



Regulatory Futures

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Feb 3, 2020

Approved for public release. OTR 2020-00329.



***It's difficult to make predictions –
especially about the future***

Danish Proverb

Current Authorization Framework

- FAA: launch and reentry
 - FCC: spectrum, space debris mitigation
 - NOAA: remote sensing
 - Department of State: ITAR
 - Department of Commerce: Export Control
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- Commercial innovation leads to some regulatory gaps
 - *RF collections, satellite servicing, planetary missions*
 - Outer Space Treaty (1967)
 - *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*
 - Article 6: “... the activities of non-governmental entities in outer space, including the Moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty“
 - Space Traffic Management



The United States has an international obligation for authorization and continuous supervision of commercial activities.



Regulatory Proposals Overview

... moving from prescriptive to performance based regulations

- FAA
 - *Issued “Notice of Proposed Rulemaking” (NPRM) in April 2019 on streamlining launch and reentry licensing*
 - *Industry asked for delay*
 - *Timeline uncertain*
- FCC
 - *Issued NPRM FCC 18-313 in Nov 2018 on space debris mitigation*
 - *Comments are currently under review*
 - *Timeline for issuing regulations: uncertain, possibly in 2020*
- NOAA
 - *Issued NPRM RIN 0648-BA15 in May 2019 on licensing commercial remote sensing*
 - *Comments under review; possibly a complete rewrite (under negotiations with interagency partners)*
 - *Timeline for issuing new regulations: Summer 2020*
- Department of Commerce
 - *Request from National Space Council: Mission Authorization*



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

FCC 18-313 issued Nov 2018; comments currently under review

- NPRM in parallel to NASA-led effort to revise the Orbital Debris Mitigation Standard Practices (ODMSP) for government missions
 - *New ODMSP released in Dec 2019*
- Require analysis of lifetime collision risk at the system level for large constellations
 - *Large constellations defined as >100 s/c*
- Extensive justification on orbit selection and initial deployment <650km to enforce 25 year rule compliance in event of failure
- Question if all s/c above certain altitude should require maneuverability
- Requirement to make s/c trackable (require a transponder) and share data
- Design reliability to 0.999/spacecraft for large constellations above 650km
- Require 0.9 probability of success for post-mission disposal (PMD); 0.99 for large constellations
- Automatic fail-safe PMD for loss of contact between 650-2000km altitude
- Require indemnification insurance to protect the U.S. from any claims

Commenting period has closed and FCC is currently reviewing; anticipate new rules in 2020



NOAA NPRM “Licensing of Private Remote Sensing Space Systems”

Issued in May 2019; comments currently under review

- License binning into two categories: low and high risk
 - *Resolution criteria 30m GSD (multi-band), 15m GSD (panchromatic): approx. 40% licenses would fall into the “low risk” category*
- Low risk:
 - *No revisit <24 hrs, no video, less than 3 s/c, no dissemination of data <12 hr, no foreign entities ownership or participation, no night-time imaging*
 - *Encryption: if propulsion, key length 128bits*
 - *Standard license conditions applied, licensing timeline: 60 days*
- High risk: everything else
 - *Review timeline: 90 days*
- Non-Earth imaging
 - *Permission based if better than 3x3 pixel resolution*
- Night time imaging: no better than 30m GSD; regional exclusion areas apply
- SAR: no better than 0.25m; no phase-history at any resolution; no ground stations outside of U.S.

Commenting period has closed; NOAA reviewing and (possibly rewrite); new rules possible in summer 2020

Department of Commerce

Mission Authorization proposal



- National Space Council meeting (Aug 20, 2019) requested
 - *Within 90 days, the Secretary of Commerce will report ...*
 - on the authorization of commercial space operations not currently regulated by any other Federal agency;
 - and, in coordination with the Secretary of Transportation, provide a roadmap to enable all current and evolving United States commercial space activities to receive authorization under appropriate Federal regulatory frameworks.
- Some notes
 - *Unregulated commercial space operations could include*
 - RF collections, planetary missions, satellite servicing
 - *Coordination with Secretary of Transportation (perhaps a nod to FAA's payload review process)*
 - *Authorization (not necessarily a license with restrictions) could mean a simple certificate to operate*



Other efforts by the Administration

Launch, Reentry, and Export Control

- FAA NPRM “Streamlined Launch and Reentry Licensing Requirements”
 - *Extensive update with nearly 580 pages*
 - *Issued in April 2019; comments currently under review*
 - *Commercial sector asked for extensions due to length and complexity*
 - *Attempt to move from prescriptive to performance based rules*
 - *Would allow to use same license for launch vehicle at multiple sites*
- Space Policy Directive (May 2018)
 - *Direction to review export control issues to commercial space activities*
- DoC’s Bureau of Industry and Security (BIS)
 - *New export licensing rule affecting imaging analysis software*
 - *Restrict the sale of software used for geospatial imagery analysis that includes the combination of*
 - *training Deep Convolutional Neural Network*
 - *graphical user interface to identify objects (buildings, vehicles, ...)*
 - *Require license application (except for sale to Canada)*
 - *Comments must be received by March 6, 2020*



Legislative Proposals

Several attempts to modernize commercial space laws

- Space Frontiers Act – sponsored by Senator Cruz
 - Dept of Transportation (FAA) to authorize private space missions
 - Reforms of commercial launch and remote sensing regulations
 - Extending ISS to 2030 and elevating Office of Space Commerce
 - passed in Senate in Dec 2018 unanimously (S.3277)
 - Sen Cruz reintroduced in March 2019 (S.919)
 - No companion bill or related legislation in the House
 - HSST Committee’s chairwoman “need to be fully informed” before making policy
- Funding for Office of Space Commerce (OSC)
 - Senate Appropriations Committee rejected Trump’s proposal to elevate OSC until answers received to a set of questions
- Previous House bills:
 - HR 6226 – American Space SAFE Management Act (mostly SSA)
 - Dept. of Commerce shall establish civil SSA program
 - HR 2809 – American Space Commerce Free Enterprise Act (mostly remote sensing)
 - Dept. of Commerce to provide certification to operation space objects

No progress on these proposals since March 2019 (space force, impeachment)

Summary



- Keep an eye on regulations, legislation, and tasks issued by the National Space Council
 - *Various regulation updates are pending (FCC, NOAA, FAA)*
 - *Dept. of Commerce task on “Mission Authorization”*
 - *Legislative proposal may get reintroduced this year or after elections*
- It's difficult to make predictions – especially about the future.