

108TH CONGRESS
2D SESSION

S. 2998

To promote the development of the emerging commercial human space flight industry, and for other purposes.

IN THE SENATE OF THE UNITED STATES

NOVEMBER 18, 2004

Mr. INHOFE introduced the following bill; which was referred to the Committee on Commerce, Science, and Transportation

A BILL

To promote the development of the emerging commercial human space flight industry, 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 “Commercial Space
5 Launch Amendments Act of 2004”.

6 **SEC. 2. AMENDMENTS.**

7 (a) FINDINGS AND PURPOSES.—Section 70101 of
8 title 49, United States Code, is amended—

9 (1) in subsection (a)(3), by inserting “human
10 space flight,” after “microgravity research,”;

1 (2) in subsection (a)(4)—

2 (A) by striking “satellite”; and

3 (B) by striking “services now available
4 from” and inserting “capabilities of”;

5 (3) in subsection (a)(8), by striking “and” at
6 the end;

7 (4) in subsection (a)(9), by striking the period
8 and inserting a semicolon;

9 (5) by adding at the end of subsection (a) the
10 following new paragraphs:

11 “(10) the goal of safely opening space to the
12 American people and their private commercial, sci-
13 entific, and cultural enterprises should guide Federal
14 space investments, policies, and regulations;

15 “(11) private industry has begun to develop
16 commercial launch vehicles capable of carrying
17 human beings into space and greater private invest-
18 ment in these efforts will stimulate the Nation’s
19 commercial space transportation industry as a
20 whole;

21 “(12) space transportation is inherently risky,
22 and the future of the commercial human space flight
23 industry will depend on its ability to continually im-
24 prove its safety performance;

1 “(13) a critical area of responsibility for the
2 Department of Transportation is to regulate the op-
3 erations and safety of the emerging commercial
4 human space flight industry;

5 “(14) the public interest is served by creating
6 a clear legal, regulatory, and safety regime for com-
7 mercial human space flight; and

8 “(15) the regulatory standards governing
9 human space flight must evolve as the industry ma-
10 tures so that regulations neither stifle technology de-
11 velopment nor expose crew or space flight partici-
12 pants to avoidable risks as the public comes to ex-
13 pect greater safety for crew and space flight partici-
14 pants from the industry.”;

15 (6) in subsection (b)(2)—

16 (A) by striking “and” at the end of sub-
17 paragraph (A);

18 (B) by inserting “and” after the semicolon
19 in subparagraph (B); and

20 (C) by adding at the end the following new
21 subparagraph:

22 “(C) promoting the continuous improve-
23 ment of the safety of launch vehicles designed
24 to carry humans, including through the

1 issuance of regulations, to the extent permitted
2 by this chapter;” and

3 (7) in subsection (b)(3), by striking “issue and
4 transfer” and inserting “issue permits and commer-
5 cial licenses and transfer”.

6 (b) DEFINITIONS.—Section 70102 of title 49, United
7 States Code, is amended—

8 (1) by redesignating paragraphs (2) through
9 (17) as paragraphs (3), (4), (5), (6), (7), (8), (9),
10 (10), (12), (13), (14), (15), (16), (18), (21), and
11 (22), respectively;

12 (2) by inserting after paragraph (1) the fol-
13 lowing new paragraph:

14 “(2) ‘crew’ means any employee of a licensee or
15 transferee, or of a contractor or subcontractor of a
16 licensee or transferee, who performs activities in the
17 course of that employment directly relating to the
18 launch, reentry, or other operation of or in a launch
19 vehicle or reentry vehicle that carries human
20 beings.”;

21 (3) in paragraph (4), as so redesignated by
22 paragraph (1) of this subsection, by inserting “,
23 crew, or space flight participant” after “any pay-
24 load”;

1 (4) in paragraph (6)(A), as so redesignated by
2 paragraph (1) of this subsection, by striking “and
3 payload” and inserting “, payload, crew (including
4 crew training), or space flight participant”;

5 (5) in paragraph (8)(A), as so redesignated by
6 paragraph (1) of this subsection, by inserting “or
7 human beings” after “place a payload”;

8 (6) by inserting after paragraph (10), as so re-
9 designated by paragraph (1) of this subsection, the
10 following new paragraph:

11 “(11) except in section 70104(c), ‘permit’
12 means an experimental permit issued under section
13 70105a.”;

14 (7) in paragraph (13), as so redesignated by
15 paragraph (1) of this subsection, by inserting “crew,
16 or space flight participants,” after “and its pay-
17 load,”;

18 (8) in paragraph (14)(A), as so redesignated by
19 paragraph (1) of this subsection, by striking “and
20 its payload” inserting “and payload, crew (including
21 crew training), or space flight participant”;

22 (9) by inserting after paragraph (16), as so re-
23 designated by paragraph (1) of this subsection, the
24 following new paragraph:

1 “(17) ‘space flight participant’ means an indi-
2 vidual, who is not crew, carried within a launch vehi-
3 cle or reentry vehicle.”;

4 (10) by inserting after paragraph (18), as so
5 redesignated by paragraph (1) of this subsection, the
6 following new paragraphs:

7 “(19) unless and until regulations take effect
8 under section 70120(e)(2), ‘suborbital rocket’ means
9 a vehicle, rocket-propelled in whole or in part, in-
10 tended for flight on a suborbital trajectory, and the
11 thrust of which is greater than its lift for the major-
12 ity of the rocket-powered portion of its ascent.

13 “(20) ‘suborbital trajectory’ means the inten-
14 tional flight path of a launch vehicle, reentry vehicle,
15 or any portion thereof, whose vacuum instantaneous
16 impact point does not leave the surface of the
17 Earth.”; and

18 (11) in paragraph (21), as so redesignated by
19 paragraph (1) of this subsection—

20 (A) by striking “or” at the end of subpara-
21 graph (C);

22 (B) by striking the period at the end of
23 subparagraph (D) and inserting “; or”; and

24 (C) by adding at the end the following new
25 subparagraph:

1 “(E) crew or space flight participants.”.

2 (c) COMMERCIAL HUMAN SPACE FLIGHT.—(1) Sec-
3 tion 70103(b)(1) of title 49, United States Code, is
4 amended by inserting “, including those involving space
5 flight participants” after “private sector”.

6 (2) Section 70103 of title 49, United States Code,
7 is amended by redesignating subsection (c) as subsection
8 (d), and by inserting after subsection (b) the following new
9 subsection:

10 “(c) SAFETY.—In carrying out the responsibilities
11 under subsection (b), the Secretary shall encourage, facili-
12 tate, and promote the continuous improvement of the safe-
13 ty of launch vehicles designed to carry humans, and the
14 Secretary may, consistent with this chapter, promulgate
15 regulations to carry out this subsection.”.

16 (3) Section 70104(a) of title 49, United States Code,
17 is amended—

18 (A) by striking “License Requirement.—A li-
19 cense issued or transferred under this chapter” and
20 inserting “Requirement.—A license issued or trans-
21 ferred under this chapter, or a permit,”; and

22 (B) by inserting after paragraph (4) the fol-
23 lowing: “Notwithstanding this subsection, a permit
24 shall not authorize a person to operate a launch site
25 or reentry site.”.

1 (4) Section 70104(b) of title 49, United States Code,
2 is amended by inserting “or permit” after “holder of a
3 license”.

4 (5) Section 70104 of title 49, United States Code,
5 is amended by adding at the end the following new sub-
6 section:

7 “(d) SINGLE LICENSE OR PERMIT.—The Secretary
8 of Transportation shall ensure that only 1 license or per-
9 mit is required from the Department of Transportation
10 to conduct activities involving crew or space flight partici-
11 pants, including launch and reentry, for which a license
12 or permit is required under this chapter. The Secretary
13 shall ensure that all Department of Transportation regula-
14 tions relevant to the licensed or permitted activity are sat-
15 isfied.”.

16 (6) Section 70105(a) of title 49, United States Code,
17 is amended—

18 (A) in paragraph (1), by striking “a license is
19 not issued” and inserting “the Secretary has not
20 taken action on a license application”; and

21 (B) in paragraph (2), by inserting “(including
22 approval procedures for the purpose of protecting
23 the health and safety of crews and space flight par-
24 ticipants, to the extent permitted by subsections (b)
25 and (c))” after “or personnel”.

1 (7) Section 70105(b)(1) of title 49, United States
2 Code, is amended by inserting “or permit” after “for a
3 license”.

4 (8) Section 70105(b)(2)(B) of title 49, United States
5 Code, is amended by striking “an additional requirement
6 necessary to protect” and inserting “any additional re-
7 quirement necessary to protect”.

8 (9) Section 70105(b)(2)(C) of title 49, United States
9 Code, is amended—

10 (A) by inserting “or permit” after “for a li-
11 cense”; and

12 (B) by striking “and” at the end thereof.

13 (10) Section 70105(b)(2) of title 49, United States
14 Code, is amended by redesignating subparagraph (D) as
15 subparagraph (E) and inserting after subparagraph (C)
16 the following new subparagraph:

17 “(D) additional license requirements, for a
18 launch vehicle carrying a human being for com-
19 pensation or hire, necessary to protect the
20 health and safety of crew or space flight partici-
21 pants, only if such requirements are imposed
22 pursuant to final regulations issued in accord-
23 ance with subsection (c); and”.

24 (11) Section 70105(b)(2)(E) of title 49, United
25 States Code, as so redesignated by paragraph (11) of this

1 subsection, is amended by inserting “or permit” after “for
2 a license”.

3 (12) Section 70105(b)(3) of title 49, United States
4 Code, is amended by adding at the end the following: “The
5 Secretary may not grant a waiver under this paragraph
6 that would permit the launch or reentry of a launch vehicle
7 or a reentry vehicle without a license or permit if a human
8 being will be on board.”.

9 (13) Section 70105(b) of title 49, United States
10 Code, is amended by adding at the end the following new
11 paragraphs:

12 “(4) The holder of a license or a permit under
13 this chapter may launch or reenter crew only if—

14 “(A) the crew has received training and
15 has satisfied medical or other standards speci-
16 fied in the license or permit in accordance with
17 regulations promulgated by the Secretary;

18 “(B) the holder of the license or permit
19 has informed any individual serving as crew in
20 writing, prior to executing any contract or other
21 arrangement to employ that individual (or, in
22 the case of an individual already employed as of
23 the date of enactment of the Commercial Space
24 Launch Amendments Act of 2004, as early as
25 possible, but in any event prior to any launch

1 in which the individual will participate as crew),
2 that the United States Government has not cer-
3 tified the launch vehicle as safe for carrying crew
4 or space flight participants; and

5 “(C) the holder of the license or permit
6 and crew have complied with all requirements of
7 the laws of the United States that apply to
8 crew.

9 “(5) The holder of a license or a permit under
10 this chapter may launch or reenter a space flight
11 participant only if—

12 “(A) in accordance with regulations pro-
13 mulgated by the Secretary, the holder of the li-
14 cense or permit has informed the space flight
15 participant in writing about the risks of the
16 launch and reentry, including the safety record
17 of the launch or reentry vehicle type, and the
18 Secretary has informed the space flight partici-
19 pant in writing of any relevant information re-
20 lated to risk or probable loss during each phase
21 of flight gathered by the Secretary in making
22 the determination required by section
23 70112(a)(2) and (c);

24 “(B) the holder of the license or permit
25 has informed any space flight participant in

1 writing, prior to receiving any compensation
2 from that space flight participant or (in the
3 case of a space flight participant not providing
4 compensation) otherwise concluding any agree-
5 ment to fly that space flight participant, that
6 the United States Government has not certified
7 the launch vehicle as safe for carrying crew or
8 space flight participants;

9 “(C) in accordance with regulations pro-
10 mulgated by the Secretary, the space flight par-
11 ticipant has provided written informed consent
12 to participate in the launch and reentry and
13 written certification of compliance with any reg-
14 ulations promulgated under paragraph (6)(A);
15 and

16 “(D) the holder of the license or permit
17 has complied with any regulations promulgated
18 by the Secretary pursuant to paragraph (6).

19 “(6)(A) The Secretary may issue regulations re-
20 quiring space flight participants to undergo an ap-
21 propriate physical examination prior to a launch or
22 reentry under this chapter. This subparagraph shall
23 cease to be in effect three years after the date of en-
24 actment of the Commercial Space Launch Amend-
25 ments Act of 2004.

1 “(B) The Secretary may issue additional regu-
2 lations setting reasonable requirements for space
3 flight participants, including medical and training
4 requirements. Such regulations shall not be effective
5 before the expiration of 3 years after the date of en-
6 actment of the Commercial Space Launch Amend-
7 ments Act of 2004.”.

8 (14) Section 70105 of title 49, United States Code,
9 is amended by redesignating subsection (c) as subsection
10 (d), and by adding after subsection (b) the following new
11 subsection:

12 “(c) SAFETY REGULATIONS.—(1) The Secretary may
13 issue regulations governing the design or operation of a
14 launch vehicle to protect the health and safety of crew and
15 space flight participants.

16 “(2) Regulations issued under this subsection shall—

17 “(A) describe how such regulations would be
18 applied when the Secretary is determining whether
19 to issue a license under this chapter;

20 “(B) apply only to launches in which a vehicle
21 will be carrying a human being for compensation or
22 hire;

23 “(C) be limited to restricting or prohibiting de-
24 sign features or operating practices that—

1 “(i) have resulted in a serious or fatal in-
2 jury (as defined in 49 CFR 830, as in effect on
3 November 10, 2004) to crew or space flight
4 participants during a licensed or permitted
5 commercial human space flight; or

6 “(ii) contributed to an unplanned event or
7 series of events during a licensed or permitted
8 commercial human space flight that posed a
9 high risk of causing a serious or fatal injury (as
10 defined in 49 CFR 830, as in effect on Novem-
11 ber 10, 2004) to crew or space flight partici-
12 pants; and

13 “(D) be issued with a description of the in-
14 stance or instances when the design feature or oper-
15 ating practice being restricted or prohibited contrib-
16 uted to a result or event described in subparagraph
17 (C).

18 “(3) Beginning 8 years after the date of enactment
19 of the Commercial Space Launch Amendments Act of
20 2004, the Secretary may propose regulations under this
21 subsection without regard to paragraph (2)(C) and (D).
22 Any such regulations shall take into consideration the
23 evolving standards of safety in the commercial space flight
24 industry.

1 “(4) Nothing in this subsection shall be construed to
2 limit the authority of the Secretary to issue requirements
3 or regulations to protect the public health and safety, safe-
4 ty of property, national security interests, and foreign pol-
5 icy interests of the United States.”.

6 (15) Section 70105(d) of title 49, United States
7 Code, as so redesignated by paragraph (15) of this sub-
8 section, is amended by inserting “or permit” after “of a
9 license”.

10 (16) Chapter 701 of title 49, United States Code, is
11 amended by inserting after section 70105 the following
12 new section:

13 **“§ 70105a. Experimental permits**

14 “(a) A person may apply to the Secretary of Trans-
15 portation for an experimental permit under this section
16 in the form and manner the Secretary prescribes. Con-
17 sistent with the protection of the public health and safety,
18 safety of property, and national security and foreign policy
19 interests of the United States, the Secretary, not later
20 than 120 days after receiving an application pursuant to
21 this section, shall issue a permit if the Secretary decides
22 in writing that the applicant complies, and will continue
23 to comply, with this chapter and regulations prescribed
24 under this chapter. The Secretary shall inform the appli-
25 cant of any pending issue and action required to resolve

1 the issue if the Secretary has not made a decision not later
2 than 90 days after receiving an application. The Secretary
3 shall transmit to the Committee on Science of the House
4 of Representatives and Committee on Commerce, Science,
5 and Transportation of the Senate a written notice not
6 later than 15 days after any occurrence when the Sec-
7 retary has failed to act on a permit within the deadline
8 established by this section.

9 “(b) In carrying out subsection (a), the Secretary
10 may establish procedures for safety approvals of launch
11 vehicles, reentry vehicles, safety systems, processes, serv-
12 ices, or personnel that may be used in conducting commer-
13 cial space launch or reentry activities pursuant to a per-
14 mit.

15 “(c) In order to encourage the development of a com-
16 mercial space flight industry, the Secretary may when
17 issuing permits use the authority granted under section
18 70105(b)(2)(C).

19 “(d) The Secretary may issue a permit only for reus-
20 able suborbital rockets that will be launched or reentered
21 solely for—

22 “(1) research and development to test new de-
23 sign concepts, new equipment, or new operating
24 techniques;

1 “(2) showing compliance with requirements as
2 part of the process for obtaining a license under this
3 chapter; or

4 “(3) crew training prior to obtaining a license
5 for a launch or reentry using the design of the rock-
6 et for which the permit would be issued.

7 “(e) Permits issued under this section shall—

8 “(1) authorize an unlimited number of launches
9 and reentries for a particular suborbital rocket de-
10 sign for the uses described in subsection (d); and

11 “(2) specify the type of modifications that may
12 be made to the suborbital rocket without changing
13 the design to an extent that would invalidate the
14 permit.

15 “(f) Permits shall not be transferable.

16 “(g) A permit may not be issued for, and a permit
17 that has already been issued shall cease to be valid for,
18 a particular design for a reusable suborbital rocket after
19 a license has been issued for the launch or reentry of a
20 rocket of that design.

21 “(h) No person may operate a reusable suborbital
22 rocket under a permit for carrying any property or human
23 being for compensation or hire.

1 “(i) For the purposes of sections 70106, 70107,
2 70108, 70109, 70110, 70112, 70115, 70116, 70117, and
3 70121 of this chapter—

4 “(1) a permit shall be considered a license;

5 “(2) the holder of a permit shall be considered
6 a licensee;

7 “(3) a vehicle operating under a permit shall be
8 considered to be licensed; and

9 “(4) the issuance of a permit shall be consid-
10 ered licensing.

11 This subsection shall not be construed to allow the
12 transfer of a permit.”.

13 (17) Section 70106(a) of title 49, United States
14 Code, is amended—

15 (A) by inserting “at a site used for crew or
16 space flight participant training,” after “assemble a
17 launch vehicle or reentry vehicle,”; and

18 (B) by striking “section 70104(c)” and insert-
19 ing “sections 70104(c), 70105, and 70105a”.

20 (18) Section 70107(b) of title 49, United States
21 Code, is amended—

22 (A) by inserting “(1)” before “On the initia-
23 tive”; and

24 (B) by adding the following new paragraph at
25 the end:

1 “(2) The Secretary shall modify a license issued
2 or transferred under this chapter whenever a modi-
3 fication is needed for the license to be in conformity
4 with a regulation that was issued pursuant to sec-
5 tion 70105(c) after the issuance of the license. This
6 paragraph shall not apply to permits.”.

7 (19) Section 70107 of title 49, United States Code,
8 is amended by redesignating subsections (d) and (e) as
9 subsection (e) and (f), respectively, and by inserting after
10 subsection (e) the following new subsection:

11 “(d) ADDITIONAL SUSPENSIONS.—(1) The Secretary
12 may suspend a license when a previous launch or reentry
13 under the license has resulted in a serious or fatal injury
14 (as defined in 49 CFR 830, as in effect on November 10,
15 2004) to crew or space flight participants and the Sec-
16 retary has determined that continued operations under the
17 license are likely to cause additional serious or fatal injury
18 (as defined in 49 CFR 830, as in effect on November 10,
19 2004) to crew or space flight participants.

20 “(2) Any suspension imposed under this subsection
21 shall be for as brief a period as possible and, in any event,
22 shall cease when the Secretary—

23 “(A) has determined that the licensee has taken
24 sufficient steps to reduce the likelihood of a recur-
25 rence of the serious or fatal injury; or

1 “(B) has modified the license pursuant to sub-
2 section (b) to sufficiently reduce the likelihood of a
3 recurrence of the serious or fatal injury.

4 “(3) This subsection shall not apply to permits.”.

5 (20) Section 70110(a)(1) of title 49, United States
6 Code, is amended by inserting “or 70105a” after
7 “70105(a)”.

8 (21) Section 70112(b)(2) of title 49, United States
9 Code, is amended—

10 (A) by inserting “crew, space flight partici-
11 pants,” after “transferee, contractors, subcontrac-
12 tors,”; and

13 (B) by inserting “or by space flight partici-
14 pants,” after “its own employees”.

15 (22) Section 70113(a)(1) of title 49, United States
16 Code, is amended by inserting “but not against a space
17 flight participant,” after “subcontractor of a customer,”.

18 (23) Section 70113(f) of title 49, United States Code,
19 is amended by inserting at the end the following: “This
20 section does not apply to permits.”.

21 (24) Section 70115(b)(1)(D)(i) of title 49, United
22 States Code, is amended by inserting “crew or space flight
23 participant training site,” after “site of a launch vehicle
24 or reentry vehicle,”.

1 (25) Section 70120 of title 49, United States Code,
2 is amended by adding at the end the following new sub-
3 sections:

4 “(c) AMENDMENTS.—(1) Not later than 12 months
5 after the date of enactment of the Commercial Space
6 Launch Amendments Act of 2004, the Secretary shall
7 publish proposed regulations to carry out that Act, includ-
8 ing regulations relating to crew, space flight participants,
9 and permits for launch or reentry of reusable suborbital
10 rockets. Not later than 18 months after such date of en-
11 actment, the Secretary shall issue final regulations.

12 “(2)(A) Starting 3 years after the date of enactment
13 of the Commercial Space Launch Amendments Act of
14 2004, the Secretary may issue final regulations changing
15 the definition of suborbital rocket under this chapter. No
16 such regulation may take effect until 180 days after the
17 Secretary has submitted the regulation to the Congress.

18 “(B) The Secretary may issue regulations under this
19 paragraph only if the Secretary has determined that the
20 definition in section 70102 does not describe, or will not
21 continue to describe, all appropriate vehicles and only
22 those vehicles. In making that determination, the Sec-
23 retary shall take into account the evolving nature of the
24 commercial space launch industry.

1 “(d) EFFECTIVE DATE.—(1) Licenses for the launch
2 or reentry of launch vehicles or reentry vehicles with
3 human beings on board and permits may be issued by the
4 Secretary prior to the issuance of the regulations de-
5 scribed in subsection (c).

6 “(2) As soon as practicable after the date of enact-
7 ment of the Commercial Space Launch Amendments Act
8 of 2004, the Secretary shall issue guidelines or advisory
9 circulars to guide the implementation of that Act until
10 regulations are issued.

11 “(3) Notwithstanding paragraphs (1) and (2), no li-
12 censes for the launch or reentry of launch vehicles or re-
13 entry vehicles with human beings on board or permits may
14 be issued starting three years after the date of enactment
15 of the Commercial Space Launch Amendments Act of
16 2004 unless the final regulations described in subsection
17 (c) have been issued.”.

18 (26) The table of sections for chapter 701 of title 49,
19 United States Code, is amended by inserting after the
20 item relating to 70105 the following new item:

“70105a. Experimental permits.”.

21 **SEC. 3. STUDIES.**

22 (a) RISK SHARING.—Not later than 60 days after the
23 date of enactment of this Act, the Secretary of Transpor-
24 tation shall enter into an arrangement with a nonprofit
25 entity for the conduct of an independent comprehensive

1 study of the liability risk sharing regime in the United
2 States for commercial space transportation under section
3 70113 of title 49, United States Code. To ensure that
4 Congress has a full analysis of the liability risk sharing
5 regime, the study shall assess methods by which the cur-
6 rent system could be eliminated, including an estimate of
7 the time required to implement each of the methods as-
8 sessed. The study shall assess whether any alternative
9 steps would be needed to maintain a viable and competi-
10 tive United States space transportation industry if the
11 current regime were eliminated. In conducting the assess-
12 ment under this subsection, input from commercial space
13 transportation insurance experts shall be sought. The
14 study also shall examine liability risk sharing in other na-
15 tions with commercial launch capability and evaluate the
16 direct and indirect impact that ending this regime would
17 have on the competitiveness of the United States commer-
18 cial space launch industry in relation to foreign commer-
19 cial launch providers and on United States assured access
20 to space.

21 (b) SAFETY.—The Secretary of Transportation, in
22 consultation with the Administrator of the National Aero-
23 nautics and Space Administration, shall enter into an ar-
24 rangement with a nonprofit entity for a report analyzing
25 safety issues related to launching human beings into

1 space. In designing the study, the Secretary should take
2 into account any recommendations from the Commercial
3 Space Transportation Advisory Committee and the Na-
4 tional Aeronautics and Space Administration's Aerospace
5 Safety Advisory Panel. The report shall be submitted to
6 the Senate Committee on Commerce, Science, and Trans-
7 portation and the House of Representatives Committee on
8 Science within 4 years of the date of enactment of this
9 Act. The report shall analyze and make recommendations
10 about—

11 (1) the standards of safety and concepts of op-
12 eration that should guide the regulation of human
13 space flight and whether the standard of safety
14 should vary by class or type of vehicle, the purpose
15 of flight, or other considerations;

16 (2) the effectiveness of the commercial licensing
17 and permitting regime under chapter 701 of title 49,
18 United States Code, particularly in ensuring the
19 safety of the public and of crew and space flight par-
20 ticipants during launch, in-space transit, orbit, and
21 reentry, and whether any changes are needed to that
22 chapter;

23 (3) whether there is a need for commercial
24 ground operations for commercial space flight, in-
25 cluding provision of launch support, launch and re-

1 entry control, mission control, range operations, and
2 communications and telemetry operations through
3 all phases of flight, and if such operations developed,
4 whether and how they should be regulated;

5 (4) whether expendable and reusable launch
6 and reentry vehicles should be regulated differently
7 from each other, and whether either of those vehicles
8 should be regulated differently when carrying human
9 beings;

10 (5) whether the Federal Government should
11 separate the promotion of human space flight from
12 the regulation of such activity;

13 (6) how third parties could be used to evaluate
14 the qualification and acceptance of new human space
15 flight vehicles prior to their operation;

16 (7) how nongovernment experts could partici-
17 pate more fully in setting standards and developing
18 regulations concerning human space flight safety;
19 and

20 (8) whether the Federal Government should
21 regulate the extent of foreign ownership or control
22 of human space flight companies operating or incor-
23 porated in the United States.

1 **SEC. 4. TECHNICAL AMENDMENT.**

2 Section 102(c) of the Commercial Space Act of 1998

3 is repealed.

○