



Commercial Space Update

Aeronautics and Space Engineering Board

Presented by:

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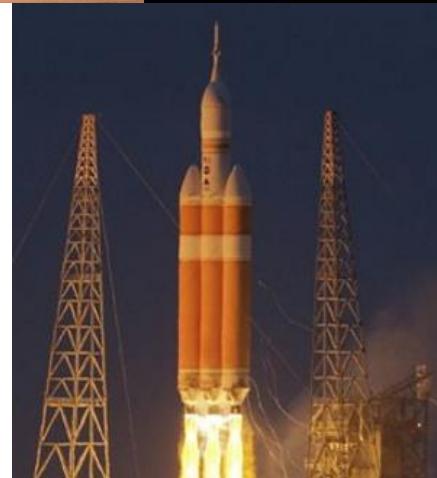


Federal Aviation
Administration

AST Mission

To ensure the protection of the public, property, and the national security and foreign policy interests of the United States during commercial launch and reentry activities ...

... and to encourage, facilitate, and promote U.S. commercial space transportation.



By the Numbers



Recent Activities

- **Blue Origin** demonstrated the reusability of its launch vehicle by launching and landing the same rocket multiple times.
- **SpaceX** has shown repeatedly that it can successfully launch and land its Falcon 9 rocket booster on a barge off both coasts under a variety of conditions.
- **Virgin Galactic** was issued its first launch license for the SpaceShipTwo vehicle to begin testing for human suborbital spaceflight launches.
- **Boeing** has begun the licensing process with FAA for the first commercial human orbital launches to ferry astronauts to and from the International Space Station. Last year, both Boeing and SpaceX made headway toward this effort.
- **Moon Express** received a positive payload review from FAA of Moon Express's lunar lander, the first payload review of its kind. The review enables Moon Express to take another step in their effort to compete for the \$20 million *Google Lunar X Prize*. The prize will be awarded to the first privately funded team that can land a robot on the moon and make it travel 500 meters.

Challenges and Opportunities

- **Licensing and Permitting**
- **Regulatory Reform**
- **Spaceports**
- **Space Situational Awareness (SSA)**
- **Stakeholder Engagement**



Licensing and Permitting

- The pace, diversity, and complexity of U.S. commercial space transportation has significantly increased in recent years and is expected to continue to trend upward.
- This dynamic poses a very significant challenge to AST to keep pace with demand for licenses and permits as the industry moves ahead.



Regulatory Reform

- Several of FAA's commercial space regulations are ripe for streamlining and efficiency actions.
- FAA looks to transform these into performance based regulations that simultaneously protect public health and safety and provide the FAA with the flexibility to accommodate new technologies, launches from non-federal ranges, and the ever-increasing rate of commercial space launches and reentries.
- FAA is constantly evaluating regulations for opportunities to improve, streamline, and modernize. As resources become available to undertake rulemaking projects, AST assigns those resources to projects to maximize positive impact for public health and safety and industry stakeholders.

Spaceports

- A number of communities, including state and local governments, want spaceports.
- FAA is reviewing a number of proposals for spaceports, some from non-traditional places, including inland and on/near airports.
- FAA 2017 Strategic Initiative: *Spaceport Categorization Framework* to enhance communications for stakeholders and FAA, and support NAS integration efforts.



Space Situational Awareness (SSA)

- DoD currently provides SSA data to commercial and certain foreign operators in space.
- FAA and DoD are jointly examining whether SSA data sharing with non-USG operators in space can be executed by a civil agency.
- Congress must grant authority, and appropriate the required resources, in order for a civil agency to provide SSA data sharing services.
- FAA 2017 Strategic Initiative: *Concept of Operations for SSA Data Sharing* to inform USG decision making going forward.

Stakeholder Engagement

- FAA relies on the Commercial Space Transportation Advisory Committee (COMSTAC) to provide information, advice, and recommendations on technology, business, and policy issues.
- COMSTAC maintains a balanced and diverse membership of approximately 25 individual members.
- The economic, technical, and institutional expertise provided by the committee has been invaluable to DOT/FAA's work to ensure safety during U.S. commercial launch operations and support for U.S. industry competitiveness.
- FAA continues to look for opportunities to strengthen engagement of the industry as part of our mandate to encourage, facilitate and promote the industry.

Summary/Conclusion

- The future of the commercial space industry is very bright. We need only to look at the incredible investments by spirited Americans all over the country to see how important this sector of American ingenuity and entrepreneurship is becoming.
- As the United States continues to provide the safest national airspace and aviation industry in the world, we at the FAA will continue to look to our partners in business, academia, and government to keep pace with this growing and dynamic industry.