

The Evolving Regulatory Context for SmallSats

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Secure World Foundation – Who We Are

- Secure World Foundation *is a private operating foundation* that promotes cooperative solutions for space sustainability

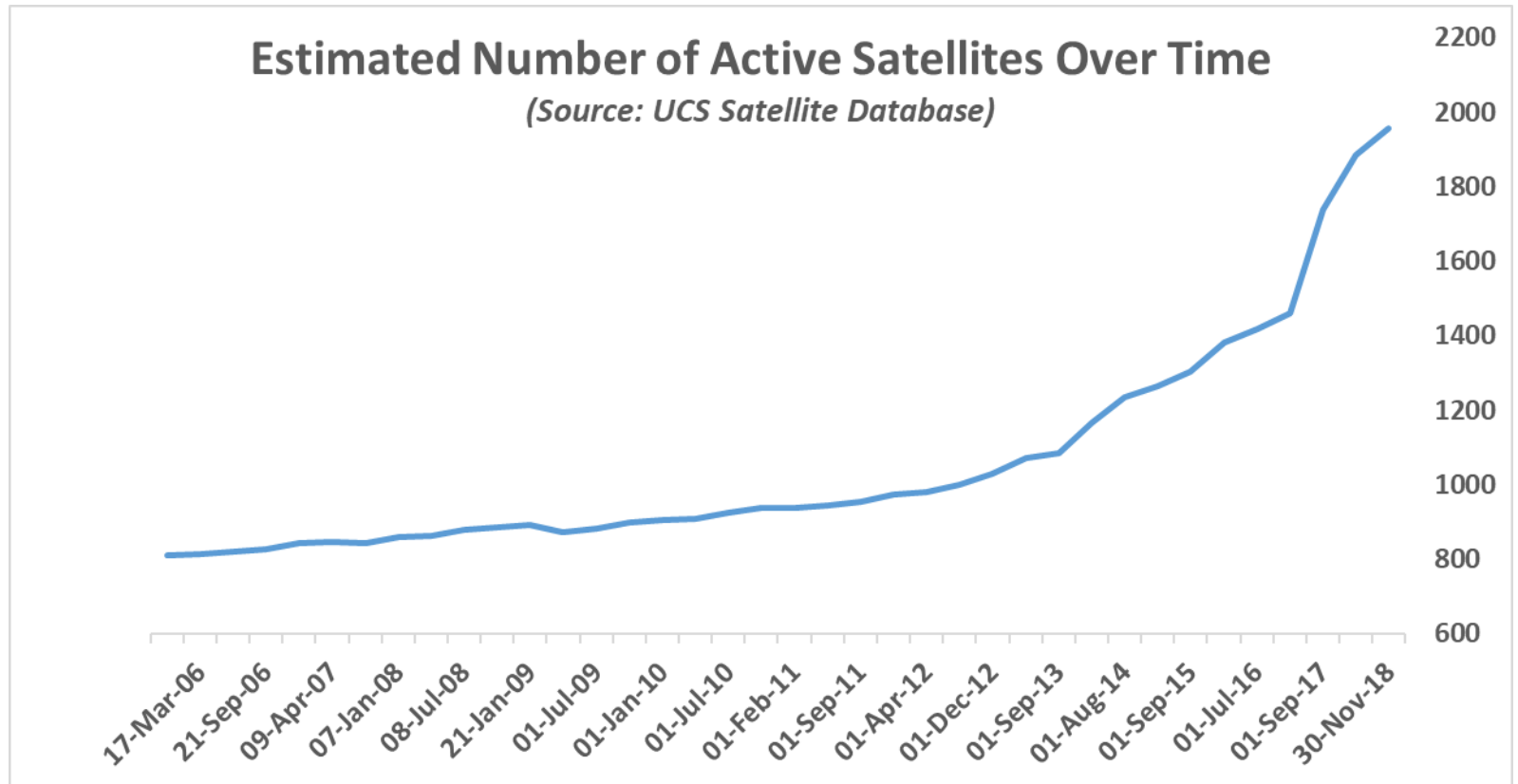


The Foundation acts as a research body, convener and facilitator to examine key space policy topics often through partnership.

Secure World Foundation – Key Focus Areas

- **Space Sustainability:** Ensuring that all of humanity can continue to use outer space for peaceful purposes and socioeconomic benefit over the long term
- **Space Policy and Law Development:** Promoting and assisting in the development of international and national norms, laws, and policies to foster responsible behavior by States and private sector actors
- **Human and Environmental Security:** Promoting improved governance and international cooperation in the delivery of information derived from space systems, and promoting cooperative efforts for the protection of our planet from the threat of near-Earth objects (NEOs)

A Fundamental Change?



Operating satellites as of March 31, 2019: 2,062

Forecast: Up to 2800 micro/nanosatellites to launch in the next 5 years

Large-constellations: 16,000+ announced satellites, many not included in above

Small Satellites and Small Launch

Small Satellites & Cube Satellites

Opportunities

- Lower costs of access to space technology
- Lower technical and scientific barriers
- Broaden and diversify actors and users
- Enable new applications and services
- Commonly operate at low altitudes with short-lifespans (although this may be changing)

Challenges

- Diverse, heterogeneous set of actors
- Pace of innovation challenges regulatory fit and efficiency
- Often lack propulsion and have limited maneuverability and may pose challenges for tracking
- Reliability may be limited



Source: [SpaceNews](#) and Spaceflight Industries

Small-class Launch Services

- Emerging market for launch services focused on small satellites
- Challenges in developing best practices for payload deployment and identification
- Launch operators as de-facto gatekeeper for payload regulatory compliance
- Rapid & regular launch cadence will challenge efficacy of licensing regime

Regulatory Reform: Space Policy Directive-2



(Image: © White House Photo by Shealah Craighead)

- **Building on Earlier Work:** Regulatory reform efforts, focusing on SSA/STM began in the Obama administration
- **Review and Streamlining:** Initiated a review and streamlining process across all executive branch agencies with role in oversight and regulation of commercial and non-governmental space activities in the U.S.
- **Reorganization:** Directed efforts to increase the role of the Department of Commerce in oversight and promotion of space activities
- **Rulemaking:** Initiated a number of rule making activities related to launch, remote sensing and export control
- **Coordination:** The FCC is not directly subject to SPD-2, so executive branch agencies are directed to coordinate with the Chairman of the FCC

Recent U.S. Rulemaking Proceedings



FCC

"Streamlining Licensing Procedures for Small Satellites"

"Mitigation of Orbital Debris in the New Space Age"



NOAA

"Licensing of Private Remote Sensing Space Systems"



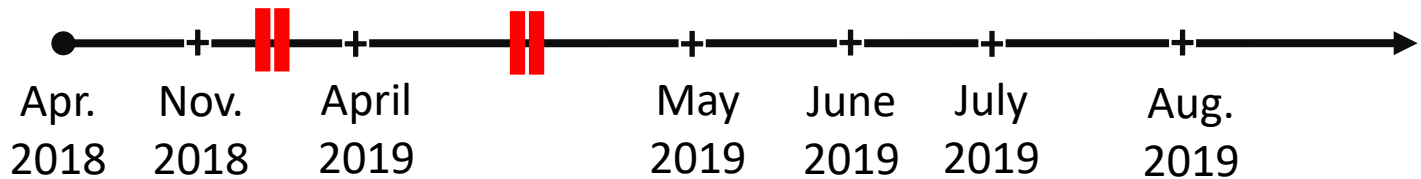
Commerce

RFI on Space Situational Awareness (SSA) and Space Traffic Management (STM) Services



FAA

"Streamlined Launch and Reentry Licensing Requirements"



★ Comment period closed

★ Order Issued

Key Provisions: FCC SmallSat Proceeding

Order on Streamlining Licensing Procedures for Small Satellites

Federal Register Number: 2018-10943

IB Docket No.: 18-86

Approved August 1, 2019

License Part	Application Fee	Annual Fee	Effect From New Rule
Part 25 (Commercial GSO)	\$454,705.00	\$135,350.00	Creates sub category below
Part 25 (Commercial NGSO)	\$30,000.00	\$6,767.50	New subcategory
Part 5 (Experimental)	\$70.00	\$0.00	Not Affected
Part 97 (Amateur)	\$0.00	\$0.00	Not Affected

Key qualifying characteristics for new Part 25 subcategory:

- 10 or fewer satellites under a single authorization
- Total in-orbit lifetime of satellite(s) of six years or less
- Maximum individual satellite wet mass of 180 kg.
- Propulsion capabilities or deployment below 600 km altitude
- Ability to share use of authorized frequency band
- Relatively low risk from an orbital debris perspective

Key Provisions: FCC Orbital Debris Proceeding

NPRM: “Mitigation of Orbital Debris in the New Space Age”

Federal Register Number: 2019-02230

IB Docket No.: 18-313

- **Current Status:** Comment period closed, and under review at FCC, coordination between FCC and Commerce may be an issue; differences of opinion between Republican and Democratic Commissioners
- **Key Drivers:**
 - Maintain and promote safety of the orbital operating domain
 - Address reliability and post mission disposal for large NGSO constellations
 - Adequacy of “25-year rule” (guidelines and requirement for disposal within 25 years of end of life)
 - Propulsion, maneuverability, track-ability?
- **Issues and Concerns:**
 - Performance vs technology specification?
 - Balancing safety of flight and ability to innovate
 - Role of standards and industry best practice
 - Level of required information disclosure on satellite/mission parameter
 - Interface and relationship to civil SSA/STM functions being developed at Department of Commerce

Key Provisions: NOAA Remote Sensing Licensing Proceeding

NPRM: “Licensing of Private Remote Sensing Space Systems”

Federal Register No: 2019-09320

Docket No.: NOAA-NESDIS-2018-0058-0011

- **Current Status:** Comment period closed, and under review in NOAA, Department of Commerce and federal intra-agency process
- **Key Aims:**
 - Aims to speed up and increase efficiency in the timelines for processing and issuing NOAA remote sensing licenses
 - Aims to establish low and high risk categories with different licensing requirements
- **Issues and Concerns:**
 - Expands remote sensing definition to cover non-Earth imaging, celestial bodies, and a wider range of the electromagnetic spectrum
 - Low-risk category would be difficult to qualify for due to restrictions on resolution, daily revisit, foreign involvement, foreign ground station use, and constellation size.

ACCRES Committee and Department of Commerce positively engaged in communicating need for improvements

Key Takeaways

- The U.S. government has recognized the need to update and improve the regulatory regime across all areas of space activities – including small satellites. This recognition extends across many elements of the government: the Obama administration, the Trump administration, Congress and independent agencies such as the FCC.
- Development of industry best practices and responsible operations principles can and should inform regulatory approaches. This community should play an active role in developing these best practices.
- Continued engagement and discussion with government regulators is of key importance. Leverage trade association and university groups to do so.

Thank You!

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