

US Commercial Space Transportation Regulatory Approach

ICAO/UNOOSA

Aerospace Symposium

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**Federal Aviation
Administration**

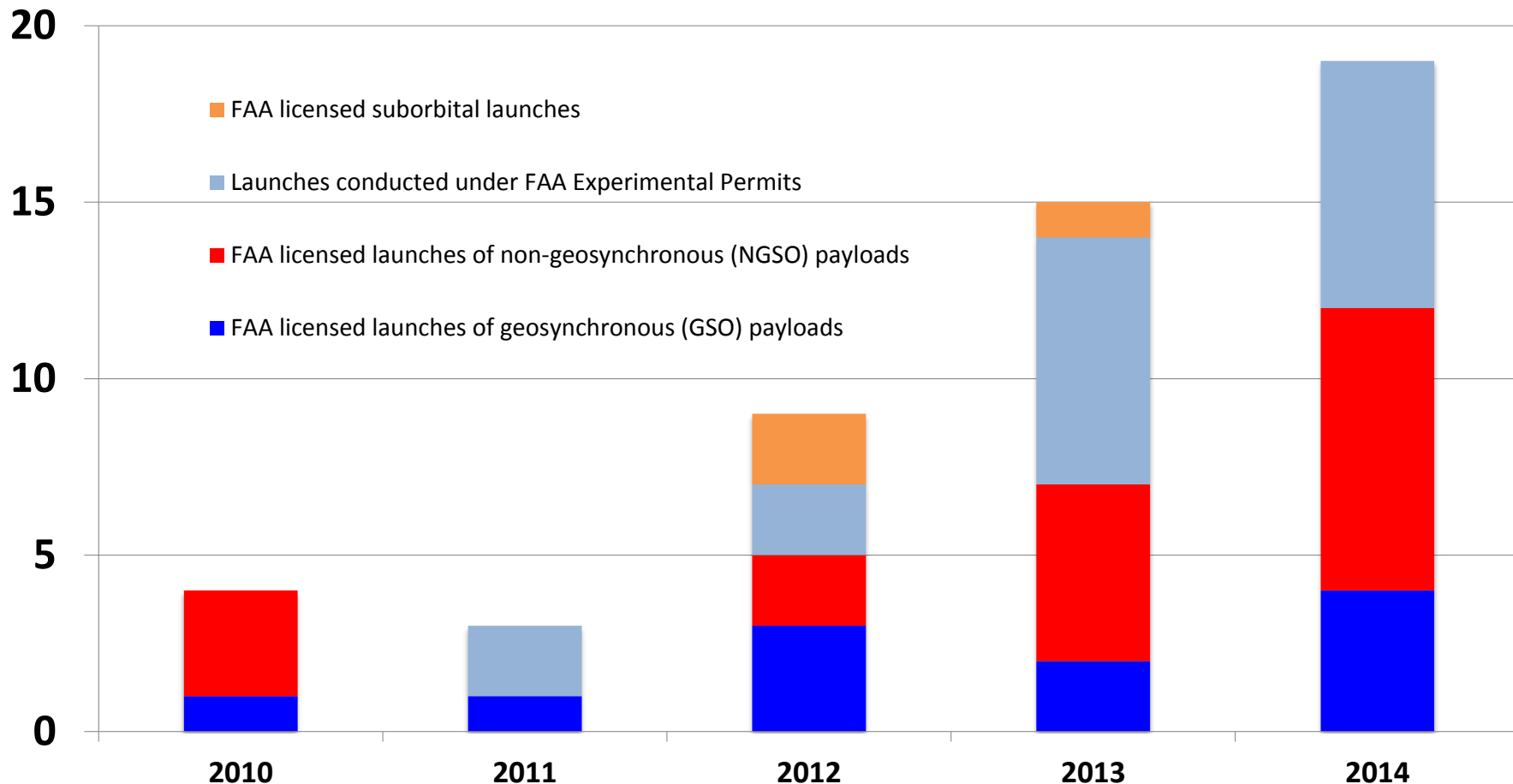
*Office of Commercial
Space Transportation*



Regulatory Challenge

- Commercial Space Transportation is experiencing rapid growth and new vehicle development.
- Diversity of vehicle types, launch configurations, and spaceport layouts pose a regulatory challenge.
- Regulations must reflect the velocity of industry development and its wide technical diversity

FAA-Licensed Launches, 2010 - 2014



Includes 13 licensed launches of payloads for DoD, NASA, and NOAA



Industry Operational Changes

PAST

Government Rocket

Government
Launch Complex

Government
Range Services

Expendable Vehicle

Vertical Launch

NOW/FUTURE

- Commercial
- Contract
- Recreational
- Government
- Leased
- Private
- Government
- Contracted
- Private
- Expendable
- Returnable Stage
- Reusable
- Vertical
- Horizontal
- Hybrid/Carrier
- Balloon

Expanding Range of Regulated Operations

ELVs, Suborbital RLVs, Orbital Human Vehicles, Habitats



Virgin Galactic



Sierra Nevada Corp



Boeing



XCOR Aerospace



Masten Space System



Blue Origin



Orbital Sciences



Space X



Bigelow Aerospace

APPROACH TO SAFETY

- Regulate operator to ensure public safety – People and property not involved in flight
- Require space flight participants to acknowledge informed consent in accepting flight risk
- Encourage operators to accept recommended practices for human space flight

FAA LICENSING/PERMITTING PROCESS



- Explain Regulatory Requirements
- Understand Applicants Concept of Operations

- Flight Safety Evaluation
- Systems Safety Evaluation
- Safety Management System

- Inspection of Compliance with License/Permit
- Inspection of Compliance with Applicant's Procedures

FAA Regulatory Products

- Launch License
- Re-Entry License
- Launch Permit
- Operator's License
- Operator's Permit
- Launch Site License
- Safety Approval

Safety Inspections

- Flight Operations
- Re-Entry
- Rehearsals
- Facility Inspections
- Site Inspections
- Safety Procedures
- Commander's Advisory Board



Interfaces with Aviation Regulation

- Air Traffic Control
- Airports
- Aircraft Certification
- Flight Standards
- Manufacturing Inspection District Office
- Flight Standards District Office
- Rulemaking
- Civil Aviation
- Integrating Into Controlled Air Space
- Integrating co-Located Space Ports
- Hybrid/Carrier Aircraft Certification
- Pilot Certification
- Local Oversight of Aircraft Manufacturing
- Oversight of Certified Aircraft
- Coordination with Aviation Regulations
- Possible Data on Space Flight Participants

FAA/AST Regulatory Progression

