

EXECUTIVE OFFICE OF THE PRESIDENT  
**OFFICE OF SCIENCE AND TECHNOLOGY POLICY**  
WASHINGTON, D.C. 20502

April 4, 2016

Dear Chairman Thune and Chairman Smith:

This letter is submitted in fulfillment of a reporting requirement contained in the U.S. Commercial Space Launch Competitiveness Act (Public Law 114-90, herein referred to as “the Act”), signed into law November, 25<sup>th</sup>, 2015. In addition to updating and expanding Title 51, United States Code, the Act requires the development of a number of reports on commercial space matters. Section 108, Space Authority, provides:

(a) IN GENERAL.— Not later than 120 days after the date of enactment of this Act, the Director of the Office of Science and Technology Policy, in consultation with the Secretary of State, the Secretary of Transportation, the Administrator of the National Aeronautics and Space Administration, the heads of other relevant Federal agencies, and the commercial space sector, shall—

(1) assess current, and proposed near-term, commercial non-governmental activities conducted in space;

(2) identify appropriate authorization and supervision authorities for the activities described in paragraph (1);

(3) recommend an authorization and supervision approach that would prioritize safety, utilize existing authorities, minimize burdens to the industry, promote the U.S. commercial space sector, and meet the United States obligations under international treaties; and

(4) submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report on the activities described in paragraphs (1), (2), and (3).

(b) EXCEPTION.—Nothing in this section shall apply to the activities of the ISS national laboratory as described in section 504 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18354), including any research or development projects utilizing the ISS national laboratory.

**(1) Assess current and proposed near-term, commercial non-governmental activities conducted in space;**

United States companies presently engage in an array of space activities, such as launch services, satellite communications, and remote sensing, which are regulated (1) by the Secretary of Transportation, as delegated to the Administrator of the Federal Aviation Administration under Chapter 509 of Title 51; (2) by the Federal Communications Commission under the Communications Act of 1934 (47 U.S.C. 151 et seq.); and (3) by the Secretary of Commerce, as delegated to the Administrator of the National Oceanic and Atmospheric Administration under

Chapter 601 of Title 51. The Administration understands Congressional interest in this report is not on the aforementioned current activities, but instead on newly contemplated commercial space activities.

A number of American companies that are investing in the development of innovative, unprecedented space activities have indicated that their proposed activities in space could begin in as early as one year or might not begin for a decade or more. This section broadly describes three categories of unprecedented commercial space activities planned by American companies.

#### Private Missions Beyond Earth's Orbit

- Multiple American companies have announced plans for commercial missions to the Moon, including transportation of commercial payloads to the lunar surface. One such company has indicated that it has a launch contract for a technology demonstration mission to the Moon, which would involve maneuvers on the lunar surface.
- One American company has announced plans for commercial missions to Mars in the near future.
- One American company has announced plans to operate a commercial lunar habitat.

#### New On-Orbit Activities

Several American companies have announced plans for new on-orbit activities, with start-up time horizons ranging from one year to decades, including:

- End-of-life extension modules, which attach to a satellite to aid in station-keeping or transfer to a graveyard orbit;
- Satellite repair utilizing robotic arms;
- Satellite refueling utilizing fuels launched from Earth;
- Satellite refueling utilizing fuels derived from space resources; and
- Commercial orbital habitats.

#### Space Resource Utilization

American companies have announced long term plans to extract resources, such as rare-earth elements from the Moon or asteroids, for use on Earth or in space as a means of supporting deeper exploration and a longer-term human presence in space.

### **(2) Identify appropriate authorization and supervision authorities for the activities described in paragraph (1) [“current and proposed near-term, commercial non-governmental activities conducted in space”];**

In addition to implementing U.S. international obligations, the existing arrangements for authorization and supervision of non-governmental activities in outer space are designed to serve

a range of public policy interests, including public safety, safety of property, national security, and foreign policy. The United States has a legal obligation under Article VI of the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (“Outer Space Treaty”), as follows:

*States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the Moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space, including the Moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty.*

Article VI arose from one of the more contentious issues in the negotiations leading to the Outer Space Treaty. The Soviet Union strongly favored a formulation that would have restricted space activities to governments. The United States, whose companies had plans for privately operated telecommunications satellites, urged a formulation preserving the possibility of non-governmental space activities. Article VI codifies the bargain that resolved the impasse.

Many space-faring States discharge this treaty obligation through a more general licensing framework for non-governmental space activities. The United Kingdom’s Outer Space Act of 1986, for example, establishes a single licensing process for all space activities conducted by UK nationals (with the exception of spectrum-related issues), and ensures conformity with the provisions of the Outer Space Treaty, and other public interests such as national security, through license conditions. Likewise, the United States utilizes license conditions to implement its international obligations and to safeguard public interests, but utilizes separate frameworks for licensing launch and reentry, remote sensing, and communications. Although these frameworks have served the United States well by addressing the commercial space activities to date, they do not, by themselves, provide clear avenues through which the United States Government can fulfill its Article VI obligations in relation to the newly contemplated commercial space activities described in Section 1.

The unprecedented commercial space activities described in Section 1 of this report, such as activities on the Moon and other celestial bodies and utilization of space resources, implicate the provisions of the Outer Space Treaty in ways not clearly addressed by the existing licensing frameworks. While existing licensing frameworks provide clear means to address certain aspects of these activities, they do not, by themselves, provide the United States Government with a straightforward means to fulfill its treaty obligation to ensure the conformity of these activities with the provisions of the Outer Space Treaty.

The Administration is actively pursuing mechanisms, including the legislative proposal described in Section 3, to enable the Government to authorize innovative new space activities by U.S. companies consistent with cornerstone treaty responsibilities and obligations.

**(3) Recommend an authorization and supervision approach that would prioritize safety, utilize existing authorities, minimize burdens to the industry, promote the U.S. commercial space sector, and meet the United States obligations under international treaties; and**

The economic vitality of the American space industry is best served with a clear and predictable oversight process that ensures access to space and imposes minimal burdens on the industry. The Administration supports a narrowly tailored authorization process for newly contemplated commercial space activities, with only such conditions as are necessary for compliance with the United States' international obligations, foreign policy and national security interests, and protection of United States Government uses of outer space.

Through months of consultations among Federal departments and agencies and with the commercial space industry, this Office developed a legislative proposal for a "Mission Authorization" framework, which is appended to this report.

Through the Mission Authorization proposal, the Administration does not seek to establish a comprehensive regulatory framework for the type of outer space activities described in Section 1. At this early stage in the development of these activities, consisting primarily of experimental technology development and demonstration, the Administration believes it would be premature to establish a comprehensive regulatory framework mirroring those for mature commercial space activities, such as launch services. Instead, the proposed legislation is intended to establish a process no more burdensome than is necessary to enable the United States Government to authorize these pioneering space activities in conformity with its treaty obligations, and to safeguard core public interests, such as national security. By providing a clear path for authorization and supervision of new space activities, the legislation would encourage investment in those activities and foster and promote a robust domestic commercial space industry.

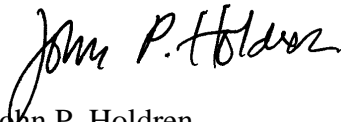
The Mission Authorization proposal is closely modeled on the FAA's Payload Review process, in that the FAA would coordinate an interagency process in which designated agencies would review a proposed mission in relation to specified government interests, with only such conditions as necessary for fulfillment of those government interests. For example, the Department of State would be responsible for reviewing proposed missions for consistency with the Outer Space Treaty, and would recommend authorization conditions only as necessary to ensure conformity with the provisions of this treaty. The legislative proposal is not intended to authorize any agency to prescribe substantive, generally applicable regulations. The regulations FAA would develop would simply outline the procedural aspects of getting a Mission Authorization, consistent with the case-by-case interagency process outlined above.

In addition to providing a regularized, predictable mechanism for authorizing commercial space activities, the Mission Authorization proposal is designed to preserve the competitiveness of the American launch industry. At present, United States Government review processes tied to the launch licensing framework—such as the Payload Review process—are limited to payloads launched from the United States. To the extent payload owners perceive these existing processes as presenting regulatory risk or inconvenience, they serve as a disincentive for purchasing launch

services from American providers. By contrast, the authorization requirement in the Mission Authorization proposal would apply to United States nationals irrespective of launch location, thus enhancing the global competitiveness of the American launch industry.

The proposed Mission Authorization framework in the Appendix is not intended to affect existing space activities such as launch services, communications, or remote sensing for which current regulation by the FAA, FCC, or NOAA is sufficient to fulfill the United States' obligations under the Outer Space Treaty.

Sincerely,

A handwritten signature in black ink that reads "John P. Holdren". The signature is written in a cursive style with a large, looping initial "J".

John P. Holdren  
Director and  
Assistant to the President for Science and Technology

cc: Senator Bill Nelson  
Representative Eddie Bernice Johnson  
Senator Ted Cruz  
Senator Gary Peters  
Representative Brian Babin  
Representative Donna Edwards

## Appendix – Mission Authorization Proposal

Chapter 509 of title 51, United States Code, is amended----

(a) In section 50902, by adding between subparagraphs (8) and (9) the following definition, “mission” means the operation of a space object, with or without human occupants, in outer space, including on the Moon and other celestial bodies.

(b) By inserting “mission,” after “reentry site,” in section 50919(g).

(c) By inserting after section 50923,

a. Section 50924, Mission Authorization – (a) The Secretary of Transportation, in coordination with the Secretary of Defense, the Secretary of State, the Secretary of Commerce, the NASA Administrator, the Director of National Intelligence, and such other appropriate United States Government departments and agencies as the Secretary deems appropriate, is authorized to grant authorizations for missions in outer space. The Secretary shall grant such authorizations to the extent consistent with the international obligations, foreign policy and national security interests of the United States, and United States Government uses of outer space, with such conditions as the Secretary, in coordination with Secretary of Defense, the Secretary of State, the Secretary of Commerce, the NASA Administrator, the Director of National Intelligence, and other appropriate departments and agencies, deems necessary for compliance with United States international obligations, preservation of the foreign policy interests and national security of the United States, and protection of United States Government uses of outer space.

1. No person that is subject to the jurisdiction or control of the United States may, directly or through any subsidiary or affiliate, conduct missions in outer space without authorization under this section.
2. The following classes of Missions are exempt from this authorization requirement:
  - i. Government activities subject to section 50919(g);
  - ii. Missions for which licensing by the Department of Transportation under Chapter 509 of Title 51, the Federal Communications Commission under the Communications Act of 1934 (47 U.S.C. 151 et seq.), or by the Secretary of Commerce under chapter 601 of Title 51, is sufficient to fulfill the United States obligations under the Outer Space Treaty;
  - iii. Missions, or aspects thereof, conducted for or with one or more United States Government departments or agencies, unless the Secretary and the relevant departments or agencies determine that

an authorization is required to provide effective supervision of the mission, or aspects thereof;

(b) MISSION AUTHORIZATION REGISTRY. – The Secretary shall maintain a registry of Mission Authorizations and the information contained therein. The Secretary is authorized to require the holder of a Mission Authorization to provide updated information both on a periodic basis, and whenever the holder of the authorization experiences a material change to operations that would affect the affirmations and information that were originally submitted in support of the authorization. In the event of such material changes in operations, the Secretary, in coordination with Secretary of Defense, the Secretary of State, Secretary of Commerce, the NASA Administrator, the Director of National Intelligence, and other appropriate departments and agencies, shall make such modifications to mission authorizations as necessary for compliance with United States international obligations, preservation of the foreign policy interests and national security of the United States, and protection of United States Government uses of outer space.

(d) By inserting at the end of chapter 509,

a. Section 50925, Conjunction Analysis – The Secretary of Transportation, in coordination with the Secretary of Defense, is authorized to examine the planned and actual operational trajectories of space objects and advise operators as appropriate to facilitate prevention of collisions.