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107TH CONGRESS
2D SESSION

H. R. 4742

To restore a vision for the United States human space flight program by instituting a series of incremental goals that will facilitate the scientific exploration of the solar system and aid in the search for life elsewhere in the universe, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MAY 15, 2002

Mr. LAMPSON (for himself, Mr. GREEN of Texas, Mr. BENTSEN, Mr. CARSON of Oklahoma, Mr. HALL of Texas, Ms. JACKSON-LEE of Texas, Mr. FROST, and Mr. SMITH of Texas) introduced the following bill; which was referred to the Committee on Science

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A BILL

To restore a vision for the United States human space flight program by instituting a series of incremental goals that will facilitate the scientific exploration of the solar system and aid in the search for life elsewhere in the universe, and for other purposes.

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

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Space Exploration Act of 2002''.

SEC. 2. FINDINGS.

The Congress finds the following:

(1) It is in the national interest of the United States to have a vigorous, outward-looking program of space exploration, encompassing both robotic spacecraft missions and human space flight.

(2) The United States has achieved major accomplishments in its human space flight program over the last 4 decades, including the first crewed lunar landing, the first reusable crewed Space Shuttle, and the first truly international Space Station.

(3) There currently is no commitment to the accomplishment of any challenging goals in human space flight after the completion of the International Space Station.

(4) While a significant amount of scientific research can and should be accomplished by robotic means, a comprehensive plan of scientific exploration of the solar system and search for life beyond Earth will require both robotic spacecraft missions and human space flight to achieve its goals.

(5) Properly coordinated, the Nation's human space flight program does not compete with robotic exploration but instead complements it and provides additional capabilities for scientific research.

(6) The successful repair and servicing of the Hubble Space Telescope demonstrates the potential for the productive participation of the human space flight program in advancing the goals of scientific exploration.

(7) There have been numerous commissions and study panels over the last 30 years that have articulated goals for the future of human space flight, and additional studies to establish goals are not needed at this time.

(8) While there are significant technical and programmatic hurdles to be overcome in carrying out human space flight activities beyond low Earth orbit, the main hurdle to be overcome is the lack of a national commitment to such activities.

(9) In the absence of a commitment to specific and challenging human space flight goals, programs to develop generic technological capabilities for human space flight are likely to be unfocused, inefficient, and short-lived.

(10) It is in the national interest of the United States to commit to a challenging set of incremental goals for the Nation's human space flight program in order to facilitate the scientific exploration of the solar system and aid in the search for life beyond

Earth and to commit to the attainment of those goals.

(11) While the ultimate goal of human space flight in the inner solar system is the exploration of the planet Mars, there are other important goals for exploration of the inner solar system that will advance our scientific understanding and allow the United States to develop and demonstrate capabilities that will be needed for the scientific exploration and eventual settlement of Mars.

(12) A bold and sustained human space flight initiative of scientific exploration should contain progressively more challenging objectives, including missions to the Earth-Sun libration points, Earth-orbit crossing asteroids, the lunar surface, the satellites of Mars, and the surface of Mars.

(13) A human space flight initiative with incremental goals and milestones will allow a continuing series of accomplishments to be achieved throughout the duration of the initiative, permit the ''lessons learned'' and capabilities acquired from previous implementation steps to be incorporated into subsequent phases of the initiative, and allow adjustments to be made to the implementation of the initiative as new opportunities or challenges arise.

(14) The National Aeronautics and Space Administration should develop a roadmap and implementation plan for a progressive program of human space flight beyond low Earth orbit in support of the scientific exploration of the solar system and the search for life beyond Earth.

(15) Existing and planned investments in the Space Shuttle, International Space Station, and the Space Launch Initiative should be leveraged to help advance the goals of the human space flight initiative while avoiding duplication of effort.

(16) The President should ensure that sufficient resources are provided to the National Aeronautics and Space Administration and that appropriate financial management controls are in place to ensure that the implementation plan can be carried out in a timely and cost-effective manner.

(17) The United States captured the imagination of the peoples of the world and inspired a generation of young people to enter careers in science and engineering when it successfully landed humans on the surface of the Moon in the years 1969 through 1972.

(18) A bold and sustained human space exploration initiative has the potential to inspire a new

generation of young people in the same way as the Apollo program did.

(19) Properly constructed, a bold and sustained human space exploration initiative has the potential to engage the international community in peaceful cooperation in space.

(20) Completion of the International Space Station with a full crew complement of 7 astronauts and robust research capabilities is essential if the United States is to carry out successfully a comprehensive initiative of scientific exploration of the solar system that involves human space flight.

SEC. 3. DEFINITION.

For purposes of this Act the term ''Administrator'' means the Administrator of the National Aeronautics and Space Administration.

SEC. 4. HUMAN SPACE FLIGHT INITIATIVE.

(a) GOALS.—The Administrator shall set the following goals for the future activities of the National Aeronautics and Space Administration's human space flight program:

(1) Within 8 years after the date of enactment of this Act, the development and flight demonstration of a reusable space vehicle capable of carrying humans from low Earth orbit to the L 1 and L 2

Earth-Sun libration points and back for the purposes of assembling large-scale space structures such as would be required for scientific observatories, to the Earth-Moon libration points and back, and to lunar orbit and back.

(2) Within 10 years after the date of enactment of this Act, the development and flight demonstration of a reusable space vehicle capable of carrying humans from low Earth orbit to and from an Earth-orbit crossing asteroid and rendezvousing with it.

(3) Within 15 years after the date of enactment of this Act, the development and flight demonstration of a reusable space vehicle capable of carrying humans from lunar orbit to the surface of the Moon and back, as well as the development and deployment of a human-tended habitation and research facility on the lunar surface.

(4) Within 20 years after the date of enactment of this Act, the development and flight demonstration of a reusable space vehicle capable of carrying humans from low Earth orbit to and from Martian orbit, the development and deployment of a human-tended habitation and research facility on the surface of one of the moons of Mars, and the development and flight demonstration of a reusable space

vehicle capable of carrying humans from Martian orbit to the surface of Mars and back.

(b) OFFICE OF EXPLORATION.—

(1) ESTABLISHMENT.—The Administrator shall establish an Office of Exploration, which shall be headed by an Associate Administrator reporting directly to the Administrator.

(2) FUNCTIONS.—The Office of Exploration shall, in coordination with the Office of Space Flight, the Office of Space Science, and all other relevant Offices, be responsible for planning, budgeting, and managing activities undertaken by the National Aeronautics and Space Administration to accomplish the goals stated in subsection (a).

(c) IMPLEMENTATION.—

(1) COMPETITIONS.—The Administrator shall establish a process for conducting competitions for innovative, cost-efficient mission concepts to accomplish each of the goals stated in subsection (a). The competitions shall be open to entities or consortia from industry, academia, nongovernmental research organizations, National Aeronautics and Space Administration Centers, and other governmental organizations. Mission concepts may include the provision of a commercial item or service sufficient to ac-

complish all or part of the relevant goal. Mission concepts that include international participation and cost-sharing shall be encouraged. The Administrator shall solicit proposals for the competition with respect to the goal stated in subsection (a)(1) not later than 180 days after the date of the enactment of this Act, and shall determine when it is appropriate to conduct competitions with respect to each of the other goals stated in subsection (a).

(2) INDEPENDENT REVIEW OF PROPOSALS.—The Administrator shall establish an independent panel to conduct a merit-based competitive review of the proposals submitted under each competition conducted under this subsection, and to submit a rank-ordered evaluation of the proposals to the Administrator.

(3) CONTENTS.—Each proposal submitted as part of a competition under this subsection shall contain a proposed implementation plan that includes—

(A) the mission concept;

(B) a cost estimate;

(C) a funding profile;

(D) a schedule; and

(E) a technological risk reduction roadmap for any required technologies not currently available for use in the proposed mission concept.

(4) REVIEW OF COST ESTIMATE AND FUNDING PROFILE.—The Administrator shall provide for the completion of an independent external review of the cost estimate and funding profile of the competitively selected proposal for each of the competitions conducted under this subsection within 60 days after the completion of the competitive selection process.

(5) REPORT TO CONGRESS.—The Administrator shall provide to the Committee on Science of the House of Representatives and to the Committee on Commerce, Science, and Transportation of the Senate the implementation plan of the competitively selected proposal, along with the results of the independent external review under paragraph (4), for each competition conducted under this subsection, within 90 days after the completion of the competitive selection process.

(d) IMPLEMENTATION PLAN UPDATES AND REVIEWS.—

(1) UPDATES.—The implementation plans of the competitively selected proposals under subsection

(c) shall be updated every year by the manager of the project, as designated by the original implementation plan.

(2) UPDATED IMPLEMENTATION PLAN REVIEW.—The Administrator shall have an independent external review panel review each of the updated implementation plans required by paragraph (1), and shall provide the results of those reviews to the Committee on Science of the House of Representatives and to the Committee on Commerce, Science, and Transportation of the Senate within 30 days after each review is completed.

(3) REVIEW ELEMENTS.—Reviews under paragraph (2) shall address at least the following:

(A) The reasonableness of the assumed schedule for the cost estimate and funding profile.

(B) The degree to which the implementation plan is consistent with the competitively selected mission concept.

(C) The degree to which the relevant areas of technical and programmatic risk are addressed and risk mitigation plans are in place.

(D) The extent to which the implementation plan utilizes commercially available goods

and services when available and appropriate to achieve the goal.

(E) The extent to which the plan makes use of existing capabilities developed in previous phases of the human space flight initiative or in other National Aeronautics and Space Administration programs when available and appropriate in lieu of undertaking new development programs.

(e) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Administrator for carrying out this Act—

(1) $50,000,000 for fiscal year 2003; and

(2) $200,000,000 for fiscal year 2004.

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