

(4) Developments in space infrastructure and technology can stimulate and enable increased space applications, such as in-space servicing, propellant resupply and transfer, and in situ resource utilization, and open opportunities for additional users of space, whether national, commercial, or international.

(5) A long term objective for human exploration of space should be the eventual international exploration of Mars.

(6) Future international missions beyond low-Earth orbit should be designed to incorporate capability development and availability, affordability, and international contributions.

(7) Human space flight and future exploration beyond low-Earth orbit should be based around a pay-as-you-go approach. Requirements in new launch and crew systems authorized in this chapter should be scaled to the minimum necessary to meet the core national mission capability needed to conduct cis-lunar missions. These initial missions, along with the development of new technologies and in-space capabilities can form the foundation for missions to other destinations. These initial missions also should provide operational experience prior to the further human expansion into space.

**(b) Report on international collaboration**

**(1) Report required**

Not later than 120 days after October 11, 2010, the Administrator shall submit to the appropriate committees of Congress a report on the following assets and capabilities:

(A) Any effort by NASA to expand and ensure effective international collaboration on the ISS.

(B) The efforts of NASA, including its approach and progress, in defining near-term, cis-lunar space human missions.

**(2) NASA contributions**

In preparing the report required by paragraph (1), the Administrator shall assume that NASA will contribute to the efforts described in that paragraph the following:

(A) A Space Launch System.

(B) A multi-purpose crew vehicle.

(C) Such other technology elements the Administrator may consider appropriate, and which the Administrator shall specifically identify in the report.

(Pub. L. 111-267, title III, §301, Oct. 11, 2010, 124 Stat. 2813.)

**§ 18322. Space Launch System as follow-on launch vehicle to the Space Shuttle**

**(a) United States policy**

It is the policy of the United States that NASA develop a Space Launch System as a follow-on to the Space Shuttle that can access cis-lunar space and the regions of space beyond low-Earth orbit in order to enable the United States to participate in global efforts to access and develop this increasingly strategic region.

**(b) Initiation of development**

**(1) In general**

The Administrator shall, as soon as practicable after October 11, 2010, initiate develop-

ment of a Space Launch System meeting the minimum capabilities requirements specified in subsection (c).

**(2) Modification of current contracts**

In order to limit NASA's termination liability costs and support critical capabilities, the Administrator shall, to the extent practicable, extend or modify existing vehicle development and associated contracts necessary to meet the requirements in paragraph (1), including contracts for ground testing of solid rocket motors, if necessary, to ensure their availability for development of the Space Launch System.

**(c) Minimum capability requirements**

(1) IN GENERAL.—The Space Launch System developed pursuant to subsection (b) shall be designed to have, at a minimum, the following:

(A) The initial capability of the core elements, without an upper stage, of lifting payloads weighing between 70 tons and 100 tons into low-Earth orbit in preparation for transit for missions beyond low-Earth orbit.

(B) The capability to carry an integrated upper Earth departure stage bringing the total lift capability of the Space Launch System to 130 tons or more.

(C) The capability to lift the multipurpose crew vehicle.

(D) The capability to serve as a backup system for supplying and supporting ISS cargo requirements or crew delivery requirements not otherwise met by available commercial or partner-supplied vehicles.

(2) FLEXIBILITY.—The Space Launch System shall be designed from inception as a fully-integrated vehicle capable of carrying a total payload of 130 tons or more into low-Earth orbit in preparation for transit for missions beyond low-Earth orbit. The Space Launch System shall, to the extent practicable, incorporate capabilities for evolutionary growth to carry heavier payloads. Developmental work and testing of the core elements and the upper stage should proceed in parallel subject to appropriations. Priority should be placed on the core elements with the goal for operational capability for the core elements not later than December 31, 2016.

(3) TRANSITION NEEDS.—The Administrator shall ensure critical skills and capabilities are retained, modified, and developed, as appropriate, in areas related to solid and liquid engines, large diameter fuel tanks, rocket propulsion, and other ground test capabilities for an effective transition to the follow-on Space Launch System.

(4) The capacity for efficient and timely evolution, including the incorporation of new technologies, competition of sub-elements, and commercial operations.

(Pub. L. 111-267, title III, §302, Oct. 11, 2010, 124 Stat. 2814.)

**§ 18323. Multi-purpose crew vehicle**

**(a) Initiation of development**

**(1) In general**

The Administrator shall continue the development of a multi-purpose crew vehicle to be