U.S. House of Representatives
Committee on Science, Space, and Technology
Subcommittee on Space

Necessary Updates to the Commercial Space Launch Act

CHARTER

Tuesday, February 4, 2014
2:00 p.m. – 4:00 p.m.
2318 Rayburn House Office Building

Purpose

The Subcommittee on Space will hold a hearing titled *Necessary Updates to the Commercial Space Launch Act* at 2:00 p.m. on Tuesday, February 4th. The industry has grown over the years since the passage of the Commercial Space Launch Act of 1984 (P.L. 98-575) thirty years ago, and this law has been amended several times since then. The Commercial Space Launch Act (CSLA) provides authority to the Federal Aviation Administration (FAA) to license launches and indemnify launch providers from third-party claims should an accident occur. The law also provides a framework for the FAA's regulatory authority. This hearing will examine the various changes in the industry and what, if any, accompanying changes to the Commercial Space Launch Act may be needed going forward.

Witnesses

- **Dr. George Nield –**Associate Administrator for Commercial Space Transportation, Federal Aviation Administration
- **Dr. Alicia Cackley –** Director of Financial Markets and Community Investment Team, Government Accountability Office
- **Dr. Henry Hertzfeld** – Research Professor of Space Policy and International Affairs, Elliot School of International Affairs, George Washington University

Background

In 1984, after mentioning the expendable launch services industry in his State of the Union Address,[1] President Reagan issued Executive Order Number 12465[2] which directed the Department of Transportation to take the lead on regulating and promoting commercial expendable launch services activities throughout the country. Shortly thereafter, Congress

[1] President Ronald Reagan, State of the Union Address, January 25, 1984.
http://www.presidency.ucsb.edu/ws/?pid=40205
[2] Executive Order Number 12465, published February 24, 1984; Federal Register - 49 FR 7211.
http://www.archives.gov/federal-register/codification/executive-order/12465.html

passed the Commercial Space Launch Act (P.L. 98-575) to, "devise an effective legislative framework that will facilitate and control space launch services provided by private enterprise."[3]

Prior to the Space Shuttle *Challenger* tragedy in January 1986, the Space Shuttle was the primary vehicle for delivering commercial satellites to orbit. Following the tragedy, Congress and Reagan Administration began work to reverse this policy and develop a new strategy for guaranteed access to space. This policy change also led to various legislative initiatives including the Assured Access to Space Act of 1986 and NASA Authorization Act of 1987.[4] On December 27, 1986, President Reagan issued National Security Decision Directive 254 (NSDD-254) which ended NASA's role in launching commercial and foreign satellites except in the interest of national security, foreign policy, or a payload unique to Shuttle.[5]

In 1988, Congress passed and President Reagan signed the Commercial Space Launch Act Amendments of 1988 (P.L. 100-657). The CSLAA was meant to ensure "that a commercial launch industry takes its place as a significant component of the U.S. space transportation system."[6] The most significant amendment in the CSLAA was the creation of the current third-party risk-sharing regime (indemnification) including the "maximum probable loss" calculation which provides an estimate for insurance required to cover possible damages to uninvolved third parties. The indemnification regime will be described later in more detail.

The passage of CSLAA in 1988 solidified the need for development of expendable launch vehicles rather than sole reliance on the Space Shuttle.[7] This shift in policy by both the President and Congress assured the Space Shuttle would no longer be in competition with the private space launch market and created a need for the development of new rockets.[8]

Since the first FAA-licensed commercial launch in 1989, the FAA Office of Commercial Space Transportation (FAA-AST) has issued 217 launch licenses of which 17 are active for the 2014-2018 timeframe.

Some of the challenges faced by the commercial space industry include outdated regulations and federal laws, compliance with federal export control regimes, and international competition. The commercial space industry also leverages investments made by federal government agencies like the Department of Defense, NASA, and NOAA as part of their business plan. Future growth in the U.S. commercial space sector is highly dependent on the federal government providing an efficient and flexible legal and regulatory framework.

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[3] Representative Harold Volkmer (MO-9) in floor debate on H.R. 3942, the Commercial Space Launch Act, June 5, 1984.

[4] Title IV of H.R. 5495, the National Aeronautics and Space Administration Authorization Act of 1987, pocket vetoed by President Ronald Reagan on November 14, 1986.

[5] National Security Decision Directive 254- National Space Launch Capability, Section C http://www.reagan.utexas.edu/archives/reference/Scanned%20NSDDS/NSDD254.pdf

[6] Rep. Roe (NJ-8) in floor debate on H.R. 4399, the Commercial Space Launch Act Amendments of 1988, May 24, 1988.

[7] House Committee on Science, Space, and Technology, Committee Report, Commercial Space Launch Act Amendments of 1988, p. 3.

[8] Although Congress did not pass amendments to the Commercial Space Launch Act until 1988, multiple hearings and legislative attempts made clear the intent of Congress to reverse the standing policy for the use of Shuttle as the main lifting body for commercial payloads following the *Challenger* tragedy.

Key Issues

Third-party Liability Risk-Sharing Regime

The Commercial Space Launch Act Amendments of 1988 (P.L. 100-657) established a tiered risk-sharing regime for third-party liabilities associated with commercial space launch.[9] The purpose of the regime is to limit the liability of the launch companies for claims made by the uninvolved public.

There are three tiers to the regime. The first tier is the responsibility of the launch provider. As part of the FAA licensure process for the launch, the provider must purchase insurance that covers third parties, including the government, for injury, loss or damage up to a limit of $500 million. The limit below the statutory ceiling is determined by FAA as the maximum probable loss (MPL).[10]

The second tier is the 'indemnification' portion of the regime. If a successful claim were to be in excess of the maximum probable loss, the government is authorized to pay, subject to appropriation, an amount up to a total of $1.5 billion in claims over the first tier. This ceiling is adjusted for inflation and represents approximately $2.7 billion as of 2012.[11]

The final tier is the responsibility of the launch provider. The company or legally responsible party is liable for claims in excess of the maximum probable loss and the authorized $2.7 billion indemnification.

The creation of the third-party liability regime in the CSLAA was debated extensively in the House Committee on Science, Space, and Technology as well as the House floor. When President Reagan issued NSDD-254, effectively ending the Shuttle's involvement in commercial satellite launches, there were 44 satellite companies that had launch services agreements with NASA.[12] Following the *Challenger* tragedy and the aggressive campaigns of the Europeans, Japanese, Chinese, and Soviets to launch those commercial satellites,[13] Congress passed the CSLAA in an attempt to give a backstop to a fledgling industry in hopes of growing domestic U.S. capabilities.

The original legislation included a sunset provision to the launch liability regime which expired five years after passage.[14] Since its original passage, this sunset[15] has been extended 6 times, most recently for 3 years until December 31, 2016.[16]

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[9] Section 5(a) of the Commercial Space Launch Act Amendments of 1988 (P.L. 100-657) http://www.gpo.gov/fdsys/pkg/STATUTE-102/pdf/STATUTE-102-Pg3900.pdf
[10] *Ibid.*
[11] GAO-12-767T, p. 5, Testimony before the Science, Space, and Technology Committee, June 6, 2012. http://www.gao.gov/assets/600/591391.pdf
[12] *Ibid., 6*
[13] *Ibid., 6*
[14] *Ibid., 9*
[15] 51 USC 50915

Obligations under the Outer Space Treaty of 1967 and the Liability Convention of 1974

On October 10, 1967, the United States became a signatory to the Outer Space Treaty.[17] Each signatory of the treaty is liable under Article VII for third-party damage "to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air space or in outer space, including the moon and other celestial bodies." Additionally, the Liability Convention of 1974[18] obligates the United States to cover these damages whether the launch is private or government acquired.[19]

The use of the risk-sharing regime to satisfy treaty obligations is a necessary precaution under both documents. Whether the regime was in place or not, the United States would still be obliged to rectify any damages incurred by the injured nation. However, it is unlikely that damages paid to a foreign country would exceed the MPL given the position of our launching facilities and that the early stages of launch are typically the most dangerous.[20] It is most likely that any damage would be covered by the first tier of the regime.

Regulatory Learning Period

In 2004, Congress passed the Commercial Space Launch Amendments Act of 2004 (P.L. 108-492) to promote the emerging commercial human spaceflight industry following the successful suborbital flights of the SpaceShipOne, winning the team the $10 million Ansari X Prize. This legislation included a "regulatory learning period."[21] The learning period was included to ensure the FAA would not overregulate the industry before it had the opportunity to grow.[22] Without launching and operating commercial human flights, industry and regulators have limited data to inform safety rules, which could lead to uninformed or unnecessary regulations that would stifle the growing industry.

The 2004 Act included a sunset for the learning period which ended in 2012. However, recognizing there was still a great deal of testing and data to gather on these human launch systems, Congress extended the period to October 1, 2015 in the FAA Modernization and Reform Act of 2012.[23]

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[16] Section 8, Launch Liability Extension- H.R. 3547, the Consolidated Appropriations Act, 2014 http://www.congress.gov/cgi-lis/lis

[17] "Treaty on principles governing the activities of states in the exploration and use of outer space, including the moon and other celestial bodies," opened for signature on January 27, 1967; the Senate gave unanimous consent on October 10, 1967. http://www.unoosa.org/oosa/SpaceLaw/outerspt.html

[18] The Convention on International Liability for Damage Caused by Space Objects. http://www.oosa.unvienna.org/oosa/SpaceLaw/liability.html

[19] Article II of ""The Convention on International Liability for Damage Caused by Space Objects"

[20] Schaefer, Matthew; 2013, "Liability Issues Regarding Third Parties and Space Flight Participants in Commercial Space Activities: The Path Forward", p.16 http://law.unl.edu/facstaff/faculty/resident/mschaefer.shtml#pubs_articles (Contact author for copy.)

[21] 51 USC 50905(c)(3)

[22] Rep. Rorhabacher (CA-46) in floor debate on H.R. 5382, The Commercial Space Launch Amendments Act of November 19, 2004.

[23] Sec. 827 of the FAA Modernization and Reform Act of 2012 http://www.gpo.gov/fdsys/pkg/BILLS-112hr658enr/pdf/BILLS-112hr658enr.pdf

Under the CSLA, launch providers are required to provide informed consent for spaceflight participants, that "the United States Government has not certified the launch vehicle as safe for carrying crew or space flight participants."[24] This informed consent mechanism is meant to insure transparency and full disclosure for the participant that there is an inherent risk in spaceflight and that the FAA has not certified the vehicle as safe for the general public.

The FAA is obliged to enact only those regulations which restrict design features or operating practices that (1) protect the public health and safety, safety of property, national security interests, and foreign policy interests of the United States[25]; (2) have resulted in a serious or fatal injury; or (3) contributed to an unplanned event or series of events during a licensed or permitted commercial human space flight that posed a high risk of causing a serious or fatal injury.[26] Industry representatives and commercial spaceflight advocates have argued that the extension of the learning period is essential for the growth of the commercial suborbital tourism industry.[27]

Key Questions

In addition to the issues listed above, there are regulatory and statutory issues for consideration such as: the regulation of hybrid launch systems, such as those employed by Virgin Galactic, which uses a carrier aircraft to carry the suborbital vehicle to a certain altitude where it will be released and a rocket engine will carry the vehicle higher; the potential conflict between FAA's direction to both *promote* and *regulate* the commercial space industry as required under the CSLA[28]; and including spaceflight participants in the third-party risk-sharing regime.

Key questions for Congress include:

- What is the proper government role in regulating the commercial space sector?
- Does the current regulatory framework facilitate innovation?
- How do current FAA regulatory processes and procedures affect the commercial space market?
- How does the U.S. compare with other nations when it comes to preserving its space industrial base and incubating the emerging commercial market?
- Is the third-party risk-sharing regime still necessary for the commercial space launch market to be internationally competitive?
- Is the regulatory learning period still necessary to encourage growth and innovation?

[24] 51 USC 50905(4)(b)
[25] 51 USC 50905(c)(4)
[26] 51 USC 50905 (c)(2)
[27] Mr. Stuart Witt, CEO of Mojave Air and Space Port in testimony before the House Committee on Science, Space, and Technology's Subcommittee on Space, November 20, 2013.
[28] 51 USC 50903