

107<sup>TH</sup> CONGRESS  
2<sup>D</sup> 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.

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## 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.

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

3        **SECTION 1. SHORT TITLE.**

4        This Act may be cited as the “Space Exploration Act  
5        of 2002”.

1 **SEC. 2. FINDINGS.**

2 The Congress finds the following:

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

7 (2) The United States has achieved major ac-  
8 complishments in its human space flight program  
9 over the last 4 decades, including the first crewed  
10 lunar landing, the first reusable crewed Space Shut-  
11 tle, and the first truly international Space Station.

12 (3) There currently is no commitment to the ac-  
13 complishment of any challenging goals in human  
14 space flight after the completion of the International  
15 Space Station.

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

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

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

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

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

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

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

1 Earth and to commit to the attainment of those  
2 goals.

3 (11) While the ultimate goal of human space  
4 flight in the inner solar system is the exploration of  
5 the planet Mars, there are other important goals for  
6 exploration of the inner solar system that will ad-  
7 vance our scientific understanding and allow the  
8 United States to develop and demonstrate capabili-  
9 ties that will be needed for the scientific exploration  
10 and eventual settlement of Mars.

11 (12) A bold and sustained human space flight  
12 initiative of scientific exploration should contain pro-  
13 gressively more challenging objectives, including mis-  
14 sions to the Earth-Sun libration points, Earth-orbit  
15 crossing asteroids, the lunar surface, the satellites of  
16 Mars, and the surface of Mars.

17 (13) A human space flight initiative with incre-  
18 mental goals and milestones will allow a continuing  
19 series of accomplishments to be achieved throughout  
20 the duration of the initiative, permit the “lessons  
21 learned” and capabilities acquired from previous im-  
22 plementation steps to be incorporated into subse-  
23 quent phases of the initiative, and allow adjustments  
24 to be made to the implementation of the initiative as  
25 new opportunities or challenges arise.

1           (14) The National Aeronautics and Space Ad-  
2           ministration should develop a roadmap and imple-  
3           mentation plan for a progressive program of human  
4           space flight beyond low Earth orbit in support of the  
5           scientific exploration of the solar system and the  
6           search for life beyond Earth.

7           (15) Existing and planned investments in the  
8           Space Shuttle, International Space Station, and the  
9           Space Launch Initiative should be leveraged to help  
10          advance the goals of the human space flight initia-  
11          tive while avoiding duplication of effort.

12          (16) The President should ensure that suffi-  
13          cient resources are provided to the National Aero-  
14          nautics and Space Administration and that appro-  
15          priate financial management controls are in place to  
16          ensure that the implementation plan can be carried  
17          out in a timely and cost-effective manner.

18          (17) The United States captured the imagina-  
19          tion of the peoples of the world and inspired a gen-  
20          eration of young people to enter careers in science  
21          and engineering when it successfully landed humans  
22          on the surface of the Moon in the years 1969  
23          through 1972.

24          (18) A bold and sustained human space explo-  
25          ration initiative has the potential to inspire a new

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

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

7 (20) Completion of the International Space Sta-  
8 tion with a full crew complement of 7 astronauts  
9 and robust research capabilities is essential if the  
10 United States is to carry out successfully a com-  
11 prehensive initiative of scientific exploration of the  
12 solar system that involves human space flight.

13 **SEC. 3. DEFINITION.**

14 For purposes of this Act the term “Administrator”  
15 means the Administrator of the National Aeronautics and  
16 Space Administration.

17 **SEC. 4. HUMAN SPACE FLIGHT INITIATIVE.**

18 (a) GOALS.—The Administrator shall set the fol-  
19 lowing goals for the future activities of the National Aero-  
20 nautics and Space Administration’s human space flight  
21 program:

22 (1) Within 8 years after the date of enactment  
23 of this Act, the development and flight demonstra-  
24 tion of a reusable space vehicle capable of carrying  
25 humans from low Earth orbit to the L 1 and L 2

1 Earth-Sun libration points and back for the pur-  
2 poses of assembling large-scale space structures such  
3 as would be required for scientific observatories, to  
4 the Earth-Moon libration points and back, and to  
5 lunar orbit and back.

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

11 (3) Within 15 years after the date of enactment  
12 of this Act, the development and flight demonstra-  
13 tion of a reusable space vehicle capable of carrying  
14 humans from lunar orbit to the surface of the Moon  
15 and back, as well as the development and deploy-  
16 ment of a human-tended habitation and research fa-  
17 cility on the lunar surface.

18 (4) Within 20 years after the date of enactment  
19 of this Act, the development and flight demonstra-  
20 tion of a reusable space vehicle capable of carrying  
21 humans from low Earth orbit to and from Martian  
22 orbit, the development and deployment of a human-  
23 tended habitation and research facility on the sur-  
24 face of one of the moons of Mars, and the develop-  
25 ment and flight demonstration of a reusable space

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

3 (b) OFFICE OF EXPLORATION.—

4 (1) ESTABLISHMENT.—The Administrator shall  
5 establish an Office of Exploration, which shall be  
6 headed by an Associate Administrator reporting di-  
7 rectly to the Administrator.

8 (2) FUNCTIONS.—The Office of Exploration  
9 shall, in coordination with the Office of Space  
10 Flight, the Office of Space Science, and all other rel-  
11 evant Offices, be responsible for planning, budg-  
12 eting, and managing activities undertaken by the  
13 National Aeronautics and Space Administration to  
14 accomplish the goals stated in subsection (a).

15 (c) IMPLEMENTATION.—

16 (1) COMPETITIONS.—The Administrator shall  
17 establish a process for conducting competitions for  
18 innovative, cost-efficient mission concepts to accom-  
19 plish each of the goals stated in subsection (a). The  
20 competitions shall be open to entities or consortia  
21 from industry, academia, nongovernmental research  
22 organizations, National Aeronautics and Space Ad-  
23 ministration Centers, and other governmental orga-  
24 nizations. Mission concepts may include the provi-  
25 sion of a commercial item or service sufficient to ac-

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

10            (2) INDEPENDENT REVIEW OF PROPOSALS.—

11        The Administrator shall establish an independent  
12        panel to conduct a merit-based competitive review of  
13        the proposals submitted under each competition con-  
14        ducted under this subsection, and to submit a rank-  
15        ordered evaluation of the proposals to the Adminis-  
16        trator.

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

21                    (A) the mission concept;

22                    (B) a cost estimate;

23                    (C) a funding profile;

24                    (D) a schedule; and

1           (E) a technological risk reduction roadmap  
2           for any required technologies not currently  
3           available for use in the proposed mission con-  
4           cept.

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

12          (5) REPORT TO CONGRESS.—The Administrator  
13          shall provide to the Committee on Science of the  
14          House of Representatives and to the Committee on  
15          Commerce, Science, and Transportation of the Sen-  
16          ate the implementation plan of the competitively se-  
17          lected proposal, along with the results of the inde-  
18          pendent external review under paragraph (4), for  
19          each competition conducted under this subsection,  
20          within 90 days after the completion of the competi-  
21          tive selection process.

22          (d) IMPLEMENTATION PLAN UPDATES AND RE-  
23          VIEWS.—

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

1 (c) shall be updated every year by the manager of  
2 the project, as designated by the original implemen-  
3 tation plan.

4 (2) UPDATED IMPLEMENTATION PLAN RE-  
5 VIEW.—The Administrator shall have an inde-  
6 pendent external review panel review each of the up-  
7 dated implementation plans required by paragraph  
8 (1), and shall provide the results of those reviews to  
9 the Committee on Science of the House of Rep-  
10 resentatives and to the Committee on Commerce,  
11 Science, and Transportation of the Senate within 30  
12 days after each review is completed.

13 (3) REVIEW ELEMENTS.—Reviews under para-  
14 graph (2) shall address at least the following:

15 (A) The reasonableness of the assumed  
16 schedule for the cost estimate and funding pro-  
17 file.

18 (B) The degree to which the implementa-  
19 tion plan is consistent with the competitively se-  
20 lected mission concept.

21 (C) The degree to which the relevant areas  
22 of technical and programmatic risk are ad-  
23 dressed and risk mitigation plans are in place.

24 (D) The extent to which the implementa-  
25 tion plan utilizes commercially available goods

1           and services when available and appropriate to  
2           achieve the goal.

3           (E) The extent to which the plan makes  
4           use of existing capabilities developed in previous  
5           phases of the human space flight initiative or in  
6           other National Aeronautics and Space Adminis-  
7           tration programs when available and appro-  
8           priate in lieu of undertaking new development  
9           programs.

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

13           (1) \$50,000,000 for fiscal year 2003; and

14           (2) \$200,000,000 for fiscal year 2004.

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