



**Federal Aviation
Administration**

Commercial Space Transportation Update

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Associate Administrator for
Commercial Space Transportation**

**Aeronautics and Space
Engineering Board Meeting**

April 25, 2016



SpaceShipTwo Rollout



Commercial Cargo Program

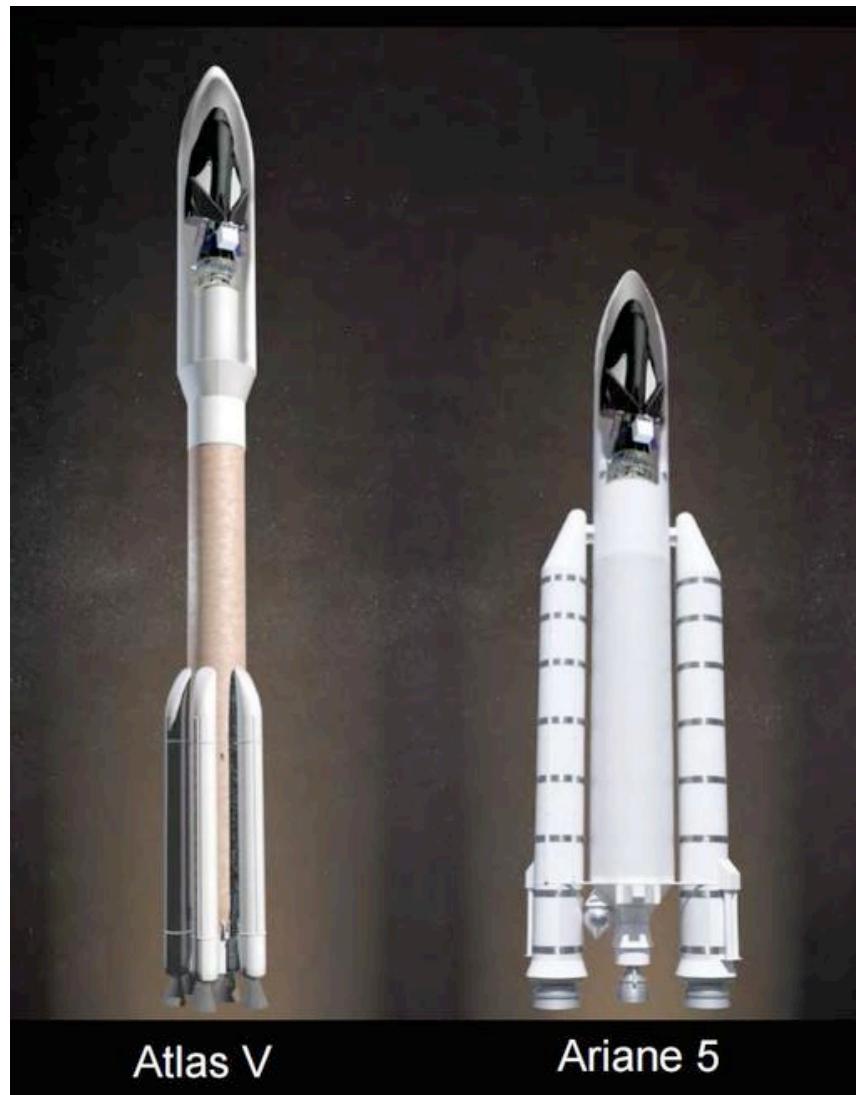


SPACEX

Orbital ATK



Commercial Cargo – A New Provider



Sierra Nevada Corporation
Dream Chaser



Falcon 9 1st Stage Landing



Autonomous Spaceport Drone Ship



Blue Origin



Commercial Crew Program



Boeing Starliner



SpaceX Dragon 2

Commercial Crew & Cargo Processing Facility



Launch Complex-39A



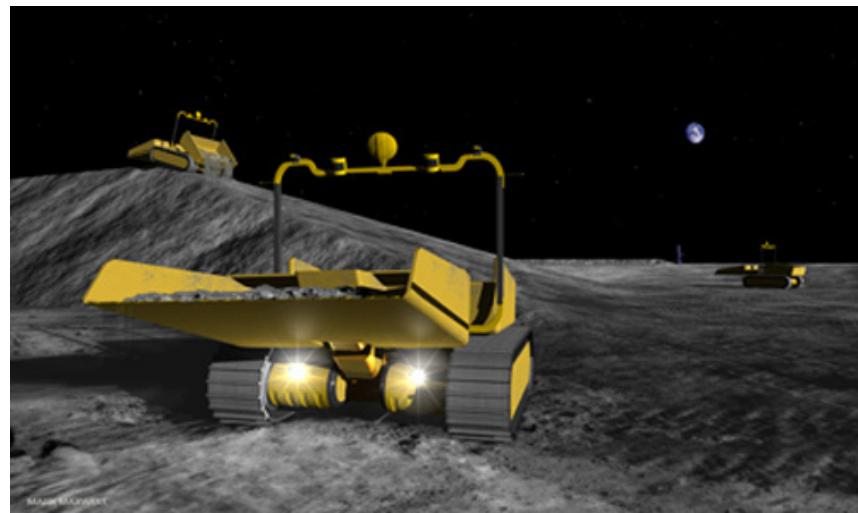
Potential Orbital ATK Use of VAB



On-Orbit Issues

- How can we enable new, non-traditional commercial operations in space?
- What, if anything, should be done in response to the proliferation of CubeSats and the continuing increase in Orbital Debris?
- What is the best way for the U.S. government to provide Space Traffic Management services?

Nontraditional Commercial Space Operations



Outer Space Treaty

Article VI

“The activities of non-governmental entities in outer space ... shall require authorization and continuing supervision by the appropriate State Party to the Treaty.”

Key Stakeholders

- Department of Transportation (DOT)
 - Federal Aviation Administration (FAA)
- Department of Defense (DOD)
- Department of Commerce (DOC)
 - National Oceanic and Atmospheric Administration (NOAA)
 - National Telecommunication and Information Agency (NTIA)
- Department of State (DOS)
- National Aeronautics and Space Administration (NASA)
- Office of the Director of National Intelligence (ODNI)
- Federal Communications Commission (FCC)

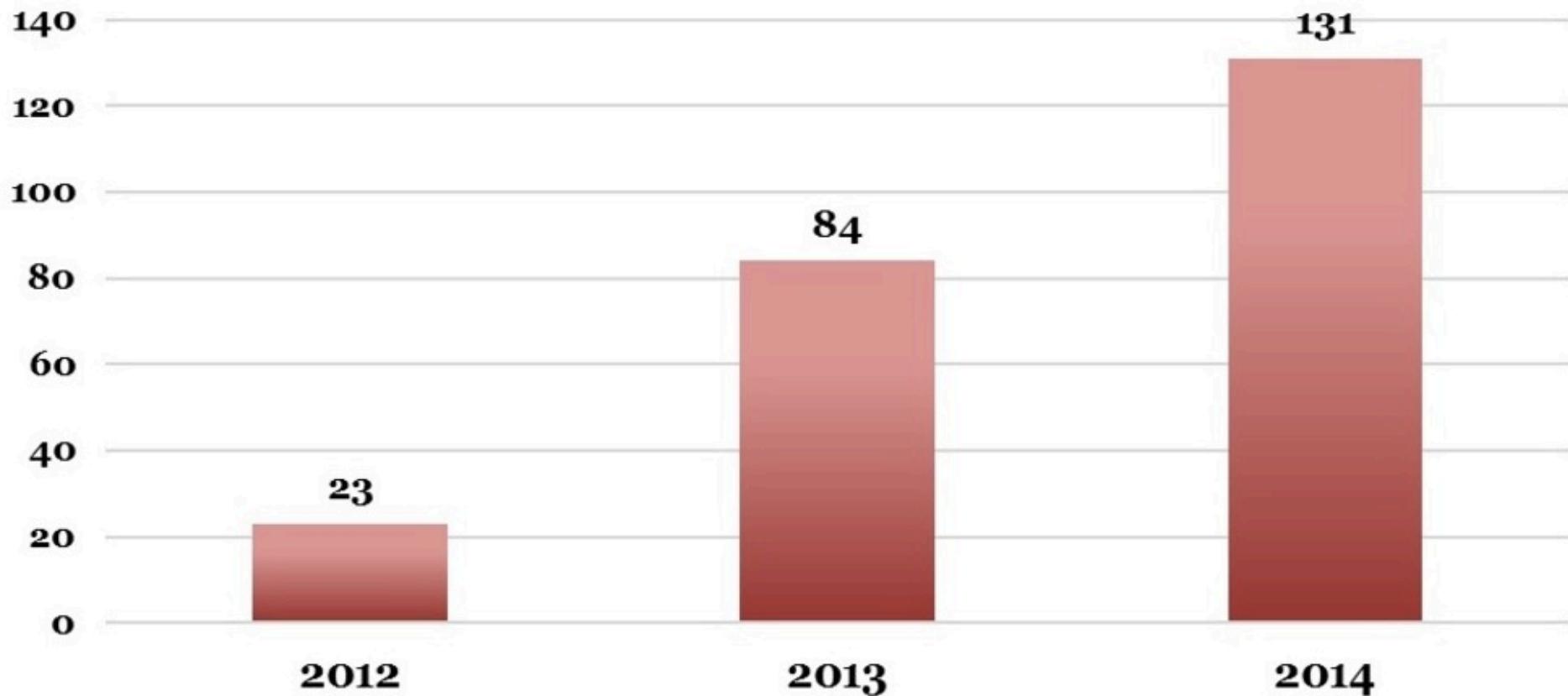


Existing Regulatory Framework

- FAA – Responsible for licensing commercial launches and reentries
- FCC – Responsible for licensing radio broadcasts from space
- NOAA – Responsible for licensing remote sensing operations (such as taking pictures of the Earth)

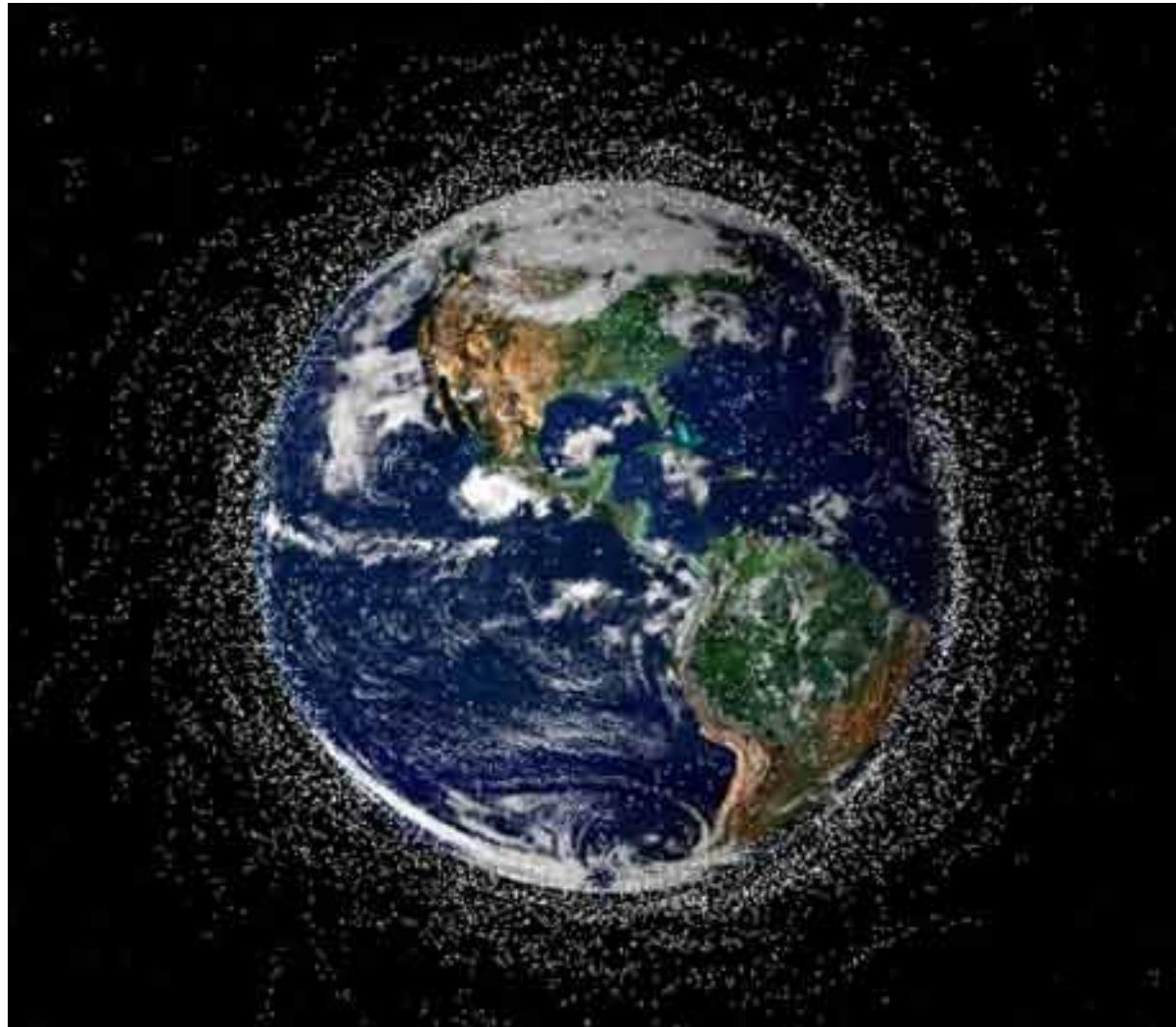
- DoD and NASA are key players in space, but they are not regulatory agencies

CubeSats Launched Per Year



From Space Digest – 2014 Year in Review

Orbital Debris



Congressional Action





1ST REP. JIM BRIDENSTINE
OKLAHOMA'S FIRST DISTRICT

WWW.SPACERENAISSANCEACT.COM

AMERICAN SPACE RENAISSANCE ACT

—
REP. JIM BRIDENSTINE
OKLAHOMA'S FIRST DISTRICT



A Potential Way Forward

- Enable new, non-traditional commercial space activities by allowing the FAA to issue a Mission License or Authorization for those operations.
- Begin transitioning commercial collision avoidance assessments from DoD to the FAA.
- Designate the Department of Transportation as the lead federal agency for providing Space Traffic Management services to commercial space operators.

Closing Thoughts

- This is an exciting time for commercial space, and the pace of activities appears to be accelerating.
- If we want these commercial endeavors to be successful, it will be important to ensure that the federal government does not undermine industry's efforts through a lack of final decisions on policy or a failure to provide timely feedback.
- Two key issues needing attention this year are:
 - How should we handle new, non-traditional commercial space operations?
 - Is it feasible for a civil agency to process and release safety-related Space Situational Awareness data?

Backup Charts



U.S. Commercial Space Launch Competitiveness Act (1)

- OSTP is to prepare a report on Space Authority, due in 120 days
 - Assess current and proposed commercial space activities
 - Identify appropriate oversight authorities
 - Recommend an oversight approach
- The President is to prepare a report on Space Resource Exploration and Utilization, due in 180 days
 - Identify the authorities necessary to meet international obligations
 - Make recommendations for the allocation of responsibilities among Federal agencies

U.S. Commercial Space Launch Competitiveness Act (2)

- The Secretary of Transportation is to prepare a report on Space Surveillance and Situational Awareness, due in 120 days
 - Study the feasibility of processing and releasing safety-related SSA data and information to any entity consistent with national security interests and public safety obligations of the United States

U.S. Commercial Space Launch Competitiveness Act (3)

- NASA is to contract for a report on Space Traffic Management and Orbital Debris, due in 1 year
 - Assess current regulations, best practices, and industry standards
 - Assess current authorities for FCC, FAA, and NOAA
 - Review current treaty requirements
 - Assess existing government assets for STM and SSA
 - Assess the risks associated with smallsats
 - Make recommendations on the proper framework to protect public safety and the economic vitality of the space industry

American Space Renaissance Act (1)

- Establishes the position of Assistant Secretary of Transportation for Commercial Space Transportation
- Authorizes AST appropriations for FY17-FY21
 - FY17 - \$43.2M
 - FY18 - \$55.5M
 - FY19 - \$66.0M
 - FY20 - \$80.5M
 - FY21 - \$99.0M

American Space Renaissance Act (2)

- Establishes an Office of Spaceports within AST
- Updates and funds the Space Transportation Infrastructure Matching Grants program
- Establishes a prize account for commercial space activities
- Establishes a loan guarantee program within the Department of Commerce to support the space industrial base
- Permits the Secretary of Transportation to allow experimental aircraft to be used for spaceflight training at FAA licensed spaceports

American Space Renaissance Act (3)

- Authorizes the Secretary of Transportation to obtain Space Situational Awareness information and provide it to civil, commercial, and international entities
- Directs that a lead Government agency be designated for Space Traffic Management activities and services