, and I quote this, "It is clear that regular access to space is essential to meet the science goals enunciated by the Office of Life and Microgravity Sciences. It is not clear that there are budget provisions of flight opportunities to provide the needed access to space for researchers." The NRC con-

cludes by noting that, quote, "We have not assessed the likelihood that NASA can make significant progress in meeting its scientific goals with such a minimal flight level, and to the contrary we have called NASA's attention to the need to provide additional space lab class flights prior to Space Station assembly completion.

So, in conclusion, Mr. Chairman, passage of this amendment will enable NRC and NAPA to work together to make that assessment and to determine how best to address the potential science shortfall during ISS assembly.

Chairman SENSENBRENNER. Will the gentlemen yield?

Mr. NETHERCUTT. Yes, sure.

Chairman SENSENBRENNER. I believe this is a very constructive amendment, and I would hope that the Committee would adopt it.

Mr. NETHERCUTT. Thank you, Mr. Chairman. I yield back my time.

Chairman SENSENBRENNER. The time is yielded back. The question is on accepting the amendment of the gentleman from Washington, Mr. Nethercutt.

All those in favor will signify by saying aye.

Opposed, no.

The ayes appear to have it. The ayes have it, and the amendment is agreed to.

The next two amendments are by the gentleman from Michigan, Mr. Smith. I understand he plans on offering one and not the other. So, for what purpose does the gentleman from Michigan rise, and would he please say which number——

Mr. Smith of Michigan. I have an amendment at the desk marked number eight, Mr. Chairman.

Chairman SENSENBRENNER. Okay, the clerk will report amendment number eight.

The CLERK. "Amendment to H.R. 1654——"

Chairman SENSENBRENNER. Without objection, the amendment is considered as read, and the gentleman from Michigan is recognized for 5 minutes.

[The information follows:]

AMENDMENT TO H.R. 1654 OFFERED BY MR. SMITH OF MICHIGAN

Page 37, after line 16, insert the following new section:

SEC. 215. REMOTE SENSING FOR AGRICULTURE AND RESOURCE MANAGEMENT.

The Administrator shall—

(1) consult with the Secretary of Agriculture to determine data product types that are of use to farmers which can be remotely sensed from air or space;

(2) consider useful commercial data products related to agriculture as identified by the focused research program between the National Aeronautics and Space Administration's Stennis Space Center and the Department of Agriculture; and

(3) examine other data sources, including commercial sources, LightSAR, RADARSAT I, and RADARSAT II, which can provide domestic and international agricultural information relating to crop conditions, fertilization and irrigation needs, pest infiltration, soil conditions, projected food, feed, and fiber production, and other related subject.

Mr. SMITH of Michigan. Mr. Chairman, this is language that we included in a previous authorization bill for NASA, one that wasn't taken up by the Senate and passed into law, but it did pass the House with this amendment. It relates to remote sensing and the advantages that remote sensing can offer to our agricultural pro-

ducers in this country in terms of the availability of information related to crop production.

If our farmers can know and have estimates of crop production especially in the Southern Hemisphere, we can adjust our planning. This amendment calls on the Administrator of NASA to coordinate with the Secretary of Agriculture—consult with the Secretary of Agriculture in developing the kind of information that might be available.

And I would just point out to you, Mr. Chairman, and to this body that we are now able to estimate crop yields within a deviation of plus or minus 10 percent 60 days before harvest, and when you consider that most of these feed grain crops have a 90- to 100-day growth season, that's especially significant. It will give us the ability to predict shortages of food in the world and also aid our farmers in deciding how much of what crop to plant.

I have met with the Agricultural Committee and our Ag Committee Chairman, Larry Combest, and in my amendment, marked number nine, we are deleting the part B that says let us get this information to farmers, because the Chairman of the Agricultural Committee, Mr. Combest, has agreed that if a Floor amendment is made that is reasonable to direct the Secretary of Agriculture to cooperate in this effort and make this information available to farmers.

So, this is just sort of half of the amendment. I will withdraw amendment marked nine and hope the Committee will accept this amendment.

Chairman SENSENBRENNER. Will the gentleman yield?

Mr. SMITH of Michigan. I will yield.

Chairman SENSENBRENNER. I think that this is constructive amendment, and I appreciate the gentleman not pursuing amendment number nine with would delay this bill as a result of the sequential referral to the Committee on Agriculture. This amendment is consistent with Committee policy promoting maximum commercial data use of data that is assembled in States. So, I would hope that the Committee would adopt this amendment.

Mr. SMITH of Michigan. And I yield back the balance of my time.

Chairman SENSENBRENNER. The question is on agreeing to the amendment numbered eight by the gentleman from Michigan, Mr. Smith.

Those in favor will signify by saying aye.

Opposed, no.

The ayes appear to have it. The ayes have it. The amendment is agreed to.

Amendment number nine will not be offered. The next amendment on the roster is by the gentleman from Minnesota, Mr. Gutknecht. For what purpose does he seek recognition?

Mr. GUTKNECHT. Thank you, Mr. Chairman. I have an amendment at the desk.

Chairman SENSENBRENNER. The Clerk will report the amendment.

The CLERK. "Amendment to H.R. 1654 offered by Mr. Gutknecht."

Chairman SENSENBRENNER. Without objection, the amendment is considered as read, and the gentleman from Minnesota is recognized for 5 minutes.

[The information follows:]

AMENDMENT TO H.R. 1654

OFFERED BY MR. GUTKNECHT

Page 37, after line 16, insert the following new section:

SEC. 215. INTEGRATED SAFETY RESEARCH PLAN.

(a) REQUIREMENT.—Not later than March 1, 2000, the Administrator and the Administrator of the Federal Aviation Administration shall jointly prepare and transmit to the Congress an integrated civil aviation safety research and development plan.

(b) CONTENTS.—The plan required by subsection (a) shall include—

(1) an identification of the respective research and development requirements, roles, and responsibilities of the National Aeronautics and Space Administration and the Federal Aviation Administration;

(2) formal mechanisms for the timely sharing of information between the National Aeronautics and Space Administration and the Federal Aviation Administration, including a requirement that the FAA–NASA Coordinating Committee established in 1980 meet at least twice a year; and

(3) procedures for increased communication and coordination between the Federal Aviation Administration research advisory committee established under section 44508 of title 49, United States Code, and the NASA Aeronautics and Space Transportation Technology Advisory Committee, including a proposal for greater cross-membership between those 2 advisory committees.

Mr. GUTKNECHT. Mr. Chairman, this amendment requires more integrated safety research planning by both NASA and FAA. Over the years, joint FAA and NASA research efforts have produced valuable aviation safety technology. Both agencies support the national goal to reduce fatal aviation accident rates by 80 percent over the next 10 years. The agencies are currently engaged in 18 joint safety projects and tasks.

Recognizing that FAA and NASA have different and evolving roles and separate approaches to achieving shared goals, it is imperative that the agencies have a common understanding of the expectations of how the research undertaken by each agency will enable them to achieve their goals.

The amendment that I am offering seeks to enhance the effectiveness of their coordination efforts and to ensure the agency resources are being used to the most cost effective manner by requiring the agencies to jointly repair and transmit to Congress an integrated civil aviation safety research and development plan. The plan shall define the roles and responsibilities of each agency; require the timely sharing of critical information and recommend procedures to increase the communication effort between the agencies industry advisory committees.

As you know, this Committee takes its oversight responsibilities very seriously, and this amendment takes further steps to protect our Nation's investment in aviation safety research and development, and I appreciate your support.

Chairman SENSENBRENNER. Will the gentleman yield?

Mr. GUTKNECHT. I'd be happy to yield.

Chairman SENSENBRENNER. This, too, is a constructive amendment, and I hope it is adopted. The gentleman yield back the balance of his time?

Mr. GUTKNECHT. I yield back the balance of my time.

Chairman SENSENBRENNER. The question is on agreeing to the amendment by the gentleman from Minnesota, Mr. Gutknecht.

Those in favor will signify by saying aye.

Oppose, no.

The ayes appear to have it. The ayes have it, and the amendment is agreed to.

The next amendment is number 11 by the gentleman from North Carolina, Mr. Etheridge. For what purpose does he seek recognition?

Mr. ETHERIDGE. Mr. Chairman, I have an amendment at the desk.

Chairman SENSENBRENNER. The clerk will report the amendment.

The CLERK. "Amendment to H.R. 1654 offered by Mr. Etheridge."

Chairman SENSENBRENNER. Without objection, the amendment is considered as read, and the gentleman from North Carolina is recognized for 5 minutes.

[The information follows:]

Page 37, after line 16, insert the following new section:

SEC. 215. 100TH ANNIVERSARY OF FLIGHT EDUCATIONAL INITIATIVE.

(a) EDUCATION CURRICULUM.—In recognition of the 100th anniversary of the first powered flight, the Administrator, in coordination with the Secretary of Education, shall develop and provide for the distribution, for use in the 2000–2001 academic year and thereafter, of an age-appropriate educational curriculum, for use at the kindergarten, elementary, and secondary levels, on the history of flight, the contribution of flight to global development in the 20th century, the practical benefits of aeronautics and space flight to society, the scientific and mathematical principles used in flight, and any other topics the Administrator considers appropriate. The Administrator shall integrate into the educational curriculum plans for the development and flight of the Mars plane.

(b) REPORT TO CONGRESS.—Not later than May 1, 2000, the Administrator shall transmit a report to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on activities undertaken pursuant to this section.

Mr. ETHERIDGE. Thank you, Mr. Chairman. Mr. Chairman, I am proud to offer an amendment today that directs NASA to develop an education curriculum for our Nation's schools in recognition of the 100th anniversary of flight—of powered flight, that is, and I want to thank Mr. Rohrabacher and the Ranking Member for their help with this.

This would take place on December 17, 2003 when this Nation will celebrate the 100th anniversary of powered flight, and it provides an excellent opportunity for our Nation's schools to promote the importance of math and science education for our students. having been there for many years, I know how you can excite students with special items that really get their attention.

And as we watch the sun rise on the dawn of a new millennium, it has never been more important to encourage our children to excel in the areas of math and science education. In the 21st century, it will no longer be good enough for our children simply to be able to read, write, add, and subtract. If today's students are going to succeed in tomorrow's job, a firm foundation in math and science education is important.

This Committee, under your leadership, Mr. Chairman, and the Ranking member and others, have taken a leading role—as I said

earlier this morning—in helping to improve the national dialogue on improving math and science education, and one of the most important challenges we face with all the distractions in modern life has been the interesting of students particularly in science and math curriculums. Too many of them spend their time with video games, et cetera. Such a lack of interest could spell doom down the road as fewer and fewer students enter the teaching profession or other fields that prepare them for the future.

The 100th Anniversary of Flight Education initiative that's being introduced today is intended to use the history of flight through practical benefits of flight in our society and the mathematics and science, the principles that are used in flight, to help generate an interest among our children in math and science education.

However, the 100th anniversary of flight and NASA's plan to land a plane on Mars to coincide with that date, can be a tremendous tool in our classrooms to regenerate our children's interest in math science education and help our teachers.

Mr. Chairman, I'm committing to seeing that our children soar in the area of math and science education and urge the adoption of this amendment.

Chairman SENSENBRENNER. Will the gentleman yield?

Mr. ETHERIDGE. I will yield, Mr. Chairman.

Chairman SENSENBRENNER. This is a constructive amendment. Obviously, NASA should be in on the ground floor in commemorating the 100th anniversary of flight, and I would hope that it would be agreed to.

Mr. ETHERIDGE. Thank you, Mr. Chairman; I yield back.

Chairman SENSENBRENNER. The question is on agreeing to the amendment of the gentleman from North Carolina, Mr. Etheridge.

Those in favor will signify by saying aye.

Opposed, no.

The ayes appear to have it. The ayes have it, and the amendment is agreed to.

Th next amendment is by the gentlewoman from Illinois, Ms. Biggert. For what purpose does the gentleman from California, Mr. Miller seek recognition?

Mr. MILLER. I'd just ask for unanimous consent to include my statement into the record.

Chairman SENSENBRENNER. Without objection.

[The statement of Mr. Miller follows:]

PREPARED STATEMENT OF HON. GARY MILLER

Thank you Chairman Sensenbrenner.

I would like to add to the comments of my colleague, Representative Etheridge in support of this amendment.

The Space Grant Program seeks to use the considerable assets of NASA in the states for education and public service purposes. It provides fellowships and scholarships for students, supports curriculum devlopement, facilitates interaction among faculty and scientists, encourages college and university capability enhancement, and funds science and technology lectures, demonstrations, exhibits, periodicals, and outreach activities.

I believe this program is important for two reasons. First, it has a direct impact on education at the K through graduate levels, especially in science and math. Secondly, it contributes to science literacy in this nation, which is essential to our nation's success in the next century.

I am particularly proud of how well the program has worked in California. The Space Grant Consortium has been an innovative leader in California, bringing to-

gether community-based alliances composed of educational institutions, industry and the government, to work together on projects which are both related to space and are of community importance. Furthermore, the student-mentor process involved in the alliance projects has shown significant results in workforce preparation and community-based education and outreach.

I urge my colleagues to accept this amendment.

Thank you, Chairman Sensenbrenner and Members of the Committee.

Chairman SENSENBRENNER. For what purpose does the gentlewoman from Illinois, Ms. Biggert, seek recognition?

Mrs. BIGGERT. Mr. Chairman, I have an amendment at the desk.

Chairman SENSENBRENNER. The clerk will report the amendment.

The CLERK. "Amendment to H.R. 1654 offered by Mrs. Biggert."

Chairman SENSENBRENNER. Without objection, the amendment is considered as read, and the gentlewoman from Illinois is recognized for 5 minutes.

[The information follows:]

AMENDMENT TO H.R. 1654 OFFERED BY MRS. BIGGERT

Page 37, after line 16, insert the following new section:

SEC. 215. INTERNET AVAILABILITY OF INFORMATION.

The Administrator shall make available through the Internet home page of the National Aeronautics and Space Administration the abstracts relating to all research grants and awards made with funds authorized by this Act. Nothing in this section shall be construed to require or permit the release of any information prohibited by law or regulation from being released to the public.

Ms. BIGGERT. Thank you, Mr. Chairman. The amendment I offer today would require NASA to make available on the Internet all abstracts relating to research grants and awards with the funds that are authorized by this bill. Currently, NASA does not provide such information on its Website. I think this is good Government amendment that will allow the public to more easily access research grants and awards funded by the Federal Government. This change will make Government research services more accessible, more efficient, and easier to use.

I ask my colleagues to support this amendment and yield back the balance of my time.

Chairman SENSENBRENNER. The question is on agreeing to the amendment of the gentlewoman from Illinois, Ms. BIGGERT.

Those in favor will signify by saying aye.

Opposed, no

They ayes appear to have it. The ayes have it, and the amendment is agreed to.

And now we'll get to some controversy. [Laughter.]

For what purpose does the gentleman from Florida, Dr. Weldon, seek recognition?

Mr. WELDON of Florida. Mr. Chairman, I have an amendment at the desk.

Chairman SENSENBRENNER. The clerk will report the amendment.

The CLERK. "Amendment to H.R. 1654 offered to Dr. Weldon of Florida——"

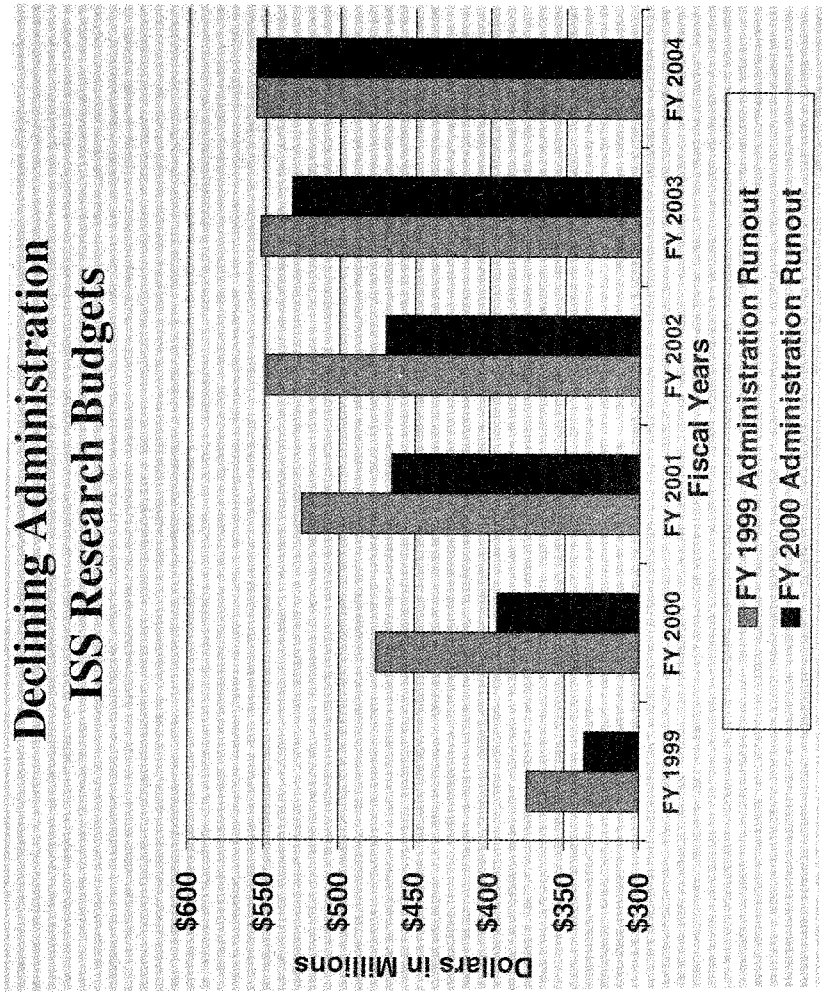
Chairman SENSENBRENNER. Without objection, the amendment is considered as read, open for amendment at any point, and the gentleman from Florida, Mr. Weldon, is recognized for 5 minutes.

[The information follows:]

Page 12, line 11, strike "$301,000,000" and insert "$333,600,000".
Page 13, line 2, strike "section 126" and insert "sections 126 and 130".
Page 13, line 3 strike "$1,415,100,000" and insert "$1,382,500,000".
Page 26, after line 5, insert the following new section:

SEC. 130. TRIANA FUNDING PROHIBITION.

None of the funds authorized by this Act may be used for the Triana program, except that $2,500,000 of the amount authorized under section 103(3)(A) for fiscal year 2000 shall be available for termination costs.


Declining Administration
ISS Research Budgets
Dollars in Millions
$600
$550
$500
$450
$400
$350
$300
FY 1999
FY 2000
FY 2001
FY 2002
FY 2003
FY 2004
Fiscal Years
FY 1999 Administration Runout
FY 2000 Administration Runout

Mr. WELDON of Florida. Mr. Chairman, this amendment terminates Triana; provides $2.5 million for termination costs, and transfers the remaining $32.6 million to Life and Microgravity Sciences and Applications.

For the sixth year in a row, the Administration has proposed a smaller budget for NASA asking its scientists, engineers, and astronauts to do more with less. In the face of this shrinking budget, Triana stands out as an unbearable, misuse of NASA's scarce dollars.

My many questions about this program can be summarized with two simple concerns. Number one, Triana just isn't necessary, and, number two, this program does not represent the best science that NASA can get for its precious budget dollars. I now describe those concerns to you.

According to the Washington Post, the Triana satellite was literally dreamed up in the middle of the night by Vice President Gore. NASA soon found itself saddled with a $75 million program which has been described as nothing more than a screensaver because of the satellites supposed educational inspirational benefits. Never mind that the National Space Society called Triana——

Chairman SENSENBRENNER. If the gentleman will yield, this is an announcement that the House will be meeting for legislative business in 15 minutes. So, it is not a roll call, and the gentleman may proceed.

Mr. WELDON of Florida. Never mind that the National Space Society called Triana, quote, "an inappropriate doubling of NASA's educational spending." Never mind that an identical view of the Earth could be patched together from existing satellite images and that many sites on the Internet already provide images of the Earth from space.

Naturally, the satellite's objectives evolved over time, and the current manifestation now emphasizes a science mission to retroactively justify Triana. Never mind that the new scientists while reporting on the science mission as it stands today pointed out that, quote, "Many researchers doubt its scientific merit." Of course, according to NASA, that science was peer-reviewed. I will certainly concede that if NASA launches any satellite, surely their can be some scientific merit that can be justified. However, the fundamental question is, is this the best science that NASA can get for $75 million of taxpayer money? And, quite simply, that question has not been answered, Indeed, I believe it hasn't even been asked.

I would like to talk about real honest-to-goodness peer-reviewed science. Life and Microgravity Science and Applications brings benefits of space right down to Earth in the area of biological research, medicine, chemical, and physical research. When we hear about experimental cancer drugs under development in space, that is Life and Microgravity Science. Its research is conducted on the shuttle and should eventually be conducted on the Space Station, yet the Administration has already cut $462 million out of Life and Microgravity Research and plans to cut another $200 million over the next 4 years. A dedicated shuttle flight, STS–107, will conduct Life and Microgravity Research. Unfortunately, according to NASA documentation, the mission might lose 1,500 pounds of scientific research equipment because of Triana. Even if it does not, who

knows how much more scientific knowledge could result from other self-contained modules or even different satellites if STS–107 weight did not include 8,800 pounds for Triana.

This is why my amendment cancels Triana and transfer the money to Life and Microgravity Science Applications. Life and Microgravity must be a higher priority than a multimillion dollar screensaver. Mr. Chairman and members of this Committee, maybe NASA can't stand up to the White House, but the United States Congress certainly can. We must end this program now, and let NASA get back to the many challenges it faces, I, therefore, urge support for my amendment.

And to conclude, many of you, Democrats and Republicans alike, last year, signed onto a letter calling for an increase in the NASA budget. Many of you actually worked on getting signatures on that letter. The Administration has not put forward a proposal for a flat budget or an increased budget but another decrease and on top of that has put forward this proposal to devote $75 million towards this program.

Many of us spend a great deal of our time trying to get significantly smaller amounts of money for important NASA priorities to our states and districts. Examples include some of the educational programs many on this committee have argued for. I know one of the areas that I continually have to fight for are shuttle upgrades, programs that will improve the efficiency and safety of shuttle operations. Seventy-five million dollars constitutes a significant amount of money that could be used if it were to be applied there——

Chairman SENSENBRENNER. The gentleman's time has expired.

Mr. WELDON of Florida. I thank the gentleman, and I encourage all my colleagues to vote for this amendment.

Chairman Sensenbrenner. For what purpose does the gentleman from Tennessee rise?

Mr. GORDON. Mr. Chairman, I have to say that I am disappointed——

Chairman SENSENBRENNER. The gentleman is recognized for 5 minutes.

Mr. GORDON. Mr. Chairman, I am very disappointed with this Triana killing amendment. Of course there will be lots of reasons offered why Triana should be killed. Opponents who are trying to will say that it is simply a political stunt for the Vice President's election campaign. Somehow, I don't think, though, the Vice President needs to depend upon a little remote sensing satellite to ensure his election in 2002 particularly since this satellite will not be launched until after the election.

They will also say that we can't afford Triana in the current constrained NASA budget. Well, that didn't stop the majority from going over the President's request for NASA by some $220 million in Fiscal Year 2000 in order to fund their favorite programs.

They will also argue in the past the Vice President isn't qualified to propose new missions like Triana for NASA. Well, if we're going to use this qualification as a metric, I'd just like to point out the following: after examining the committee's records, it turns out the Vice President spent more time dealing with science issues during his time in the House—including this Committee as a Chairman of

a Subcommittee—and Senate than almost 90 percent of the current Committee members. Now, if we're willing to believe that we have the confidence to pass judgment on NASA's program and even propose our own initiatives, but somehow we don't extend that same presumption to the Vice President who has more experience than most us.

Another argument has been made that Triana is bad science, and it has not been peer-reviewed. In fact, the science mission was selected after a rigorous peer-review of nine competing proposals, and the work is going to be carried out by the Scripts Institution of Oceanography. Moreover, I would point out that the concern of peer-review hasn't stopped Members of Congress from proposing new programs when it suits them.

I recall Chairman Rohrabacher, last Congress, had hundreds of millions of dollars inserted into the NASA authorization bill, because he wanted a second single-stage-to-orbit rocket program even before the current billion dollar test program has demonstrated the concept's feasibility. I don't remember any great concern over lack of peer-review at that time.

And if the argument is that Triana hasn't been peer-reviewed because it hasn't been compared to other possible use of the money, such as another shuttle research mission, I wonder if members are willing to follow that argument to its logical conclusion; that is, is Chairman Rohrabacher willing to let NASA's Space Science Program peer-review the extra money he put into the bill for space solar power and more space transportation research programs? And if the Space Science Office says they had a better use for the money, for example, Hubble or for a Mars probe, would the Chairman be willing to go along with these findings?

Let's be honest. This really is a political effort to sink this particular program which in turn will sink this bill. This is a $75 million program of which $40 million has already been spent, but $35 million is what is left. The NASA Director, Dan Goldin, called me last night. He told me that this was an important mission for NASA, so important that he would recommend that the bill be vetoed if it's taken up. So, the truth here is this is simply a political effort to sink a program that's goign to sink the bill.

This Committee can do better. This Committee has made a good effort to have a consensus, nonpartisan bill; there's been compromises made, and we've moved forward. It's really unfortunate that we can't continue this. Life and science certainly is important, but keep in mind the President recommended an 18 percent increase over the Fiscal Year 1999 budget, so that is given priority. Let's recognize what this is, and let's try to move above it; this Committee deserves to do better. Thank you, Mr. Chairman.

Mr. HALL. Mr. Chairman.

Chairman SENSENBRENNER. I recognize myself for 5 minutes.

I can't believe what I've heard, that the NASA Administrator and the Administration and apparently some people on the other side of the aisle are willing to sink an entire NASA authorization bill with authorizations for Space Station, for Life and Microgravity, and other education programs and other programs over whether or not there is an inclusion of money for the Triana Program. That certainly has got priorities completely mixed up, and I would hope

that the gentleman from Tennessee would reconsider his position on this.

This is the first time the Science Committee has had an opportunity to examine and debate the Triana Program. As you know, we reported out and passed an authorization bill in April of 1997. That was a 2-year authorization bill that never was passed out of the United States Senate, so as a result, NASA was unauthorized for the last 2 Fiscal Years. This is the first time since the Vice President proposed the Triana Program on March 13, 1998 that we have had a chance to debate this issue and to vote on it, and to say that we've got to close our mind on it and never have an opportunity to determine whether or not this is the proper way to spend NASA's dollars, I think is very short-sided and certainly brings this Committee out of the loop.

Now, my concern with the Triana Program is not who sponsored it. My concern is, is that apparently the peer-review process that this Committee has been quite proud of supporting was not utilized in determining how—or whether to build Triana but was utilized in determining how to build Triana. So, we didn't have a peer-review on the building of Triana for the decision on going ahead, we just had a peer-review once we decided to go ahead down at NASA on how to build it.

That's not the way to figure out how to use NASA's dollars to the best possible manner. I support the gentleman's amendment. I think that he's telling us that it is better to stick the money in Life and Microgravity than to continue on supporting this program which has never been considered by this Committee prior to now.

Mr. HALL. Mr. Chairman.

Chairman SENSENBRENNER. The gentleman from Texas, Mr. Hall.

Mr. HALL. Mr. Chairman, I thank you——

Chairman SENSENBRENNER. Recognized for 5 minutes.

Mr. HALL. I thank you, sir, and I understand your position. I understand Mr. Gore's position and certainly Mr. Gordon's. I just think that this is something that we probably haven't spent enough time on together. It's something that historically you have always cooperated and helped to work out. I can't say $35 million or $38 million isn't a lot of money, but we're dealing here with a lot of amendments, a solar amendment involving a couple hundred million additional dollars, an SNC amendment with $214 million, the ATP with $55 million, and a lot of others. This isn't a large item, and it's not a large enough item to derail this Committee and to call for action on the part of the President that would put us back to the tables working together. I'm just very hopeful that you all can work this out.

You know, the Weldon-Nethercutt amendment is attractive to me in that it shifts some money to allow for microgravity science, but the fact is, though, that the base bill already increase Life and Microgravity by $45 million in Fiscal Year 2000, and that's an 18 percent increase which is about as much as I could expect and as much as I could hope for over the President's request. That also translates into about a $38 million increase for Life and Micro which is a 14 percent increase over the Fiscal Year 1999 level.

So, it seems that in my—I urge that—I'm going to vote to support the gentleman's from Tennessee's position, but I'd like very much for you all to spend more time together and see if this can't be worked out. It's important. I can't downgrade the importance of it nor the genuine interest of the two who have the amendment. I just think that we ought to get together and do a little more work. It seems to me that impeachment, Kosovo, and all of those things have robbed us of the time that we normally spend together working these things out. I yield back my time.

Mr. NETHERCUTT. Mr. Chairman.

Chairman SENSENBRENNER. Who seeks recognition? The gentleman from Washington, Mr. Nethercutt.

Mr. NETHERCUTT. Thank you, Mr. Chairman.

Chairman SENSENBRENNER. Recognized for 5 minutes.

Mr. NETHERCUTT. Thank you. I'm pleased to join with Mr. Weldon in sponsoring this amendment for the simple reason that I think we need to look at what transferring this money will do good as opposed to looking at it as a negative for the Vice President.

That isn't my purpose, but my purpose is to put more money into research, and if we cut this one project, we're enabling hundreds of new primary investigators to receive funding, and I think that's critically important. As a member of the Appropriations Committee, I know the challenges we fight on that Committee to find enough money to do all the things that need to be done let alone—we can't afford to waste money is my point. And in NIH research, in NASA research, and medical research, we're on the brink, literally of curing diseases. Tremendous opportunities out there, but we need researchers, and we need a continuity of research dollars, and this will provide that.

I think it's critically important that we not try to bootstrap this particular project which looks to me like has been done. When we had testimony here from NASA, there was I think, a clear indication that what NASA did was look at what instrumentation could be put on this satellite after it was given the go ahead to proceed. So, it's bootstrapping the research onto a project that was not peer-reviewed ahead of time, and I think that's the wrong way to run the agency and to run this particular program.

We can do—I heard Mr. Gordon talk about the cost and others mention the cost. We're really not talking about just $30-some odd million or a $75 million program; we're talking about $175 million probably when you look at the cost to launch and the cost of additional add-ons to this particular project.

So, I think we need to use some common sense here and really err on the side of medical research and microgravity research that is underfunded in my judgment, especially in today's world, where we have such great opportunities to cure diseases.

So, I am proud to support the amendment; proud to author it with my friend, Mr. Weldon, and I think it's sensible, so I urge my colleagues to support it, and I yield back my time.

Chairman SENSENBRENNER. The question is on the adoption of the amendment——

Mr. GORDON. I don't think we're quite through, Mr. Chairman.

Chairman SENSENBRENNER. Okay. Well, the gentleman from Tennessee has already spoken.

Mr. GORDON. I think Eddie Bernice——

Chairman SENSENBRENNER. For what purpose does the gentlewoman from Texas seek recognition?

Ms. EDDIE BERNICE JOHNSON of Texas. Strike the last word.

Chairman SENSENBRENNER. The gentlewoman is recognized for 5 minutes.

Ms. EDDIE BERNICE JOHNSON of Texas. Thank you, Mr. Chairman. My concern about this is while we indicate we're saving money, it does not really save any money. It puts it in the budget that's already over what was recommended by the Administration, and some might argue that NASA hasn't put enough money into Space Station research and that the Committee needs to increase the funding for station research. Whether or not that's true, this amendment would not fix that problem.

Under this amendment, the Triana money wouldn't be applied to the Space Station account. It is clear that this amendment would wind up wasting the taxpayers' money, and this is because more than $40 million of the $75 million—more than half to be spent on Triana—will have already been spent by the time this amendment ever takes effect. I think it's an irresponsible way to deal with this program, and, perhaps, if it had broad discussion in the Subcommittee, it would have had a great deal more understanding of it.

The authors of the amendment are proposing to waste $40 million in taxpayers' money so that they can add $35 million to a NASA program that doesn't need the money. It doesn't really sound to me like this is fiscal responsibility, and I would urge that we defeat this amendment, Mr. Chairman, meaning no affront to anyone. I just think it's an irresponsible amendment. I yield back the balance of my time.

Chairman SENSENBRENNER. The gentlewoman yields back the balance of her time. Further discussion on the amendment? the gentleman from Michigan, Mr. Smith is recognized for 5 minutes.

Mr. SMITH of Michigan. Well, I would just—Mr. Chairman, would like to express that my hope that Republicans would not vote for this amendment, because it was the brainchild of Al Gore, but also I would hope that the Democrats wouldn't simply fall in line and vote for this because it's the Vice Presidents, who is running for President.

This project was not part of the original NASA recommendation. It simply is the brainchild of Al Gore. He suggested it to NASA. NASA has sprung to attention and started taking other funds to accommodate this particular mission of Triana. It seems to me that, based on the knowledge and information that I have been given, other satellites could accommodate the same kind of goals, the same kind of imagery as is suggested in this program. The initial cost was around $27 million. Now it has sprung up to an estimate of $70 millions, in addition to the launch cost.

We have been shortchanging the Life and Microgravity efforts over the last 4 years. And even though, Mr. Hall, you suggest that this bill does increase it, it still doesn't replace what has been lost over the last 4 years, it seems to me and with what has been sug-

gested by Mr. Nethercutt, that we are on the cutting edge of so many research possibilities, it just seems like it's a much better bang for the buck with this amendment than without it.

I yield back the balance of my time.

Chairman SENSENBRENNER. For what purpose does the gentleman from North Carolina seek recognition?

Mr. ETHERIDGE. I move to strike the last word.

Chairman SENSENBRENNER. The gentleman is recognized for 5 minutes.

Mr. ETHERIDGE. And I yield to Mr. Gordon of Tennessee.

Mr. GORDON. Thank you, Mr. Etheridge. Let me just briefly repeat that I think Chairman Sensenbrenner and Chairman Rohrabacher have been—and their staff have been very cooperative in working with the minority and our staff in trying to produce a constructive, good bill here. And that's the reason that I cosponsored it. It would not be perfect to my mind, but this is the legislative process. We have tried to put together a good, constructive bill. And I think they have done that in good faith.

It is really a shame, here at the end, to undo all of that work. And I have to agree with Mr. Smith when he says that we should vote on this amendment on its merits and not whether it's proposed by Vice President Gore or not. And that's what has been done. If you look at it, there has been a peer-review of the project. Dan Goldin, the head of NASA, said it is an important project and it's important to the mission and it's recommended that this bill be vetoed if it is not moved forward with.

So I would say Mr. Weldon that we continue this discussion. That he withdraw this amendment with a chance to—as I have withdrawn amendments—with an opportunity to deal with this on the floor. I don't want to get into further discussion that discusses partisanship that may or may not be here. It's just that we have a good bill. We've come a long way. We don't need a curve ball at the last to undo all of the good work that's been done.

Mr. HALL. Would the gentleman yield?

Mr. GORDON. Yes—well, Mr. Etheridge has the time.

Mr. HALL. To Mr. Smith, I would answer that he really puts me in a predicament when you bring politics into this because, you know, there may just accidentally be a Bush Democrat or two on here that's going to vote for——

[Laughter.]

A Tennessee amendment. I yield back my time. [Laughter.]

Chairman SENSENBRENNER. The time belongs to the gentleman from North Carolina.

Mr. WELDON of Florida. Would the gentleman from North Carolina yield?

Mr. ETHERIDGE. I yield.

Mr. WELDON of Florida. I very much enjoy working with the gentleman from Tennessee and I commend him on his spirit of bipartisanship and I do enjoy working with my colleagues on the other side of the aisle on the myriad issues that we have to wrestle with. In particular, Mr. Lampson from Tennessee—from Texas, he and I are frequently working together on station and shuttle issues.

But I will respectfully request that we have a vote on this issue because this program has proceeded without authorization and I

think this is—you know, we got rid of a king 200 years ago and for the Vice President to have a dream and NASA to just proceed with this without the Congress speaking on something of this size, I think it's inappropriate. And I am shocked and amazed, frankly, that the Administration would threaten a veto over something like this. And I yield back to the gentleman from North Carolina would give me additional time, I would like to ask my friend from Florida if he would set this as a precedent that we have votes on all non-authorized bills, programs, that might be put before this Committee? [Laughter.]

If the gentleman from North Carolina would again yield, certainly——

[Laughter.]

Certainly I'm not about the business of establishing far-reaching precedents for this Committee and I think that's in the jurisdiction of the Chairman and the Ranking Member. But I believe it's very, very appropriate for us to speak on this issue.

Mr. ETHERIDGE. I yield back the balance of my time. [Laughter.]

Chairman SENSENBRENNER. Thank you. The question is on agreeing to the amendment of the gentleman from Florida, Dr. Weldon.

Those in favor, will signify by saying aye.

Opposed, no.

The ayes appear to have it.

Mr. GORDON. We'd like a roll call vote on this.

Chairman SENSENBRENNER. The ayes have it.

Roll call is ordered. Those in favor will vote aye. Those opposed will vote no. And the clerk will call the roll.

The CLERK. Mr. Sensenbrenner.

Chairman SENSENBRENNER. Aye.

The CLERK. Mr. Sensenbrenner votes yes. Mr. Boehlert.

Mr. BOEHLERT. Aye.

The CLERK. Mr. Boehlert votes yes. Mr. Smith of Texas.

[No response.]

The CLERK. Mrs. Morella.

Mrs. MORELLA. Aye.

The CLERK. Mrs. Morella votes yes. Mr. Weldon of Pennsylvania.

[No response.]

The CLERK. Mr. Rohrabacher.

Mr. ROHRABACHER. Aye.

The CLERK. Mr. Rohrabacher votes yes. Mr. Barton.

[No response.]

The CLERK. Mr. Calvert.

Mr. CALVERT. Aye.

The CLERK. Mr. Calvert votes yes. Mr. Smith of Michigan.

Mr. SMITH of Michigan. Aye.

The CLERK. Mr. Smith votes yes. Mr. Bartlett.

[No response.]

The CLERK. Mr. Ehlers.

Mr. EHLERS. Aye.

The CLERK. Mr. Ehlers votes yes. Mr. Weldon of Florida.

Mr. WELDON of Florida. Aye.

The CLERK. Mr. Weldon votes yes. Mr. Gutknecht.

Mr. GUTKNECHT. Aye.

The CLERK. Mr. Gutknecht votes yes. Mr. Ewing.
Mr. EWING. Aye.
The CLERK. Mr. Ewing votes yes. Mr. Cannon.
Mr. CANNON. Aye.
The CLERK. Mr. Cannon votes yes. Mr. Brady.
[No response.]
The CLERK. Mr. Cook.
Mr. COOK. Aye.
The CLERK. Mr. Cook votes yes. Mr. Nethercutt.
Mr. NETHERCUTT. Aye.
The CLERK. Mr. Nethercutt votes yes. Mr. Lucas.
Mr. LUCAS. Aye.
The CLERK. Mr. Lucas votes yes. Mr. Green.
Mr. GREEN. Aye.
The CLERK. Mr. Green votes yes. Mr. Kuykendall.
Mr. KUYKENDALL. Aye.
The CLERK. Mr. Kuykendall votes yes. Mr. Miller.
Mr. MILLER. Aye.
The CLERK. Mr. Miller votes yes. Mrs. Biggert.
Mrs. BIGGERT. Aye.
The CLERK. Mrs. Biggert votes yes. Mr. Sanford.
[No response.]
The CLERK. Mr. Metcalf.
Mr. METCALF. Aye.
The CLERK. Mr. Metcalf votes yes. Mr. Brown.
[No response.]
The CLERK. Mr. Hall.
Mr. HALL. No.
The CLERK. Mr. Hall votes no. Mr. Gordon.
Mr. GORDON. No.
The CLERK. Mr. Gordon votes no. Mr. Costello.
Mr. COSTELLO. No.
The CLERK. Mr. Costello votes no. Mr. Barcia.
Mr. BARCIA. No.
The CLERK. Mr. Barcia votes no. Ms. Johnson.
Ms. EDDIE BERNICE JOHNSON of Texas. No.
The CLERK. Ms. Johnson votes no. Ms. Woolsey.
Ms. WOOLSEY. No.
The CLERK. Ms. Woolsey votes no. Mr. Hastings.
[No response.]
The CLERK. Ms. Rivers.
Ms. RIVERS. No.
The CLERK. Ms. Rivers votes no. Ms. Lofgren.
Ms. LOFGREN. No.
The CLERK. Ms. Lofgren votes no. Mr. Doyle.
Mr. DOYLE. No.
The CLERK. Mr. Doyle votes no. Ms. Jackson Lee.
Ms. JACKSON LEE. No.
The CLERK. Ms. Jackson Lee votes no. Ms. Stabenow.
Ms. STABENOW. No.
The CLERK. Ms. Stabenow votes no. Mr. Etheridge.
Mr. ETHERIDGE. No.
The CLERK. Mr. Etheridge votes no. Mr. Lampson.
Mr. LAMPSON. No.

The CLERK. Mr. Lamspon votes no. Mr. Larson.
Mr. LARSON. No.
The CLERK. Mr. Larson votes no. Mr. Udall.
Mr. UDALL. No.
The CLERK. Mr. Udall votes no. Mr. Wu.
Mr. WU. No.
The CLERK. Mr. Wu votes no. Mr Weiner.
Mr. WEINER. No.
The CLERK. Mr. Weiner votes no. Mr. Capuano.
Mr. CAPUANO. No.
The CLERK. Mr. Capuano votes no.
Chairman SENSENBRENNER. Are there additional members in the room who desire to cast their votes? The gentleman from South Carolina, Mr. Sandford.
The CLERK. Mr. Sanford.
Mr. SANFORD. Aye.
The CLERK. Mr. Sandford votes yes.
Chairman SENSENBRENNER. The gentleman from Maryland, Mr. Bartlett.
Mr. BARTLETT. Yes.
The CLERK. Mr. Bartlett votes yes.
Chairman SENSENBRENNER. Additional members in the chamber who desire to vote or any members who want to change their votes? If not, the clerk will report.
The CLERK. Mr. Chairman, yes, 21; no, 18.
Chairman SENSENBRENNER. And the amendment is agreed to.

Amendment #13
Mr. Weldon (FL)
Mr. Nethercutt -
terminate Trian

COMMITTEE ON SCIENCE - ROLL CALL - 106th CONGRESS
DATE: 5/13/99 SUBJECT: HR 1654 (NASA)

Rm.	Phone	Member	Yes	No	Not Voting	Present	Absent
2332	55101	Mr. Sensenbrenner, R-WI	1				
2246	53665	Mr. Boehlert, R-NY	2				
2231	54236	Mr. Lamar Smith, R-TX	—				
2228	55341	Mrs. Morella, R-MD	3				
2452	52011	Mr. Curt Weldon, R-PA	—				
2338	52415	Mr. Rohrabacher, R-CA	4				
2264	52002	Mr. Barton, R-TX	—				
2201	51986	Mr. Calvert, R-CA	5				
306	56276	Mr. Nick Smith, R-MI	6				
2412	52721	Mr. Bartlett, R-MD	21				
1714	53831	Mr. Ehlers, R-MI	7				
332	53671	Mr. Dave Weldon, R-FL	8				
425	52472	Mr. Gutknecht, R-MN	9				
2417	52371	Mr. Ewing, R-IL	10				
118	57751	Mr. Cannon, R-UT	11				
1531	54901	Mr. Brady, R-TX	—				
1431	53011	Mr. Cook, R-UT	12				
1527	52006	Mr. Nethercutt, R-WA	13				
438	55565	Mr. Lucas, R-OK	14				
1218	55665	Mr. Green, R-WI	15				
512	58220	Mr. Kuykendall, R-CA	16				
1037	53201	Mr. Miller, R-CA	17				
508	53515	Mrs. Biggert, R-IL	18				
1233	53176	Mr. Sanford, R-SC	20				
1510	52605	Mr. Metcalf, R-WA	19				
2300	***56161***	***Mr. Brown, D-CA***		—			✓
2221	***56673***	***Mr. Hall, D-TX***		1			
2368	***54231***	***Mr. Gordon, D-TN***		2			
2454	***55661***	***Mr. Costello, D-IL***		3			
2419	***58171***	***Mr. Barcia, D-MI***		4			
1511	***58885***	***Ms. Johnson, D-TX***		5			
439	***55161***	***Ms. Woolsey, D-CA***		6			
2235	***51313***	***Mr. Hastings, D-FL***		—			
1724	***56261***	***Ms. Rivers, D-MI***		7			
318	***53072***	***Ms. Lofgren, D-CA***		8			
133	***52135***	***Mr. Doyle, D-PA***		9			
410	***53816***	***Ms. Jackson-Lee, D-TX***		10			
1039	***54872***	***Ms. Stabenow, D-MI***		11			
1641	***54531***	***Mr. Etheridge, D-NC***		12			
417	***56565***	***Mr. Lampson, D-TX***		13			
1419	***52265***	***Mr. Larson, D-CT***		14			
128	***52161***	***Mr. Udall, D-CO***		15			
510 -	***50855***	***Mr. Wu, D-OR***		16			
501	***56616***	***Mr. Weiner, D-NY***		17			
1232	***55111***	***Mr. Capuano, D-MA***		18			
		TOTAL	21	18			

Attest: Patricia Schwartz (Clerk) 5-13-99

The next amendment on the roster is number 14 by Mr. Sandford to terminate the International Space Station. For what purpose does the gentleman from South Carolina seek recognition?

Mr. SANFORD. I have an amendment at the desk.

Chairman SENSENBRENNER. The clerk will report the amendment.

The CLERK. "Amendment to H.R. 1654, offered by Mr. Sandford."

Chairman SENSENBRENNER. Without objection, the amendment is considered as read.

[The information follows:]

AMENDMENT TO H.R. 1654 OFFERED BY MR. SANFORD

Page 8, line 18, through page 9, line 24, amend section 101 to read as follows:

SEC. 101. INTERNATIONAL SPACE STATION.

(a) TERMINATION.—The Administrator shall terminate the participation of the National Aeronautics and Space Administration in the International Space Station.

(b) TERMINATION COSTS.—There are authorized to be appropriated to the National Aeronautics and Space Administration for carrying out subsection (a) $500,000,000 for fiscal year 2000.

Chairman SENSENBRENNER. And the gentleman from South Carolina is recognized for 5 minutes.

Mr. SANFORD. I thank the Chairman. And I would say, before I say word one on the amendment itself, let me be the first to recognize the fact that I'm new to the Science Committee. And I think that brings some pluses and some minuses. I think on the plus side, it brings new perspectives, a new way for looking at things. the minus would be I don't a tenth of the depth of experience or knowledge on science-related issues that a whole host of members on this Committee do have.

But I would say that—and I would say for that reason I'm not going to call for a recorded vote. But on the plus side, from the standpoint of new perspectives, as one new to the Science Committee, looking at the space station, to me, from the outside, looking in, it would seem to be putting good money after bad. And I would say that for a couple of different reasons.

One, I would say that, you know, our major partner in this arrangement is in deep trouble. And that's most recently witnessed by the fact that, you know, Yeltstin fired his prime minister. There are a whole host of uncertainties going on in Russia. And, therefore, as a business person looking at any king of arrangement, you would say you would want certainly. When you're talking about $100 billion or $50 billion, you want certainly. that is something not possible in Russia right now. So I think that a number of people could very legitimately say, you know, we ought to have a space station, but not now, not a this time, with this partner. So I raise objection one there.

Second objection that I would have would be one that we all struggle with in Congress. And that's the struggle of priorities. And that is, while there are a host of goods that might come out of a space station, what has to be measured against those goods is goods here on Earth. And what I'm hearing, what I'm seeing suggests that it may not be overwhelming. And I think it has to be overwhelming when you're talking about the sums of money that we're talking about.

I would say, on that front, if you look at, you know, there's a big hole in Texas right now where there was going to a Superconducting Supercollider. It was found wanting on that priority list and therefore was abandoned. This amendment would suggest the same for the space station.

And let me just give you a couple of articles that I've recently seen that point to what I'm talking about. Here's one entitled: "The Biggest Waste of money in the History of Mankind." And it goes on to detail, you know, "the scientific community has not shared NASA's vision of an orbiting superlaboratory. In July, the American Society for Cell Biology declared that"—I can't even pronounce the word—"crystallography experiments in microgravity have no serious contributions to analysis of protein structures in the development of new pharmaceuticals." It goes on to say, "The American, European, Canadian, and Japanese physical societies have also expressed their disdain." It goes on to say, "The experiments already performed aboard Mir Space Station seemed to support their pessimistic views."

It brings as well in a story of how the Howard Hughes Medical Institute—and I think this goes back to the issues of setting priorities—for $507 million last year in grant medical research and other activities—in other words, for the cost of 2 shuttle flights—produced extraordinary results, published in a number of scientific journals. This article talks about how there are no substantive scientific findings to date as a result of the space station.

Another articles that I have here: "Space Station Vulnerable to Debris: NASA Leaves Off Shields to Fast-Track Projects." "NASA is to waive a safety requirement for the International Space Station in a bid to get to orbit earlier." And when they talk about the shields, "Allen Lee, the Associate Director of the United States General Accounting Office," who testified before the Senate in early May or late April, "said that the shields wouldn't be ready for a full 3 years. The ISS partners themselves said that there was a 24 percent chance of the space station being hit by space debris." Now a 1 in 4 chance—is that the kind of thing that you want to rush when you talk about a $100 billion project?

Another article here in the Sunday Times of London, April 4, 1999. "NASA has been accused of jeopardizing scientific experiments on the International Space Station in its latest bid to bail out cash-starved Russia." Here it talks about how Keith Cowing, a space consultant and former NASA worker who helped design the ISS, says that giving Russia money will put the scientific experiments on the space station at risk. The article details how there were to be two launches to reach the space station. Russia is only able to afford one. Therefore, NASA will front them the money, but that money will come out of the science budget, which is the whole reason for——

Chairman SENSENBRENNER. The gentleman's time has expired.

Mr. HALL. Mr. Chairman.

Chairman SENSENBRENNER. For what purpose does the gentleman from Texas, Mr. Hall, seek recognition?

Mr. HALL. To speak against the amendment.

Chairman SENSENBRENNER. The gentleman is recognized for 5 minutes.

Mr. HALL. Mr. Chairman, I won't take 5 minutes. I just want to say, shades of Tim Roemer. [Laughter.]

The same situation where I'm very fond of the author and I just don't understand the amendment. But, you know, it got Roemer a promotion to the Intelligence Committee, so that—

[Laughter.]

But we—I hope we do have a record vote. I think the gentleman would be entitled to one and I yield back my time.

Chairman SENSENBRENNER. Will the gentleman yield?

Mr. HALL. I do yield.

Chairman SENSENBRENNER. Let me endorse the gentleman's remarks. We've already spent $20 billion on the space station. There are two elements in orbit now. Now is the time not to cancel it. And, you know, I certainly would not want to send some of the elements that are not in orbit to Charleston to put in a museum as an example of the foolishness of the Congress spending $20 billion and then canceling the program. And I yield back to the gentleman from Texas.

Mr. SMITH of Michigan. Mr. Chairman.

Chairman SENSENBRENNER. For what purpose does the gentleman from Michigan seek recognition?

Mr. SMITH of Michigan. To speak on the amendment, Mr. Chairman.

Chairman SENSENBRENNER. The gentleman is recognized for 5 minutes.

Mr. SMITH of Michigan. May I inquire, Mr. Chairman, from you the status of the Russian contribution and effort? And I would yield for that information if you've got it.

Chairman SENSENBRENNER. Well, if the gentleman would yield. As the gentleman knows, I've kind of made a career of trying to force the Russians to live up to their commitments, both in terms of financing as well as in terms of delivery of equipment. And I can tell the gentleman from Michigan, they have batted 100 percent. They've broken every promise that they've made.

The service module, which is a couple of years late, has been rolled out and will shortly be shipped. And, if the service module is up by the end of September, the currently agreed to assembly schedule can be met. If the Russians are much behind the 30th of September, then there will have to be a complete reworking of the assembly schedule and I shudder to think of what the additional costs of that will be.

The Administration ignored cries by this Chairman and this Committee to get the Russians out of the critical path. They are now paying the price for that. I think that we are less dependent upon the Russians now than we have been in the past. I have always said we shouldn't be dependent upon them at all. The Administration has made a mistake that I think they are recognizing. The program is progressing. I think that we will be able to be proud of the station when it is completed. We have got to keep the pressure on and, you know, I certainly intend to continue doing that. I thank the gentleman for yielding.

Ms. WOOLSEY. Mr. chairman.

Mr. SMITH of Michigan. Well, it would be my—reclaiming my time—it would be my concern to pursue better—more and better

information, but I have been told, from the standpoint of medical research, that the money could be much more effectively and efficiently used on the ground rather than in space—on a space station. I have been told—and I would like the answers which have not been forthcoming to me, in terms of whether the space station is more of a headline, if you will, an exciting type of venture, as opposed to something that can really contribute to the well-being of this country and the world and I intend to support the amendment. I yield back the balance of my time.

Ms. WOOLSEY. Mr. Chairman, Mr. Chairman.

Chairman SENSENBRENNER. The—who seeks recognition? The gentlewoman from California, Ms. Woolsey, is recognized for 5 minutes.

Ms. WOOLSEY. Thank you, Mr. Chairman. I'd like to speak for the amendment, as Tim Roemer in a skirt. [Laughter.]

And I support this——

Chairman SENSENBRENNER. The gentlewoman is recognized under those conditions. [Laughter.]

Ms. WOOLSEY. Thank you very much. I support the Sandford amendment and, first, though, I'd like to acknowledge that it is very important that NASA has valuable work, that they do push the envelope of technology in reaching out to space, but I believe that the project of the space station has cast too large a shadow over NASA in general and our national budget in particular.

When the space station was proposed in 1984, the estimated price tag was about $8 billion, which is a lot of money. Now that price has risen more than a dozen times and adds up to at least $100 billion over the life of the project. This is literally outrageous and let's see what we could do with that much money, Mr. Chairman. We could fund the National Institute of Health for 16 years, provide low-income heating assistance for thousands of families, fund child immunization programs, clean up our Superfund sites, fund drug-prevention programs, provide Head Start to more children in need, pay for our debts to the United Nations, and provide a tax cut for middle-income Americans.

Now those who are so inclined could also take this same amount of money and purchase 40 B–2 bombers and 3 nuclear aircraft carriers. I would not vote for either, but they could and they would have the money to do it.

I don't question the ability of our outstanding engineers and scientists who would bring this project to reality, but I believe that, in this case, it is misplaced priorities. With the many needs here on Earth, the space station is just too expensive and it's not complete. We need to shore up our Social Security System and protect Medicare and Medicaid. We need to educate our children and clean up our environment. We need to get our spending priorities straight and I support eliminate the funding for the space station.

Ms. JOHNSON. Mr. Chairman.

Ms. WOOLSEY. I urge my colleagues to support the Sandford amendment and save $21 billion now. Thank you, Mr. Chairman.

Chairman SENSENBRENNER. The gentlewoman yields back the balance of her time.

Mr. WELDON of Florida. Mr. Chairman.

Chairman SENSENBRENNER. For what purpose does the gentleman from Florida seek recognition?

Mr. WELDON of Florida. I move to strike the last word.

Chairman SENSENBRENNER. The gentleman is recognized for 5 minutes.

Mr. WELDON of Florida. And I will use the entire 5 minutes. We have had this debate over and over again in this Committee and on the Floor of the House and, with every year, we accumulate more and more votes in support of the space station. One of the obvious reasons for that is what the Chairman just said. We've got $20 billion invested. There is a huge amount of hardware in the space station processing facility in my congressional district at Kennedy Space Center that is ready to go. We have the first two elements up there. There is nothing that excites children in America more than when you talk to them about a space station and our manned space flight program and, for the sake of the preservation of time, I'd be very happy to yield to the gentleman of Texas if you'd like to add to my comments.

Mr. LAMPSON. I would indeed. Thank you very much to the gentleman from Florida. Just a few comments. You were just commenting on education. I was a teacher and I still remember the excited look in the kid's eyes in classes in junior high and high school when I was teaching and they saw what we did in space many, many years ago.

But a couple of comments that have been made along the way I think deserve some very short, quick comments. One of them: We're throwing good money after bad. We know that for every $1.00 we spend in space, we get a $9.00 return on Earth. That doesn't sound like bad money and certainly not a bad return.

Certainty? You want certainty from Russia? Sure, we want certainty from Russia, but we also would like to have certainty from new science which we don't have. That's why we're—that's why we're experimenting. That's why we're trying to build something and hope for a greater return. And I think that there's no question but that we're getting a return that goes much beyond science when we're working with not just Russia, but the many other nations that we've built a partnership and a relationship with that otherwise wouldn't be there had it not been for our efforts as far as science is concerned.

So there are many reasons why we should continue to support this station. Just to echo the words that Mr. Weldon just said about the amount of equipment that is already sitting on the ground ready to be put into space. In fact, if we turned this off now, we'd have to spend additional billions of dollars to stop the project. We lose even more and you don't have the gain that we expect. And I'll yield back my time. Thank you very much.

Mr. WELDON of Florida. I thank the gentleman and I yield back.

Ms. JOHNSON. Mr. Chairman. Mr. Chairman.

Chairman SENSENBRENNER. For what purpose does the gentlewoman from Texas, Ms. Johnson, seek recognition?

Ms. JOHNSON. I'd strike the last word, Mr. Chairman.

Chairman SENSENBRENNER. The woman is recognized for 5 minutes.

Ms. JOHNSON. Thank you, Mr. Chairman. Today seems to be bringing about a day that I seek more than usual. I don't relish a lot of speaking. However, we've come this far because our foremothers and forefathers thought about what was needed in the future and our research. I think we've gone too far to decide that we know all the answers and we don't need to look for any more and, therefore, we're scrapping major research projects.

We are expected, as members of this Committee, to be a little bit more open minded. We cannot count all of the lives we've affected and made better by the current space research outcomes in health technologies and many, many commercial goods. We cannot afford, Mr. Chairman, to forget about what we need to do for the future, just as people before us were willing to take their chance to see what basic research and peer research could bring forward.

I recognize, with your leadership, Mr. Chairman, we know full well the status of the income and the economic situation of Russia. I hope that we don't scrap looking for new techniques for health care and commercial goods because Russia does not have the money right now. We can always spend our dollars in a way that many of us will feel would be better, but I don't think we need to shut the door to the future just because it costs a lot of money. What would the future bring if we were not willing to invest in it to see what it could bring?

It is unconscionable to me to get into these research projects and then scrap them. We have committed ourselves to the research community of this nation that we would look at the next 10 years to enhancing their ability to do research, not stopping it. My district became a victim to the Supercollider and I still am sorry that we didn't have the foresight to fund that project and so are most of the scientists in this nation and around the world. I hope we don't make that mistake again today, Mr. Chairman. And I yield back the balance of my time.

But I would ask and urge that we not vote this space station down and close the door to our future. Thank you.

Chairman SENSENBRENNER. The gentleman from Tennessee, Mr. Gordon.

Mr. GORDON. Strike the last word.

Chairman SENSENBRENNER. The gentleman is recognized for 5 minutes.

Mr. GORDON. Very quickly, I want to concur with the sentiment expressed by my Chairman earlier that the space station has gone—or the shuttle has gone down a bumpy road, but there has been so much money and time and scrutiny spent by the country, by the Committee, by NASA, that it is too late to turn back and I think that we have a program that can be something that the United States can be proud and I would hope that we would support——

Mr. JACKSON LEE. Would the gentleman yield?

Mr. GORDON. Yes, I yield.

Mr. JACKSON LEE. I thank the gentleman for yielding. Just to follow up on those comments, let me suggest that the points made by the gentlelady from California are very valid. These are choices that we made and I would certainly acknowledge that those are hard choices to choose between issues of housing and Social Secu-

rity, but we have a surplus now in the budget and I think my good friend from South Carolina noted the Supercollider, the hold in the ground, is evidence of that when we make mistakes like that, we live to regret them.

I do a lot of work with the University of Houston. Dr. Paul Chu led a superconductivity laboratory. I wish we had that superconductivity program to enhance the enormous work that he is doing that is so needed around the world.

I think the other point that needs to be made, while we have a surplus, we need to acknowledge that the space station, albeit Russia has had its problems, has consistently worked under a 5-year plan, of which they have maintained their budget. Whenever there is an overrun, there is a response immediately by NASA and the Administration or the Administrator. And, in fact, we have proven that the International Space Station has been successful in research dealing with HIV, diabetes, heart disease, cancer, and, of course, the most recent analysis, of which most people had a little chuckle, but aging with Dr. John—with Senator John Glenn.

So I would hope that we would likely view our future as intertwined with the success of the International Space Station. It does good work. It does it in a fiscally sound manner. And, as well, what regrets we'd have to have open space in places like Huntsville, the Kennedy Space Center area, the Johnson Space Center area, and look back sadly and wish what could have been. And I hope, Mr. Chairman, that we will vote this amendment down. I thank the gentleman for yielding.

Mr. GORDON. Again, Mr. Chairman, I can concur with your recommendation that this amendment be rejected.

Chairman SENSENBRENNER. For what purpose does the gentleman from Pennsylvania seek recognition?

Mr. DOYLE. Move to strike the last word.

Chairman SENSENBRENNER. The gentleman is recognizing for 5 minutes.

Mr. DOYLE. Thank you, Mr. Chairman. I'd just like to say a few words on this space station. As we on this Committee have followed this issue and we've learned of repeated delays and cost overruns on the part of our Russian partners for 4 years, I've been a disciple of Mr. Roemer on this issue and have voted to terminate the ISS. And—but I've been reconsidering my position on this issue and I want my good friend Mark Sanford to know—who is my good friend and I have a tremendous amount of respect for—that it has nothing to do with your authoring of the amendment versus Mr. Roemer offering the amendment.

But I'd like to suggest to my colleagues that I think at this point, this far down the road, that it just may be inappropriate to pull the plug on the project. We do have two important modules of the station in space. We spent $20 billion on this project. I do have serious concerns about the project. The Russian economy is in shambles and question their ability and commitment to fund a space station. But I think that terminating the entire ISS at this point might be too drastic of a move.

Mr. Chairman, I can imagine at some point we may have to decide whether to exclude the Russians from the project and continue ahead with our other international partners, all of whom have

made satisfactory contributions so far. But I think it would be rash to pull the plug on a $20 billion investment when we've come so far. I know Russian delays have cost us a few billion dollars and even when you add the cost savings, we've enjoyed as a result of adding them at the beginning of the project, the bottom line of Russian involvement in the program will be a net loss to the American taxpayer.

But I do—I've come to feel that terminating the International Space Station outright will leave us nothing for our investment and, thus, I'm going to reconsider my previous position and will vote against terminating the International Space Station. I urge my colleagues that have done similar in the past 4 years to reconsider their positions.

Mr. HALL. Would the gentleman yield?

Mr. DOYLE. Yes, I will.

Mr. HALL. I certainly admire a man who can reconsider, particularly when he reconsiders to come to my way of thinking. [Laughter.]

I think another of—your judgment is not just based on those things that you've submitted, but I happen to know that you're aware of the fact that the present chairman and I went to Mr. Goldin about 3½ or 4 years ago and he suggested the cuts in the budget that had to happen and that Mr. Goldin showed good faith with this Committee, with this Congress, with the American people and did cut that budget 32 or 33 or 34 percent, probably more than any other budget's been cut on this Hill. And I know you took that into consideration.

I seriously do admire you and thank you. It takes courage to take a position and it takes more courage to change that position when you get further information. I yield back my time.

Ms. WOOLSEY. Will the gentleman yield?

Mr. DOYLE. Yes.

Ms. WOOLSEY. I'd just like to point out that not terminating something now because of an investment that we've gotten hooked into is exactly my point. It really shows that, here in the Federal Government, when you get—the camel gets its nose under the tent, the camel's in that tent and will be there and that's where we are. So that's one of the reasons I still disagree with this.

Chairman SENSENBRENNER. The question is on the adoption of the amendment by the gentleman from South Carolina, Mr. Sanford.

Those in favor will signify by saying aye.

Opposed, no.

The Chair is in doubt and the clerk will call the roll. Those in favor will vote aye and those opposed will vote no. The clerk will call roll.

Mr. SANFORD. Wait. Wait. Mr. Chairman, Mr. Chairman. In the same way that the International Space Station captures the imagination of a child, I would like to imagine that I lost this vote by one and, therefore, would ask that we not call for a recorded vote. [Laughter.]

Chairman SENSENBRENNER. Will the gentleman withdraw the amendment? And then we have a deal.

Mr. SANFORD. I will as long as I can offer it on the Floor.

Chairman SENSENBRENNER. The gentleman will definitely have a chance. The amendment is withdrawn. [Laughter.]

The next amendment is number 15 by the gentleman from Connecticut, Mr. Larson.

Mr. LARSON. Mr. Chairman, I'm going to withdraw the amendment and would seek to—move to strike the last word for the purpose of asking a clarifying question.

Chairman SENSENBRENNER. The gentleman is recognized for 5 minutes.

Mr. LARSON. Thank you, Mr. Chairman. Mr. Chairman, let me first also indicate that I have remarks and, in the purpose of brevity, I would like to seek unanimous consent——

Chairman SENSENBRENNER. Without objection.

[The statement of Mr. Larson follows:]

PREPARED STATEMENT OF HON. JOHN LARSON

I want to express my appreciation for the hard work Chairman Rohrabacher has dedicated to this bill and thank him for his willingness to listen to my concerns.

However, I am still deeply concerned that this bill includes language that might prohibit NASA from moving forward with a research and development program essential to maintaining America's competitive position in the global economy and our national defense.

Specifically, I refer to language that would prohibit funds to be used for the Ultra-Efficient Engine Program. The Administration has recommended that this Committee fund this program at $50 million per year over the next five years, as General Spence M. Armstrong, Associate Administrator of NASA, testified to the Space Subcommittee on March 3, 1999.

However, I am at a loss to explain why the reservations about the execution of this program used to justify this language were not raised during this hearing so that members might have had an opportunity to discuss this course of action.

This program is focused to develop the next-generation of aerospace propulsion. I am concerned that the language in this bill will have a negative impact on not only the future competition of the United States' commercial air fleet, but specifically on the development of our next generation tactical military aircraft.

The focused approach of this program has facilitated NASA's coordination with the Department of Defense on long-term R+D programs, specifically the Integrated High Performance Turbine Engine Program.

I respect the position of the Chairman Rohrobacher, and appreciate the fact while the bill would prohibit a coordinated research effort, he has recognized the individual elements of this program important enough to fund in the Research and Technology Base.

However, the UEET effort involves bold, revolutionary technologies that must be integrated into a demonstration model engine over the next 5 years in order to validate this technology. To accomplish this, NASA remains committed to seeking industry cost sharing for this effort. But, for industry to consider cost sharing, the program must have clearly stated goals and long-term stability.

While a UEET demonstration engine would not be targeted for specific commercial applications, it could possibly be used for defense applications.

Any practical commercial developments as a result of this program would be 10–15 years away, and would be developed with private funds.

NASA believes that for these reasons, particularly the multi-year commitment needed to achieve technology goals, that the UEET program should be conducted as a Focused Program, and is prepared to work with the Committee on Science to ensure a long-term funding commitment to the UEET effort to achieve its stated technology objectives.

Mr. Rohrabacher, I would like to clarify that the language regarding UEET in this bill is not prejudicial to NASA's "working on" a demonstration, engineering model engine to validate these technologies, and that the Committee recognizes that a long-term funding commitment to meet the UEET technology goals will be necessary to attract cost sharing by the commercial sector.

Mr. LARSON. Mr. Chairman, let me start by thanking Mr. Rohrabacher for taking an extraordinary amount of time and effort to

work with both his staff and mine and the Administrator of NASA to deal with some language that, to say the least, was somewhat disconcerting to me with respect to the Ultra-Efficient Engine technology within the bill. But I know, after several conversations with both he, his staff, and the Administrator of NASA that we all share a deep and abiding concern for the bold revolutionary technologies that can be attributed to this demonstration project, engineering model engine over the long term that will be beneficial to us both militarily and also, I daresay, commercially, as we seek in this country to continue to compete against Airbus.

I do have a clarifying answer through you, Mr. Chairman, that I would ask Mr. Rohrabacher. And, with your permission, I would proceed.

Chairman SENSENBRENNER. The answer is yes. Does the gentleman from California request the gentleman from Connecticut to yield to him?

Mr. ROHRABACHER. Yes, as soon as he poses the question.

Mr. LARSON. Yes, Mr. Chairman. Mr. Rohrabacher, what I would like to do is clarify that the language regarding the—what is commonly referred to as the UEET proposal in this bill is not prejudicial to NASA, not prejudicial in the extent that in working on a demonstration engineering model engine to validate these technologies and technology that the Committee recognizes as a long-term funding commitment to meet UEET technology goals, it will be necessary to attract the cost-sharing by the commercial sector that we all seek.

Mr. ROHRABACHER. The answer to—will the gentleman yield?

Mr. LARSON. Yes, I do.

Mr. ROHRABACHER. The answer to the gentleman's question is yes and it is the intention of the Subcommittee Chairman to work with that gentleman to move this project along in the direction that he is seeking and we'll work on the way to the Floor and I appreciate his cooperation and we will both try—I think that we have mutual aims in mind.

Mr. LARSON. Thank you, Mr. Chairman. Mr. Chairman, I yield back the balance of my time.

Chairman SENSENBRENNER. The gentleman yields back the balance of his time. The next amendment is number 16 by Mr. Weiner. For what purpose does the gentleman from New York seek recognition?

Mr. WEINER. Mr. Chairman, I have an amendment at the desk.

Chairman SENSENBRENNER. The clerk will report the amendment.

The CLERK. "Amendment to H.R. 1654 offered by Mr. Weiner."

Chairman SENSENBRENNER. Without objection, the amendment is considered as read.

[The information follows:]

AMENDMENT TO H.R. 1654 OFFERED BY MR. WEINER

Page 13, line 14, insert ", including $35,000,000 for aircraft noise reduction technology" after "Technology Base".

Page 14, line 5, insert ", including $35,000,000 for aircraft noise reduction technology" after "Technology Base".

Page 14, line 23, insert ", including $35,000,000 for aircraft noise reduction technology" after "Technology Base".

Chairman SENSENBRENNER. The gentleman from New York is recognized for 5 minutes.

Mr. WEINER. Thank you, Mr. Chairman. I don't think I'll take the full 5 minutes. This amendment is intended to add additional funding for noise reduction research done at NASA. We have done an admirable job in this Committee—and I commend Chairman Rohrabacher and the Chairman of the Full Committee and others who have struck a balance between providing flexibility for NASA in funding the research and technology base and our efforts to try to put our imprint on specific items that we feel are important.

What my amendment would do is take a portion of the $475 million research and technology base, including some of the additional money that's added in under this budget, and allocate $10 million in Fiscal Year 2000, $10 million in Fiscal Year 2001, and $20 million in Fiscal Year 2002 to be allocated for research and technology and noise reduction research.

There are several elements that I think make this an important statement for this Committee to make at this time. First is the FAA Authorization Bill that's moving through this House is going to invariably, under any scenario, increase the amount of air traffic in the years to come. In fact, in some airports, it's going to increase it dramatically because there's proposals to lift the caps on the amount of traffic that can come in and out of those airports.

Secondly, there are negotiations going on presently, both in Europe and here domestically, on figuring out the next element in noise reduction of commercial aircraft, what's called stage four technology is being developed now. And this is a time that not only FAA, but NASA should be involved in helping with this technology.

And, third, there have been admirable efforts made to try to leverage private research. And I think that this would give NASA the ability to send a message to the private sector that we are not going to tell them to do a loan, but we are going to seek to help, as well. It should be noted that, you know, at NASA's request to OMB and the internal machinations that go on there, wanted additional funding for noise reduction. And I understand that there is a philosophical question about whether that should be done at NASA or whether it should be done at FAA.

I think in the jurisdiction of this Committee, we should make it clear, frankly, that the good works that have been done at NASA up until now, including those that have been spun off from the Ultra-Efficient Engine research should be continued and enhanced. We have to recognize—some of us who live in the shadow of airports—recognize the importance of commerce value that those airports bring. But we also have to recognize in this context that NASA's doing important work on making sure that those aircraft that come in and out of our communities do so in a way that is as quiet as possible.

This is a relatively small amount. It is a minute fraction of the overall research and technology base. It is a zero-sum amendment in that there isn't an additional allocation. All that I seek to do is to take $10 million and move it from this $475 million research and technology base and put it into the research for noise reduction.

I want to publicly thank Chairman Rohrabacher, who I called this morning to explain my amendment and by the time I was off the phone he had explained to me my amendment and has done an extraordinary amount and also to my other Chair, the gentlewoman, Congresswoman Morella, for her assistance as well. And I would ask my colleagues to support this amendment. This is something that we can do here in this Committee that may, frankly, make the skies and those of us on the ground a little bit quieter and, putting aside what we may do in the FAA authorization to come in terms of increasing air traffic, this is an opportunity for us to increase the research in noise reduction.

And I yield back my time.

Chairman SENSENBRENNER. The gentleman yields back his time. The Chair recognizes himself for 5 minutes.

The gentleman's amendment is well-intentioned but, unfortunately, is going to have some detrimental side effects. NASA intends to spend $25 million for aircraft noise reduction over the period of this authorization bill. The gentleman's amendment fences $35 million or $10 million more than NASA intends to spend. And it is not a total plus-up or increase in the NASA appropriation, which is good. What the downside is is that NASA has indicated that if the amendment is adopted, it will result in the termination of emissions work and research into rocket-based combined cycle technology.

I think that we've got to have a balanced program. The emissions research and the combined cycle technology research are important, although funded at a lesser scale. The gentleman's amendment will mean that we aren't going to have any of that for the next 3 years and I don't think that that is a wise idea. So I would hope that the Committee would vote down this amendment, even though it is well-intentioned, and yield back the balance of my time.

Mr. ROHRABACHER. Mr. Chairman.

Chairman SENSENBRENNER. The gentleman from California is recognized for 5 minutes.

Mr. ROHRABACHER. I also rise in opposition to the amendment and also commend the gentleman for being highly motivated. In Orange County, we are now in the middle of a major fight on whether or not El Toro Marine Base should become an airport and the biggest opposition to making it an airport is coming because people are afraid of noise. And they have every right to be concerned about that. People who live near airports have a right to be concerned about that.

And the gentleman is not offering a radical amendment. It is only a $10 million shift. Just to note, we just learned about this within the last 48 hours and perhaps we could have worked more closely with the gentleman had we known about this $10 million request earlier.

Also, $10 million, even though $10 million is a small sum, it just isn't left under the pillow by the tooth fairy. It has to come from somewhere. And it is, in this case, as the Chairman noted, it's coming from a pot of money that will either be spent—come out of one of three places. Number one, it would come out of the money that Mr. Larson is looking for or it will come out of the money that Mr.

Sensenbrenner just noted is coming out of emissions control research or the rocket-based combined cycle engine, which is something Mr. Goldin has as one of his highest priorities to help develop this, which is aimed at helping both the commercial aerospace industry in terms of both commercial jets but also spacecraft. So I reluctantly oppose the amendment.

Mr. WEINER. Would the gentleman yield on that point?

Mr. ROHRABACHER. I certainly will.

Mr. WEINER. I'm just—so we understand the magnitude of what we're talking about here. I'm talking about a $10 million move from a $475 million pot that I think that the Chairman has shown judgment that we want to leave NASA with some flexibility. But I think, on the other side, we then, I think, lose the ability to say in this room, surgically, what is going to happen as the result of such a tiny, incremental move.

I think that NASA is going to do what NASA is going to do when we allocate monies in this kind of a soft way. And so I think to ascribe a specific result from here, I believe that, you know, in the context of a $475,800,000 allocation, to find an additional $10 million—and I happen to believe—and the reason that the amendment was offered in this order—is that the research that's currently being done on the Ultra-Efficient Engine that you just had a colloquy about may wind up—you may wind up being able to take a portion of that and say, you know what—this is technology that we're developing that not only produces the Ultra-Efficient Engine, but it makes a quieter engine as well.

And so I think that it is not entirely correct for Mr. Goldin or for someone in this room to say, well, as a result of this, less than ½ of 1 percent cut, if I did the math right, we are going to see these dramatic changes in policy that the Chairman of the Full Committee and the Chairman of the Subcommittee referred to. I just don't believe we can say that.

Mr. ROHRABACHER. Reclaiming my time, what we're talking about—what we're basing this analysis on is what Dan Goldin and the Administration has given us as to their plans of how they plan to spend that money. And they're—we didn't just dream this answer up for you. I mean, they said this is where that $10 million would come from. And, although it's not specified in the bill, yes there is a $475 million, you know, spending package there, but that is something that NASA has already worked through and designated where they want that money to come from. So it's not—you know, I know it's hard to comprehend that we've got a full package we're giving NASA. They also already have plans for that. And that's where they tell us that would come from.

And I agree with you that perhaps if they don't spend all that money the way Mr. Larson would have them spend the money, perhaps they might be able to use that, but I think that Mr. Larson has already indicated—and I think we have—that it would be perhaps better to spend that money developing that Ultra-Efficient Engine as the people who are involved in that project deem that it's the most effective way of spending money in the development of that engine.

And I certainly would be willing to work with the gentleman and report language and trying to see that if there is money available

that it is directed that way and that we put that in the report language. And would be willing to work the Chairman on that as well.

Chairman SENSENBRENNER. The time of the gentleman has expired.

Ms. RIVERS. Mr. Chairman.

Chairman SENSENBRENNER. The gentlewoman from Michigan, Ms. Rivers.

Ms. RIVERS. I move to strike the last word.

Chairman SENSENBRENNER. The gentlewoman is recognized for 5 minutes.

Ms. RIVERS. Thank you, Mr. Chair. I want to associate with the remarks of Mr. Weiner and do indeed support his amendment. For those of us who live in an area with a major airport, the tension created by the economic gains the airport represents versus the quality of life problems for people who live in that area are terrible. And what we find ourselves doing is we find ourselves perpetually in a debate around economic expansion versus quality of life for people who are living on the ground. We are going to have to address this issue.

Typically, the FAA puts money in their budget. It is not enough. We are not moving fast enough. We know, as Mr. Weiner said, we know that there will be an increase in air traffic either by legislation or simply through increased economic growth. It has a tremendous impact on people on the ground. It can't be discounted. And what it tends to do is provide a barrier to economic growth. And so I think we should look very carefully at amendments like this one and others to address what is a very real problem for a significant number of districts across this country.

We have an airport noise caucus which has attracted a significant number of members because this is a continuing problem and a very real problem all over the country. And so I would hope that members would support this amendment.

Mr. ROHRABACHER. Would the gentlelady—would the gentlelady yield?

Ms. RIVERS. Yes, I would, Mr. Rohrabacher.

Ms. ROHRABACKER. Let me just say that if this money is available, as Mr. Weiner is suggesting, perhaps, when all is said and done, out of this pot of money, there may be some money available because some money that perhaps was supposed to be spent in some area didn't get spent. I would certainly support report language that would indicate that, if there is money left over in that pot, that it do—that it does go toward this noise reduction. We are only talking about a $10 million increase of $25 million that have already been expended.

Let me also note one other factor. The FAA should also be responsible for this. This is—we should also make sure that we're not draining money from research projects for what the FAA should also be putting in. So I would be happy to work with the gentleman to make sure that, if there is money left over in that pot, that it goes to meet the gentleman's needs.

Ms. RIVERS. Reclaiming my time.

Mr. ROHRABACHER. Certainly.

Ms. RIVERS. One of the problems, one of the tensions between the FAA budget and this particular proposal is that a significant por-

tion of the FAA goes for remediation that is done on the ground, things that are meant to address the problem as they exist. Resource—research is to address the problem as we expect it to grow. And I think we need to address both aspects of the problem.

Mr. WEINER. Would the gentlelady yield on that point.

Ms. RIVERS. I would yield. Yes.

Mr. WEINER. First, I want to commend the gentlelady for her work on the noise reduction caucus. One of the things that we have grown increasingly concerned about FAA's role in this is that FAA is a revenue agency. They are an agency that has increasingly viewed themselves that way. NASA, to their eternal credit, is a research agency. They are an agency that understands thinking not just this year, not just thinking about how we get United States Air Flight 17 to land, but also thinking about where we are going to be in 15 or 20 years.

So I think it is very important that both agencies have a role and that, frankly, some of us are very concerned and we're going to express that concern in the context of the FAA authorization, that the FAA is not doing nearly what they should be on this point. I thank the gentlelady for her yield.

Ms. Rivers. Thank you. I yield back.

Chairman SENSENBRENNER. The question is on agreeing to the amendment by the gentleman from New York, Mr. Weiner.

Those in favor will signify by saying aye.

Opposed, no.

The noes appear to have. The noes have it and the——

Mr. WEINER. Mr. Chairman.

Chairman SENSENBRENNER. Roll call is requested. Those in favor will vote aye. Those opposed will vote no and the clerk will call the roll.

The CLERK. Mr. Sensenbrenner.

Chairman SENSENBRENNER. No.

The CLERK. Mr. Sensenbrenner votes no. Mr. Boehlert.

[No response.]

The CLERK. Mr. Smith of Texas

[No response.]

The CLERK. Mrs. Morella.

Mrs. MORELLA. No.

The CLERK. Mrs. Morella votes no. Mr. Weldon of Pennsylvania.

[No response.]

The CLERK. Mr. Rohrabacher.

Mr. ROHRABACHER. No.

The CLERK. Mr. Rohrabacher votes no. Mr. Barton.

[No response.]

The CLERK. Mr. Calvert.

Mr. CALVERT. No.

The CLERK. Mr. Calvert votes no. Mr. Smith.

Mr. SMITH of Michigan. No.

The CLERK. Mr. Smith votes no. Mr. Bartlett.

[No response.]

The CLERK. Mr. Ehlers.

Mr. EHLERS. No.

The CLERK. Mr. Ehlers votes no. Mr. Weldon of Florida.

Mr. WELDON of Florida. No.

The CLERK. Mr. Weldon votes no. Mr. Gutknecht.
Mr. GUTKNECHT. No.
The CLERK. Mr. Gutknecht votes no. Mr. Ewing.
[No response.]
The CLERK. Mr. Cannon.
Mr. CANNON. No.
The CLERK. Mr. Cannon votes no. Mr. Brady.
[No response.]
The CLERK. Mr. Cook.
[No response.]
The CLERK. Mr. Nethercutt.
[No response.]
The CLERK. Mr. Lucas.
Mr. LUCAS. No.
The CLERK. Mr. Lucas votes no. Mr. Green.
[No response.]
The CLERK. Mr. Kuykendall.
[No response.]
The CLERK. Mr. Miller.
Mr. MILLER. No.
The CLERK. Mr. Miller votes no. Mrs. Biggert.
Mrs. BIGGERT. No.
The CLERK. Mrs. Biggert votes no. Mr. Sanford.
Mr. SANFORD. No.
The CLERK. Mr. Sanford votes no. Mr. Metcalf.
Mr. METCALF. No.
The CLERK. Mr. Metcalf votes no. Mr. Brown.
[No response.]
The CLERK. Mr. Hall.
[No response.]
The CLERK. Mr. Gordon.
Mr. GORDON. Yes.
The CLERK. Mr. Gordon votes yes. Mr. Costello.
Mr. COSTELLO. Yes.
The CLERK. Mr. Costello votes yes. Mr. Barcia.
Mr. BARCIA. Yes.
The CLERK. Mr. Barcia votes yes. Ms. Johnson.
Ms. EDDIE BERNICE JOHNSON of Texas. Yes.
The CLERK. Ms. Johnson votes yes. Ms. Woolsey.
Ms. WOOLSEY. Yes.
The CLERK. Ms. Woolsey votes yes. Mr. Hastings.
[No response.]
The CLERK. Ms. Rivers.
Mr. RIVERS. Yes.
The CLERK. Ms. Rivers votes yes. Ms. Lofgren.
[No response.]
The CLERK. Mr. Doyle.
Mr. DOYLE. Yes.
The CLERK. Mr. Doyle votes yes. Ms. Jackson Lee.
[No response.]
The CLERK. Ms. Stabenow.
Ms. STABENOW. Yes.
The CLERK. Ms. Stabenow votes yes. Mr. Etheridge.
Mr. ETHERIDGE. Yes.

The CLERK. Mr. Etheridge votes yes. Mr. Lampson.
Mr. LAMPSON. Yes.
The CLERK. Mr. Lampson votes yes. Mr. Larson.
[No response.]
The CLERK. Mr. Udall.
Mr. UDALL. Yes.
The CLERK. Mr. Udall votes yes. Mr. Wu.
Mr. WU. Yes.
The CLERK. Mr. Wu votes yes. Mr. Weiner.
[No response.]
The CLERK. Mr. Capuano.
Mr. CAPUANO. Yes.
The CLERK. Mr. Capuano votes yes.
Chairman SENSENBRENNER. Are there members in the chamber who desire to vote or change their votes?
Mr. COOK. Madam Clerk, how am I recorded?
Chairman SENSENBRENNER. The gentleman from Utah.
The CLERK. Mr. Green is not recorded.
Chairman SENSENBRENNER. This is Mr. Cook.
The CLERK. I'm sorry. Mr. Cook.
Mr. COOK. I vote no.
The CLERK. Mr. Cook votes no.
Chairman SENSENBRENNER. The gentleman from Wisconsin.
Mr. GREEN. How am I recorded as voting?
The CLERK. You are not recorded, sir.
Mr. GREEN. No.
Chairman SENSENBRENNER. The gentleman from Texas, Mr. Smith.
Mr. SMITH of Texas. I vote no.
Chairman SENSENBRENNER. The gentlewoman from Texas, Ms. Jackson Lee.
Ms. JACKSON LEE. I vote aye.
Chairman SENSENBRENNER. The gentlewoman from California, Ms. Lofgren.
Ms. LOFGREN. Aye.
Mr. WEINER. Mr. Chairman, how am I recorded?
Chairman SENSENBRENNER. The gentleman from New York, Mr. Weiner.
The CLERK. Mr. Weiner, you're not recorded.
Mr. WEINER. I'm aye, please.
Chairman SENSENBRENNER. Any members in the chamber who desire to vote or to change their votes? If not, the clerk will report.
How is Mr. Hall recorded?
Mr. HALL. I vote aye.
Chairman SENSENBRENNER. The gentleman from Texas, Mr. Hall, votes aye.
Clerk will report.
The CLERK. Mr. Chairman, there are 17 no and 17 yes.
Chairman SENSENBRENNER. And the amendment is not agreed to.

amendment #16
offered by
Mr. Weiner

COMMITTEE ON SCIENCE - ROLL CALL - 106th CONGRESS
DATE: 5/13-99 SUBJECT: HR1654 (NASA)

Rm.	Phone	Member	Yes	No	Not Voting	Present	Absent
2332	55101	Mr. Sensenbrenner, R-WI		1			
2246	53665	Mr. Boehlert, R-NY		-			
2231	54236	Mr. Lamar Smith, R-TX		17			
2228	55341	Mrs. Morella, R-MD		2			
2452	52011	Mr. Curt Weldon, R-PA		-			
2338	52415	Mr. Rohrabacher, R-CA		3			
2264	52002	Mr. Barton, R-TX		-			
2201	51986	Mr. Calvert, R-CA		4			
306	56276	Mr. Nick Smith, R-MI		5			
2412	52721	Mr. Bartlett, R-MD		-			
1714	53831	Mr. Ehlers, R-MI		6			
332	53671	Mr. Dave Weldon, R-FL		7			
425	52472	Mr. Gutknecht, R-MN		8			
2417	52371	Mr. Ewing, R-IL		-			
118	57751	Mr. Cannon, R-UT		9			
1531	54901	Mr. Brady, R-TX		-			
1431	53011	Mr. Cook, R-UT		15			
1527	52006	Mr. Nethercutt, R-WA		-			
438	55565	Mr. Lucas, R-OK		10			
1218	55665	Mr. Green, R-WI		16			
512	58220	Mr. Kuykendall, R-CA		-			
1037	53201	Mr. Miller, R-CA		11			
508	53515	Mrs. Biggert, R-IL		12			
1233	53176	Mr. Sanford, R-SC		13			
1510	52605	Mr. Metcalf, R-WA		14			
2300	***56161***	***Mr. Brown, D-CA***		-			✓
2221	***56673***	***Mr. Hall, D-TX***	17				
2368	***54231***	***Mr. Gordon, D-TN***	1				
2454	***55661***	***Mr. Costello, D-IL***	2				
2419	***58171***	***Mr. Barcia, D-MI***	3				
1511	***58885***	***Ms. Johnson, D-TX.***	4				
439	***55161***	***Ms. Woolsey, D-CA***	5				
2235	***51313***	***Mr. Hastings, D-FL***		-			
1724	***56261***	***Ms. Rivers, D-MI***	6				
318	***53072***	***Ms. Lofgren, D-CA***	15				
133	***52135***	***Mr. Doyle, D-PA***	7				
410	***53816***	***Ms. Jackson-Lee, D-TX***	14				
1039	***54872***	***Ms. Stabenow, D-MI***	8				
1641	***54531***	***Mr. Etheridge, D-NC***	9				
417	***56565***	***Mr. Lampson, D-TX***	10				
1419	***52265***	***Mr. Larson, D-CT***		-			
128	***52161***	***Mr. Udall, D-CO***	11				
510	***50855***	***Mr. Wu, D-OR***	12				
501	***56616***	***Mr. Weiner, D-NY***	16				
1232	***55111***	***Mr. Capuano, D-MA***	13				
		TOTAL	17	17			

Attest: Patricia Schwartz (Clerk) 5-13-99

Chairman SENSENBRENNER. We—the next amendment is number 17.

For what purpose the gentleman from Tennessee, Mr. Gordon, seek recognition?

Mr. GORDON. Strike the last word.

Chairman SENSENBRENNER. The gentleman is recognized for 5 minutes.

Mr. GORDON. Mr. Chairman, Mr. Brown was going to propose an amendment today to eliminate section 126. As you know, he couldn't be here. For that reason, I will briefly sum up his position and that is that he is opposed to section 126 and I understand that NASA also is opposed and I would ask that his remarks be made a part of the record.

Chairman SENSENBRENNER. Without objection, so ordered.

[The statement of Mr. Brown follows:]

PREPARED STATEMENT OF HON. GEORGE E. BROWN, JR.

It was my intention to offer an amendment to strike Section 126 of HR 1654. It is not because I am opposed to the concept of commercial data purchases—far from it.

As the principal author of the 1992 Land Remote Sensing Policy Act, I think that it is clear that I support the development of a healthy and vibrant commercial remote sensing industry. In spite of some of the failures suffered by the remote sensing industry over the last year or so, I believe that its long-term prospects are good. However, I strongly believe that Section 126 of the NASA bill is ill-conceived and ultimately unworkable. I am afraid that it will result in needless disruption of NASA's Earth Science research program, while doing little to actually promote the commercial remote sensing industry. Furthermore, I believe that the approach taken in Section 126 will have the effect of forcing geographical and/or corporate "earmarks" on NASA. It is bad policy to force NASA to buy data just to buy data. Thus I oppose Section 126 and I understand that NASA does too.

I hope that by the time this bill becomes law, we will have corrected this situation.

Chairman SENSENBRENNER. The last amendment is number 19 by the gentleman from Texas, Mr. Lampson.

[The information follows:]

AMENDMENT TO H.R. 1654 OFFERED BY MR. LAMPSON

Page 25, lines 15 through 26, amend section 128 to read as follows:

SEC. 128. TRANS-HAB.

(a) LIMITATION.—No funds authorized by this Act shall be obligated for the design or development of an inflatable structure—

(1) to replace any International Space Station components scheduled for launch in the Assembly Sequence released by the National Aeronautics and Space Administration on February 22, 1999; or

(2) that would otherwise be capable of accommodating humans in space,

until the conditions specified in subsection (b) have been met.

(b) CONDITIONS.—Before funds are obligated as described in subsection (a), the Administrator shall provide to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report that, at a minimum includes—

(1) an independently validated cost and schedule estimate for the proposed design or development program;

(2) the procurement approach to be used; and

(3) a funding plan with funding increments tied to the achievement of clearly defined programmatic milestones.

Chairman SENSENBRENNER. For what purpose does the gentleman from Texas seek recognition?

Mr. LAMPSON. To strike the last word, Mr. Chairman.

Chairman SENSENBRENNER. The gentleman is recognized for 5 minutes.

Mr. LAMPSON. Thank you, Mr. Chairman. I was planning on offering an amendment to the National Authorization Act of 1999 to modify section 128 of the Act, but instead I will not do so at this time. The language, as drafted in section 128 will essentially eliminate any potential funding or even consideration for the definition, design, or development of Trans-Hab, a proposed replaced for the International Space Station's habitation module or other promising concepts for the use of new inflatable structure technology to provide a much larger living and working volume. H.R. 1654's proposed language would preclude any work on this very promising set of technologies and would be highly undesirable.

The amendment that I was planning to introduce would not have obligated funds for the design or development of any inflatable structures that would replace station components scheduled for launch until the NASA Administrator provided to the House Committee on Science and the Senate Committee on Commerce, Science, and Transportation a report that, at a minimum, includes an independently validated cost and schedule estimate for the proposed design or development program, the procurement approach to be used, and a funding plan with funding increments tied to the achievement of clearly defined programmatic milestones.

NASA is currently reviewing the technical issues surrounding the Trans-Hab structure, which appear to offer potentially significant crew safety advantages over the currently baselined habitation module. The Trans-hab approach has a number of highly desirable qualities and technologies that make it an attractive candidate for International Space Station consideration and also for potential commercial applications.

And the one thing that I consider—or that I continue to hear from astronauts in my district is that they need more space in space. But the way that this bill's language is written doesn't even give them the opportunity to consider development. But to tie the hands of NASA scientists just to keep them from finding better ways of doing. Now this Committee has held NASA to a high standard and to prove time and time again that they are doing the most for the least, I don't see this action as either cost-effective or scientifically sound.

And I've been informed that NASA's approach would be to pursue this concept only if the difference in cost between the Hab and the Trans-Hab can be mitigated by commercial participation. And I truly believe that NASA needs the flexibility to contribute some modest amount of technology maturation funding, if required, to develop a commercial partnership. Several companies have responded to a Trans-Hab concept solicitation, which imply a high level of interest.

But I strongly believe that this Committee should provide NASA with the capability of continuing research to develop and design a structure that could offer significant crew safety advantages over the currently baselined habitation module. Without the benefit of a Subcommittee markup, members of this committee have not had the opportunity to air this issue and, instead, any discussion of developing Trans-Hab has been prohibited.

You know, Mr. Chairman, just a few minutes you made a comment when discussing Triana. You made a statement that we should not close our minds and remove this Committee's involvement from review of programs like Triana. It can be applied to this just as well.

And, that being said, while I am encouraged by some talk, even from my colleagues on the other side of the aisle, that we should request a hearing or perhaps other consideration on Trans-Hab and allowing NASA the opportunity to present its case, in the meantime, I will be withholding my support for this bill. While I support many of the provisions of this bill and it's otherwise a basically good bill—obviously I support Space Shuttle upgrades and space stationing and microgravity science, I am very discouraged that NASA did not have the opportunity to present its case before this Committee or the Space Subcommittee prior to markup. And I'd hope that we'd work in the next few days, Mr. Chairman, to find the language to keep the opportunity for consideration of this and other projects open.

Mr. Chairman, I yield back the balance of my time.

Chairman SENSENBRENNER. That concludes the number of amendments that have been noticed on the roster. Are there any further amendments?

Mr. UDALL. Mr. Chairman,. I move to strike the last word.

Chairman SENSENBRENNER. The gentleman from Colorado is recognized for 5 minutes.

Mr. UDALL. Thank you, Mr. Chairman. I'll be very brief. I just wanted to make a follow-up comment on Mr. Weiner's amendment. In Colorado, we have a significant aircraft noise problem with our new airport, Denver international. And the stage four engine development I think is very, very important to us. And I would suggest that the more we can do to work here and give NASA the tools to invest up front in the technology that would help us solve this problem, the more I think we ought to get behind it. Right now in Colorado and I think all over the country, the gentlewoman from Michigan talked about this, we're spending money on lawsuits and delays and a lack of investment. And I think those costs are ones that we don't really want to incur. so I would urge——

Mr. ROHRABACHER. Would the gentleman yield?

Mr. UDALL. I would yield.

Mr. ROHRABACHER. This Subcommittee Chairman still stands ready to work with Mr. Weiner and work on this language. If he's willing to work with us, we'll work with him. This did come up late and it was, you know, it was a late-minute type of thing and we'll work with him on report language and such and if NASA doesn't have to sacrifice some other things that I'm sure even Mr. Weiner supports—some of these other things like emissions research, et cetera—we'll work with him to try to see that this plus-up that he's interested in gets through in report language.

Mr. UDALL. Reclaiming my time. Mr. Rohrabacher, I really appreciate your willingness to work on this important issue. And, if I didn't men it, we have this sixth runway that we can't build right now because of the problems around aircraft noise in Colorado. And I'm sure you've probably been delayed in Denver trying to get home

to California, so this would help you get back and forth more expeditiously.

Ms. JOHNSON. Would the gentleman yield?

Mr. UDALL. Yes, I would yield.

Ms. JOHNSON. Mr. Chairman, what I don't want to see is money transferred—as I heard mentioned the possibility would be earlier—from emissions research. Of curse, Dallas has the best airport in this country and maybe in the world. And we support noise control. But we also have one of the most successful rail systems in the area and we have more cars than anybody, I believe, in the nation. And we've got to care for our environment or we're going to lose all of our highway funds. So I just don't want to see us go into the emissions research fund to put more into the noise abatement funds and it leaves us in somewhat of a lurch, in a sense, if we have to start drawing one fund against another. But I want you to know that, while I can agree with that need, I don't want it to come from the emissions fund.

Mr. WEINER. Would the gentlelady yield on that point?

Ms. JOHNSON. Is it Mr. Udall's time?

Mr. UDALL. I would yield.

Mr. WEINER. Well, I just want to iterate that I support Ms. Johnson's position entirely and the idea this is a zero-sum game, but that sum is $485 million of which we're saying let's have, as we say, in Brooklyn a little "pisha" amount to try to add to this important program. And I want to—I want to thank again the Chairman of the Subcommittee for his willingness to work on this, but by no means should my amendment or a vote in favor of my amendment be interpreted as wanting to reduce the valuable program that you alluded to.

Chairman SENSENBRENNER. Are there further amendments to the bill?

Mr. GORDON. Mr. Chairman.

Chairman SENSENBRENNER. That's right. Go ahead.

Mr. GORDON. I move to strike the last word.

Chairman SENSENBRENNER. The gentleman is recognized for 5 minutes.

Mr. GORDON. Thank you, Mr. Chairman.

Chairman SENSENBRENNER. I hoped that we would have been confining debate to amendments that were offered, rather than keeping on going on and on and on at the end of the bill, but go ahead. You are recognized for 5 minutes. [Laughter.]

Mr. GORDON. Mr. Chairman, let me just briefly concur with Mr. Udall and Mr. Weiner. I think that they have a good proposal and with the caveats that Ms. Johnson put forth I am sure that we're going to see good faith as we have in the past from Mr. Rohrabacher and that we'll work through to a resolution of that.

I would also like to see that good faith extended to Mr. Lampson, in that Mr. Rohrabacher and I both went to Houston some time back to see this particular Trans-Hab project. I don't want to speak for him, but I think we were both impressed. But I would also say it is late in the season and that just to be better is not good enough. I think it has to be significantly better. There's a high bar that needs to be put forth. But I do think that it is worth reviewing. And just as our Chairman pointed out we should not close our

minds on Triana, certainly we won't close our minds on this situation. Thank you, Mr. Chairman.

Mr. CAPUANO. Mr. Chairman. No, no. I'm done with that one. [Laughter.]

Chairman SENSENBRENNER. Okay. Are there further amendments to the bill. I'm trying to get to the gentleman from Massachusetts if the chatter will—hearing none, it is now time to go to report language. And the very patient gentleman from Massachusetts is recognized.

Mr. CAPUANO. Thank you, Mr. Chairman. I'm going to keep it very brief. Photonics research is important and it should be continued. Thank you, Mr. Chairman. [Laughter.]

[Applause.]

Chairman SENSENBRENNER. Does the gentleman offer the report language contained in the packet.

Mr. CAPUANO. Yes, Mr. Chairman.

Chairman SENSENBRENNER. Okay, the gentleman—without objection, the report language is considered as read and, without objection, it is agreed to. Hearing none, so ordered.

[The information follows:]

REPORT LANGUAGE TO H.R. 1654 OFFERED BY HON. MICHAEL E. CAPUANO

Relevant Account: Science, Aeronautics, and Technology Photonics Research.—The Committee understands the critical role photonic research plays in NASA's efforts to develop the Next Generation Space Telescope, the Origins program, and the Space Communications program. The Committee notes that NASA has worked with academic institutions and corporate entities to foster cutting-edge research and development of photonic-related ideas and technologies. Therefore, the Committee encourages NASA to continue these partnerships and seek additional partnerships that merge competitively awarded academic research and corporate development in a way that strengthens and accelerates the photonics product development process to directly contribute to NASA's defined four strategic enterprises.

Chairman SENSENBRENNER. Are there further suggestions for report language?

Mr. ROHRABACHER. No, this is not report language.

Chairman SENSENBRENNER. If there are no further suggestions for report language, the Chair recognizes the gentleman from California for a motion to report the bill.

Mr. ROHRABACHER. And, Mr. Chairman, I do so and I also send our best wishes to Ranking Member Brown and we are very pleased that his health is improving and we look forward to him. He's a man I deeply admire as everyone here knows.

Mr. Chairman, I move that the Committee report the bill, H.R. 1654 as amended. Therefore, I move to instruct the staff to prepare the legislative report to make technical and conforming amendments and that the Chairman take all necessary steps to bring the bill before the House for consideration.

Chairman SENSENBRENNER. And the Chair notes the presence of a reporting quorum. The question is on the motion to report the bill favorably.

Those in favor of the motion will signify by saying aye.

Opposed, no.

The ayes appear to have it. The ayes have it and the bill is favorably reported.

All members will have two subsequent calendar days in which to submit supplemental minority or——

Mr. GORDON. Roll call vote, Mr. Chairman.

Chairman SENSENBRENNER. Okay. The question is on reporting the bill favorably. A roll call is ordered. Those in favor of reporting the bill favorably will signify by saying aye. Those opposed no. And the clerk will call the roll.

The CLERK. Mr. Sensenbrenner.

Chairman SENSENBRENNER. Aye.

The CLERK. Mr. Sensenbrenner votes yes. Mr. Boehlert.

[No response.]

The CLERK. Mr. Smith of Texas.

Mr. SMITH of Texas. Aye.

The CLERK. Mr. Smith votes yes. Mrs. Morella.

Mrs. MORELLA. Aye.

The CLERK. Mrs. Morella votes yes. Mr. Weldon of Pennsylvania.

[No response.]

The CLERK. Mr. Rohrabacher.

Mr. ROHRABACHER. Aye.

The CLERK. Mr. Rohrabacher votes yes. Mr. Barton.

[No response.]

The CLERK. Mr. Calvert.

Mr. CALVERT. Aye.

The CLERK. Mr. Calvert votes aye. Mr. Smith.

Mr. SMITH of Michigan. Aye

The CLERK. Mr. Smith votes aye. Mr. Bartlett.

Mr. BARLETT. Aye.

The CLERK. Mr. Bartlett votes aye. Mr. Ehlers.

Mr. EHLERS. Aye.

The CLERK. Mr. Ehlers votes aye. Mr. Weldon of Florida.

Mr. WELDON of Florida. Aye.

The CLERK. Mr. Weldon votes aye. Mr. Gutknecht.

Mr. GUTKNECHT. Aye.

The CLERK. Mr. Gutknecht votes yes. Mr. Ewing.

Mr. EWING. Aye.

The CLERK. Mr. Ewing votes yes. Mr. Cannon.

Mr. CANNON. Aye.

The CLERK. Mr. Cannon votes yes. Mr. Brady.

Mr. BRADY. Aye.

The CLERK. Mr. Brady votes yes. Mr. Cook.

Mr. COOK. Aye.

The CLERK. Mr. Cook votes yes. Mr. Nethercutt.

Mr. NETHERCUTT. Aye.

The CLERK. Mr. Nethercutt votes yes. Mr. Lucas.

Mr. LUCAS. Aye.

The CLERK. Mr. Lucas votes yes. Mr. Green.

Mr. GREEN. Aye.

The CLERK. Mr. Green votes yes. Mr. Kuykendall.

Mr. KUYKENDALL. Aye.

The CLERK. Mr. Kuykendall votes yes. Mr. Miller.

Mr. MILLER. Aye.

The CLERK. Mr. Miller votes yes. Mrs. Biggert.

Mrs. BIGGERT. Aye.

The CLERK. Mrs. Biggert votes yes. Mr. Sanford.

[No response.]

The CLERK. Mr. Metcalf.

Mr. METCALF. Yes.
The CLERK. Mr. Metcalf votes yes. Mr. Brown.
[No response.]
The CLERK. Mr. Hall.
[No response.]
The CLERK. Mr. Gordon.
Mr. GORDON. No.
The CLERK. Mr. Gordon votes no. Mr. Costello.
Mr. COSTELLO. No.
The CLERK. Mr. Costello votes no. Mr. Barcia.
Mr. BARCIA. No.
The CLERK. Mr. Barcia votes no. Ms. Johnson.
Ms. EDDIE BERNICE JOHNSON of Texas. No.
The CLERK. Ms. Johnson votes no. Ms. Woolsey.
Ms. WOOLSEY. No.
The CLERK. Ms. Woolsey votes no. Mr. Hastings.
[No response.]
The CLERK. Ms. Rivers.
Ms. RIVERS. No.
The CLERK. Ms. Rivers votes no. Ms. Lofgren.
[No response.]
The CLERK. Ms. Doyle.
Mr. DOYLE. Yes.
The CLERK. Mr. Doyle votes yes. Ms. Jackson Lee.
[No response.]
The CLERK. Ms. Stabenow.
Ms. STABENOW. No.
The CLERK. Ms. Stabenow votes no. Mr. Etheridge.
Mr. ETHERIDGE. No.
The CLERK. Mr. Etheridge votes no. Mr. Lampson.
Mr. LAMPSON. No.
The CLERK. Mr. Lampson votes no. Mr. Larson.
[No response.]
The CLERK. Mr. Udall.
Mr. UDALL. No.
The CLERK. Mr. Udall votes no. Mr. Wu.
[No response.]
The CLERK. Mr. Weiner.
Mr. WEINER. No.
The CLERK. Mr. Weiner votes no. Mr. Capuano.
Mr. CAPUANO. Yes.
The CLERK. Mr. Capuano votes yes.

Chairman SENSENBRENNER. Are there additional members in the chamber who would like to cast their votes or change their votes. The gentleman from New York, Mr. Boehlert.

The CLERK. Mr. Boehlert votes yes.

Chairman SENSENBRENNER. The gentleman from Texas, Mr. Hall.

Mr. HALL. I vote aye.

The CLERK. Mr. Hall votes yes.

Chairman SENSENBRENNER. The gentlewoman from Texas, Ms. Jackson Lee.

Ms. JACKSON LEE. Aye.

The CLERK. Ms. Jackson Lee votes yes.

Chairman SENSENBRENNER. Any additional members in the chamber? The gentlewoman from California, Ms. Lofgren.

Ms. LOFGREN. No.

The CLERK. Ms. Lofgren votes yes.

Chairman SENSENBRENNER. The gentleman from Connecticut, Mr. Larson.

Mr. LARSON. Aye.

The CLERK. Mr. Larson votes yes.

Chairman SENSENBRENNER. Anybody else wish to cast their vote or change their vote?

Mr. SANFORD. I vote no.

Chairman SENSENBRENNER. The gentleman from South Carolina, Mr. Sanford, votes no.

The CLERK. Mr. Sanford votes no.

Chairman SENSENBRENNER. The clerk will report.

The CLERK. Mr. Chairman, yes, 27; no, 13.

COMMITTEE ON SCIENCE - ROLL CALL - 106th CONGRESS
DATE: 5-13-99 SUBJECT: HR 1654 (NASA) REPORT THE BILL

Rm.	Phone	Member	Yes	No	Not Voting	Present	Absent
2332	55101	Mr. Sensenbrenner, R-WI	1				
2246	53665	Mr. Boehlert, R-NY	24				
2231	54236	Mr. Lamar Smith, R-TX	2				
2228	55341	Mrs. Morella, R-MD	3				
2452	52011	Mr. Curt Weldon, R-PA					
2338	52415	Mr. Rohrabacher, R-CA	4				
2264	52002	Mr. Barton, R-TX					
2201	51986	Mr. Calvert, R-CA	5				
306	56276	Mr. Nick Smith, R-MI	6				
2412	52721	Mr. Bartlett, R-MD	7				
1714	53831	Mr. Ehlers, R-MI	8				
332	53671	Mr. Dave Weldon, R-FL	9				
425	52472	Mr. Gutknecht, R-MN	10				
2417	52371	Mr. Ewing, R-IL	11				
118	57751	Mr. Cannon, R-UT	12				
1531	54901	Mr. Brady, R-TX	13				
1431	53011	Mr. Cook, R-UT	14				
1527	52006	Mr. Nethercutt, R-WA	15				
438	55565	Mr. Lucas, R-OK	16				
1218	55665	Mr. Green, R-WI	17				
512	58220	Mr. Kuykendall, R-CA	18				
1037	53201	Mr. Miller, R-CA	19				
508	53515	Mrs. Biggert, R-IL	20				
1233	53176	Mr. Sanford, R-SC		13			
1510	52605	Mr. Metcalf, R-WA	21				
2300	***56161***	***Mr. Brown, D-CA***		–			✓
2221	***56673***	***Mr. Hall, D-TX***	25				
2368	***54231***	***Mr. Gordon, D-TN***		1			
2454	***55661***	***Mr. Costello, D-IL***		2			
2419	***58171***	***Mr. Barcia, D-MI***		3			
1511	***58885***	***Ms. Johnson, D-TX***		4			
439	***55161***	***Ms. Woolsey, D-CA***		5			
2235	***51313***	***Mr. Hastings, D-FL***		–			
1724	***56261***	***Ms. Rivers, D-MI***		6			
318	***53072***	***Ms. Lofgren, D-CA***		12			
133	***52135***	***Mr. Doyle, D-PA***	22				
410	***53816***	***Ms. Jackson-Lee, D-TX***	26				
1039	***54872***	***Ms. Stabenow, D-MI***		7			
1641	***54531***	***Mr. Etheridge, D-NC***		8			
417	***56565***	***Mr. Lampson, D-TX***		9			
1419	***52265***	***Mr. Larson, D-CT***	27	–			
128	***52161***	***Mr. Udall, D-CO***		10			
510	***50855***	***Mr. Wu, D-OR***		–			
501	***56616***	***Mr. Weiner, D-NY***		11			
1232	***55111***	***Mr. Capuano, D-MA***	23				
		TOTAL	27	13			

Attest: Patricia Schwartz (Clerk) 5-13-99

Chairman SENSENBRENNER. And the motion to favorably report is agreed to. All members will have two subsequent calendar days in which to submit supplemental minority or additional view on the measure. Without objection, bill will be reported——

Mr. GORDON. Mr. Chairman, I wish to give notice that the minority will file minority views.

Chairman SENSENBRENNER. You don't have to do that. You know, that's a matter of right. Can I get through the housekeeping and I'll recognize you.

Without objection, the bill will be reported in the form of a single amendment in the nature of a substitute reflecting amendments adopted here today. Without objection, the staff will be instructed to make technical and conforming changes to the bill and, without objection, pursuant to clause 1 of rule 22 of the rules of the House, the Committee authorizes the Chairman to offer such motions as may be necessary in the House to go to conference with the Senate on the bill. Without objection, all of those unanimous consents are agreed to and the gentleman from Texas is recognized to strike the last word.

Mr. HALL. I thank you and I thank you for your patience today and for your guidance of this Committee. It is my hope that we're able to work out some of the difficulties that we've—have held us up and have caused us to delve into the political realm today. I hope that we can work out the situation that the gentleman from Tennessee has worked on. And I'd like to yield to Ms. Jackson Lee a minute of my time.

Ms. JACKSON LEE. I thank the gentleman very much. Let me quickly say that, Mr. Chairman, I thank you for your leadership. I thank Mr. Hall. But I think today we sort of pierced the heart of bipartisanship. I hope we can work out the gentleman from Tennessee's issue and I hope that we don't close down a 40 person job effort with great research on the Trans-Hab of Mr. Lampson's point. I hope we can give NASA the hearing and have it rehabilitated because I think we would not want to leave this room with that hanging in abeyance and I hope that we'll have the opportunity to conference on the Floor of the House to reconstruct ourselves on both of those issues. I yield back and I thank the gentleman.

Chairman SENSENBRENNER. Before recessing the Committee, the Chair would like to make this statement relative to scheduling. We've had a full day's work today and it is my intention not to come back after lunch. If the House has votes tomorrow, I would like to reconvene the Committee at 9:30 tomorrow morning. Whether or not the House has votes I think depends upon whether the supplemental will be ready for a vote. And if the supplemental is not ready for a vote, the House, obviously, will not be having votes tomorrow and we will not be meeting at 9:30 and we will have to find a mutually agreeable time next week in which to continue to mark up on the other bills that have been noticed.

We will consult with the minority to see what is a mutually agreeable time prior to setting it, but, in order to maintain flexibility because we don't know what's going on across the street in the Capitol, it will be the Chair's intention to recess now, subject to the call of the Chair. But the Chair is going to consult with the

minority and everybody's going to get ample notice. So, you know, lest there be any suspicion that the Chair is about ready to pull a fast one, that's not going to happen.

So, without objection, the Committee is recessed, subject to the call of the Chair.

[Whereupon, at 12:06 p.m., the Committee recessed subject to the call of the Chair.]

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