Commercial Space: Questions Regarding the Legal and Regulatory Environment

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Agenda

- Overview of U.S. laws and regulations applicable to commercial space
- International Treaties that address space exploration
- Export controls and international cooperation
Applicable U.S. Laws

- U.S. law applies to governmental and non-governmental space activities through, inter alia:
  - Commercial Space Launch Act
  - Land Remote Sensing Policy Act
  - Communications Act of 1934
  - National Aeronautics and Space Act
Commercial Space Launch Act (CSLA) 51 U.S.C. §§ 50901-50923

- Administered by the Office of Commercial Space Transportation, Federal Aviation Administration of the U.S. Department of Transportation

- Purposes:
  - Safely open access to space and encourage private sector development
  - Simplify and expedite issuance and transfer of launch and reentry licenses
  - Promote safety
  - Strengthen and expand space transportation infrastructure
CSLA: Licensing Requirements

- FAA license required for:
  1. Launch/reentry in U.S.;
  2. For launch/reentry by U.S. citizen outside U.S.;
  3. For launch/reentry by U.S. citizen outside U.S. and outside territory of foreign country, unless foreign country’s government has an agreement with U.S. on jurisdiction over the launch or operation; and
  4. For launch/reentry by U.S. citizen in foreign country if U.S. has jurisdiction by agreement with government of foreign country

- Pre-application consultation required
CSLA: Other Requirements

- License application subject to policy, safety and environmental impact reviews
- Must provide information to FAA for compliance with Registration Convention
- Orbital debris mitigation
- Flight crew qualifications, training, safety and waiver of claims against U.S.
CSLA: Insurance and Financial Responsibility

- Licensee must obtain third party liability insurance or demonstrate financial ability to pay maximum probable loss (MPL) arising from third party claims
  - MPL established for each license by FAA (maximum $500 million; $100 million for loss or damage of U.S. government property)
  - U.S. government to pay damages that exceed amount of third party liability insurance, up to $1.5 billion (adjusted for inflation)
  - Licensee must include reciprocal waiver of claims in contracts with customer, contractors and subs

- Administered by the National Oceanic and Atmospheric Administration of the Department of Commerce
- Purposes:
  - Stimulate commercial marketing for unenhanced data
  - Furthering the long-term role of commercialization of land remote sensing
  - Promote international trade and access to unenhanced data on a nondiscriminatory basis
LRSPA: Licensing and Oversight

- License required to operate private remote sensing satellite systems
- Provide NOAA with orbit and data collection characteristics and any deviations
- Proper post-mission disposal
- Government approval required for any “significant or substantial agreement” with a foreign entity
LRSPA: Data Sharing Obligations

- To extent consistent with national security, foreign policy and international obligations:
  - Make available to government of any country unenhanced data related to territory under jurisdiction of that government
  - Make unenhanced data designated by the Secretary of Commerce available to all users without preference or special arrangement regarding delivery, pricing or technical considerations
  - May make data available at reduced prices for noncommercial purposes, such as education or research
Communications Act of 1934
47 U.S.C. §§ 151 et seq.

- Administered by the Federal Communications Commission
- Licensing and operating requirements for satellites and associated ground stations
- Purposes:
  - Avoid radio frequency interference
  - Coordinate commercial satellite operations in U.S.
  - Coordinate international satellite operations and use of the frequency spectrum, along with the National Telecommunications and Information Administration, through the International Telecommunication Union
Communications Act: Orbital Debris Mitigation

- Purposes:
  - Preserve continued affordable access to space
  - Continue provision of reliable U.S. space-based services
  - Help ensure the continued safety of persons and property in space and on Earth

- Submit mitigation plan with license application

- End-of-life operation requirements
  - Consistent with ITU requirements
  - Ensure discharge of energy sources
National Aeronautics and Space Act of 1958
42 U.S.C. §§ 2451-2487

- Authorized creation of NASA
- Objectives and Responsibilities:
  - International cooperation
  - Expand knowledge of Earth and space
  - Disseminate information on NASA activities
  - Encourage commercial use of space and use by the U.S. Government of commercially provided services and hardware
  - Improve usefulness, performance, speed, safety and efficiency of aeronautical and space vehicles
  - Establish studies on the benefits from and problems involved in the use of space for peaceful and scientific purposes
  - Conduct aeronautical and space activities
  - Arrange for participation by the scientific community in scientific measurements and observations
Other Statutory Provisions Relevant to the Commercial Use of Space


- 35 U.S.C. § 105: U.S. patent laws apply to inventions made in space on a space object under U.S. jurisdiction or control

- 42 U.S.C. §§ 14713 and 14715: Acquire space science and Earth science data from commercial providers
International Space Treaties

- **Outer Space Treaty**
  - Treaty on Principles Governing the Activities of States in the Exploration and use of Outer Space, Including the Moon and Other Celestial Bodies (Oct. 10, 1967)

- **Liability Convention**
  - Convention on International Liability for Damage Caused by Space Objects (Oct. 9, 1973)

- **Registration Convention**
  - Convention on the Registration of Objects Launched into Outer Space (Sept. 15, 1976)

- **Rescue and Return Agreement**
  - Agreement on Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (Dec. 3, 1968)
Outer Space Treaty

Basic framework on international space law, including the following principles:

- Exploration and use of outer space shall be carried out for the benefit and in the interests of all countries and shall be the province of all mankind;
- Outer space shall be free for exploration and use by all States;
- Outer space is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means;
- States shall not place nuclear weapons or other weapons of mass destruction in orbit or on celestial bodies or station them in outer space in any other manner;
Outer Space Treaty – Principles (cont.)

- The Moon and other celestial bodies shall be used exclusively for peaceful purposes;
- Astronauts shall be regarded as the envoys of mankind;
- States shall be responsible for national space activities whether carried out by governmental or non-governmental entities;
- States shall be liable for damage caused by their space objects; and
- States shall avoid harmful contamination of space and celestial bodies.
Liability Convention

- Elaborates on Article 7 of the Outer Space Treaty which establishes liability of launching state

- Launching State shall be:
  - absolutely liable to pay compensation for damage caused by its space objects on the surface of the Earth or to aircraft, and
  - liable for damage due to its faults in space.

- The Convention also provides for procedures for the settlement of claims for damages.
Launching State should furnish to the U.N. the following information concerning each space object:

- Name of launching State;
- An appropriate designator of the space object or its registration number;
- Date and territory or location of launch;
- Basic orbital parameters, including:
  - Nodal period (the time between two successive northbound crossings of the equator - usually in minutes);
  - Inclination (inclination of the orbit - polar orbit is 90 degrees and equatorial orbit is 0 degrees);
  - Apogee;
  - Perigee
- General function of the space object.
Rescue and Return Agreement

- Elaborates articles 5 and 8 of the Outer Space Treaty

- States shall take all possible steps to rescue and assist astronauts in distress and promptly return them to the launching State, and

- States shall, upon request, provide assistance to launching States in recovering space objects that return to Earth outside the territory of the Launching State.
Export Controls and International Cooperation

- International Traffic in Arms Regulations
  - USML Category XV
  - Technical Assistance Agreements
  - Technology Transfer Control Plans
- Relevant Licensing Offices
  - Directorate of Defense Trade Controls
  - Defense Technology and Security Administration
- Congressional Notification
Helpful Links

- United Nations Office for Outer Space Affairs
  - http://www.oosa.unvienna.org/oosa/

- FAA Office of Commercial Space Transportation
  - http://www.faa.gov/about/office_org/headquarters_offices/ast/

- NASA Commercial Space Transportation
  - http://www.nasa.gov/exploration/commercial/