



Christopher D. Johnson
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Secure World Foundation

European Centre for Space Law
2018 Summer Course
Helsinki, Finland

The United States in Space

Policy Objectives and Development

Human-generated space objects

Active Satellites

Total number of operating satellites: 1,886			
United States: 859	Russia: 146	China: 250	Other: 631
LEO: 1,186	MEO: 112	Elliptical: 40	GEO: 548

Data from the **Union of Concerned Scientists**
Current through 4/30/2018

<https://www.ucsusa.org/nuclear-weapons/space-weapons/satellite-database#.W4S2A-gzZqN>

Policy and Law *distinguished*

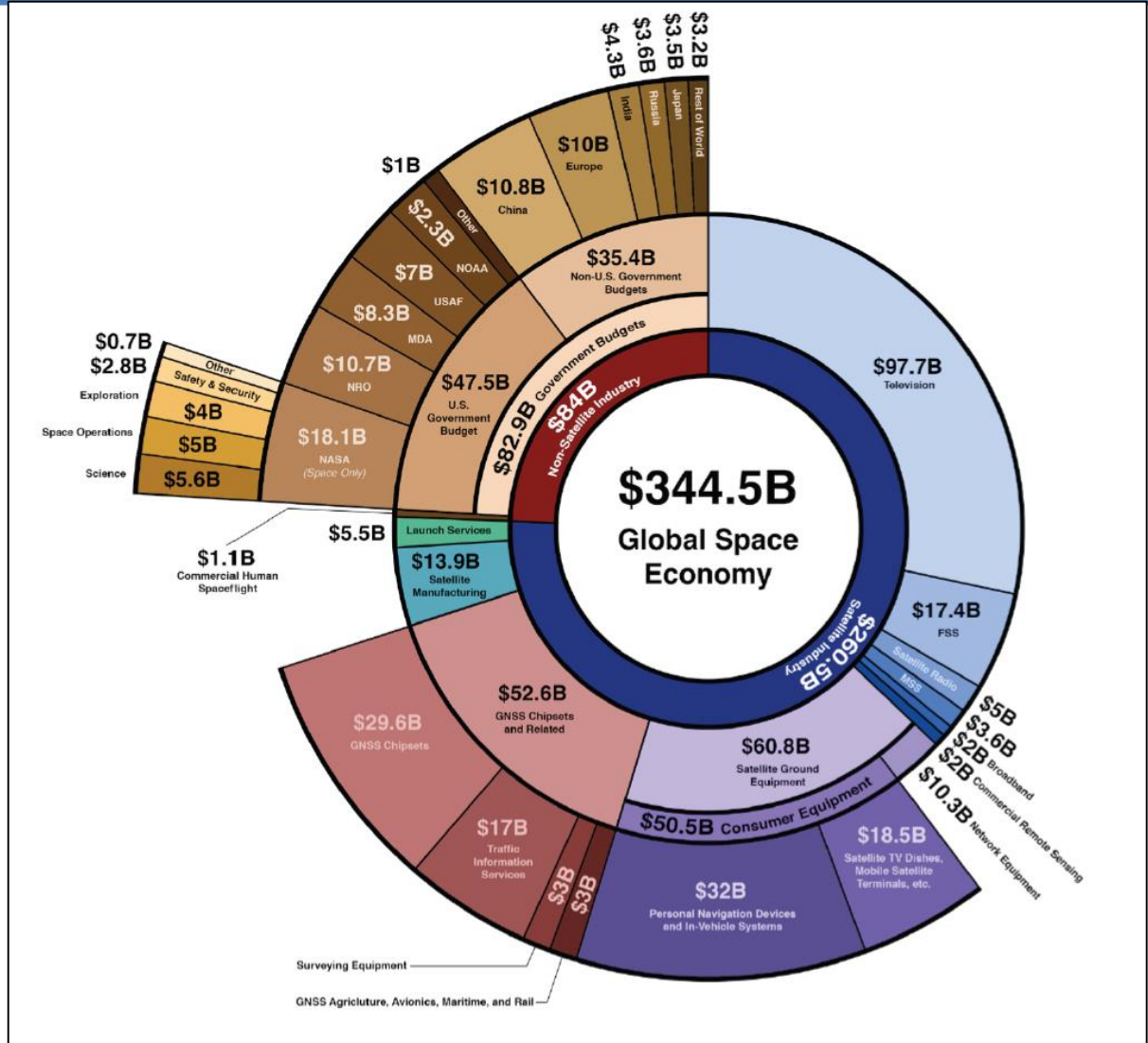
Policy: a set of decisions which are oriented towards a long-term purpose or to a particular problem

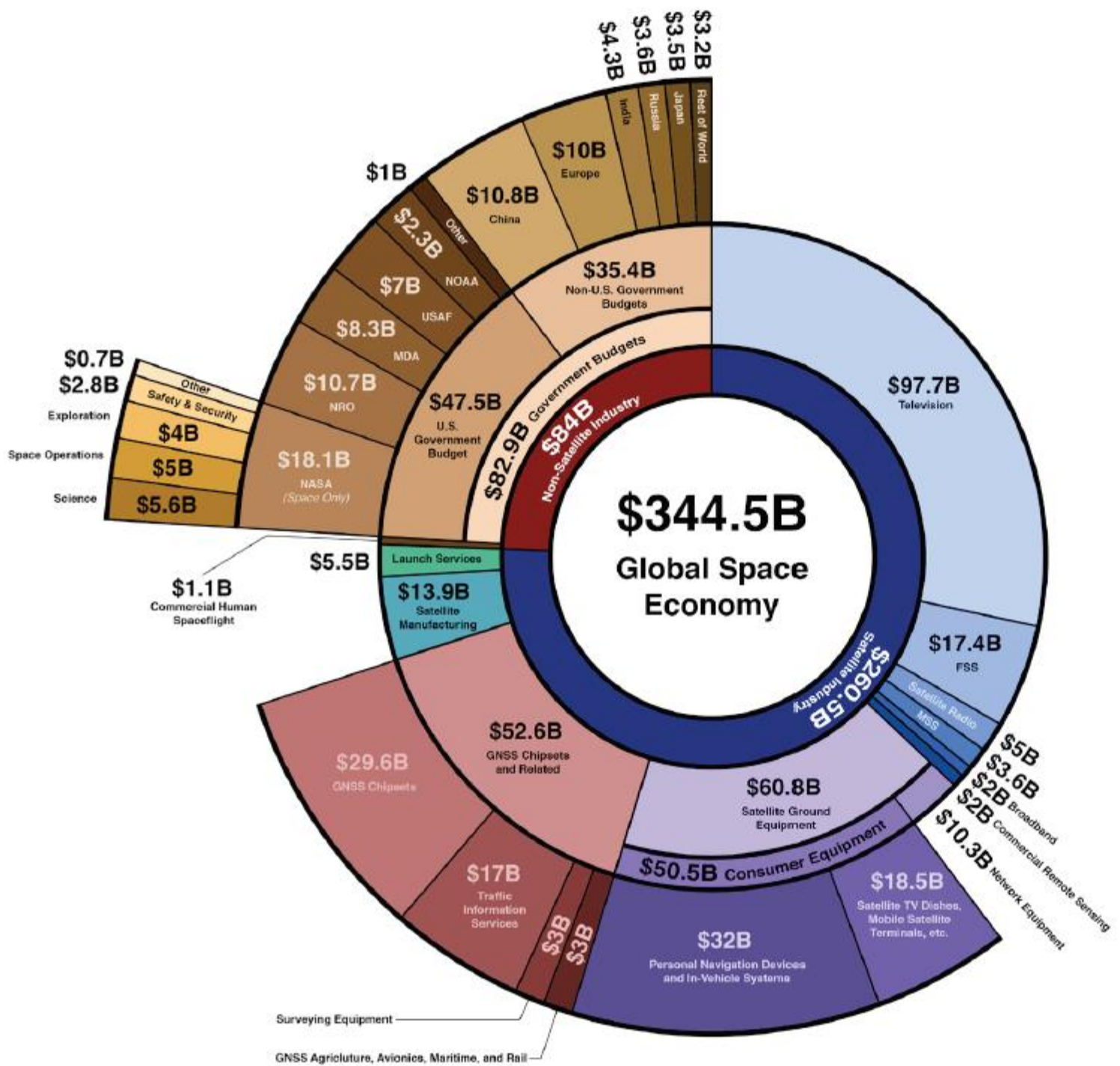
Essentially, a **policy sets out the goals and planned activities of an entity**, whereas a **law may be needed** to pass to enable government to put in place the necessary institutional and legal frameworks to achieve their aims as set out in the policy.

Global Space Economy – *by the numbers*

2016 Global Space Economy
from
Bryce Space &
Technology

Available at:
<https://brycetechnology.com/reports.html>







3 BRANCHES *of* U.S. GOVERNMENT



 **Constitution**
(provided a separation of powers)



Legislative
(makes laws)



Congress



Senate



House of Representatives



Executive
(carries out laws)



President



Vice President



Cabinet



Judicial
(interprets laws)



Supreme Court



Other Federal Courts

NATIONAL SPACE POLICY *of the* UNITED STATES *of* AMERICA

Last comprehensive national space policy was under President Obama,
June 20, 2010; *Available at:*

https://obamawhitehouse.archives.gov/sites/default/files/national_space_policy_6-28-10.pdf

- Principles
- Goals
- Intersector Guidelines
- Sector Guidelines

NATIONAL SPACE POLICY *of the* UNITED STATES *of* AMERICA

2010 Principle 1 [What is a Principle? - A principle is a statement of commitment. A principle is a fundamental basis of a system.]

It is the **shared interest of all nations to act responsibly in space** to help prevent mishaps, misperceptions, and mistrust. The United States considers **the sustainability, stability, and free access to, and use of, space vital to its national interests**. Space operations should be conducted in ways that emphasize openness and transparency to improve public awareness of the activities of government, and enable others to share in the benefits provided by the use of space.

NATIONAL SPACE POLICY *of the* UNITED STATES *of* AMERICA

2010 Principle 2

A robust and competitive commercial space sector is vital to continued progress in space. The United States is **committed to encouraging and facilitating the growth of a U.S. commercial space sector** that supports U.S. needs, is globally competitive, and advances U.S. leadership in the generation of new markets and innovation-driven entrepreneurship.

NATIONAL SPACE POLICY
of the
UNITED STATES *of* AMERICA

2010 Principle 3

All nations have the right to explore and use space for peaceful purposes, and for the benefit of all humanity, in accordance with international law. Consistent with this principle, “peaceful purposes” **allows for space to be used for national and homeland security** activities.

NATIONAL SPACE POLICY *of the* UNITED STATES *of* AMERICA

2010 Principle 4

As established in international law, there shall be no national claims of sovereignty over outer space or any celestial bodies. The United States considers the space systems of all nations to have the rights of passage through, and conduct of operations in, space without interference. **Purposeful interference with space systems, including supporting infrastructure, will be considered an infringement of a nation's rights.**

NATIONAL SPACE POLICY *of the* UNITED STATES *of* AMERICA

2010 Principle 5

The United States will employ a variety of measures to help assure the use of space for all responsible parties, and, consistent **with the inherent right of self-defense**, deter others from interference and attack, defend our space systems and contribute to the defense of allied space systems, and, if deterrence fails, defeat efforts to attack them.

NATIONAL SPACE POLICY *of the* UNITED STATES *of* AMERICA

2010 Space Policy **Goals**

“Consistent with these principles, the United States will pursue the following goals in its national space programs:”

- Energize competitive domestic industries
- Expand international cooperation
- Strengthen stability in space
- Increase assurance and resilience of mission-essential functions
- Pursue human and robotic initiatives
- Improve space-based Earth and solar observation

NATIONAL SPACE POLICY *of the* UNITED STATES *of* AMERICA

2010 Space Policy **Intersector Guidelines**

- Maintain and Enhance Space-based Positioning, Navigation, and Timing Systems
- Develop and Retain Space Professionals
- Strengthen Interagency Partnerships
- Strengthen US leadership
- Identify Areas for Potential International Cooperation
- Develop Transparency and Confidence-Building Measures
- Preserve the Space Environment
- Radiofrequency Spectrum and Interference Protection

NATIONAL SPACE POLICY *of the* UNITED STATES *of* AMERICA

2010 Space Policy **Sector Guidelines**

Commercial

To promote a robust domestic commercial space industry, departments and agencies shall:

- Purchase and use commercial space capabilities and services to the maximum practical extent when such capabilities and services are available in the marketplace and meet United States Government requirements;

Civil

National Security

NATIONAL SPACE POLICY *of the* UNITED STATES *of* AMERICA

2010 Space Policy **Sector Guidelines**

Civil

The Administrator of NASA shall:

- Set far-reaching exploration milestones. By 2025, begin crewed missions beyond the moon, including sending humans to an asteroid. By the mid-2030s, send humans to orbit Mars and return them safely to Earth;
- Continue the operation of the International Space Station (ISS), in cooperation with its international partners, likely to 2020 or beyond, and expand efforts to: utilize the ISS for scientific, technological, commercial, diplomatic, and educational purposes; support activities requiring the unique attributes of humans in space; serve as a continuous human presence in Earth orbit; and support future objectives in human space exploration;
- Seek partnerships with the private sector to enable safe, reliable, and cost-effective commercial spaceflight capabilities and services for the transport of crew and cargo to and from the ISS;

NATIONAL SPACE POLICY *of the* UNITED STATES *of* AMERICA

2010 Space Policy **Sector Guidelines**

National Security

The Secretary of Defense and the Director of National Intelligence, in consultation with other appropriate heads of departments and agencies, shall:

- Develop, acquire, and operate space systems and supporting information systems and networks to support U.S. national security and enable defense and intelligence operations during times of peace, crisis, and conflict;
- Ensure **cost-effective survivability of space capabilities**, including supporting information systems and networks, commensurate with their planned use, the consequences of lost or degraded capability, the threat, and the availability of other means to perform the mission; [*ie.*, **Resiliency**]



Promoting Cooperative Solutions for Space Sustainability

US Space Policy

Space Policy Directive 1, December 11, 2017

Presidential Memorandum on Reinvigorating America's Human Space Exploration Program

‘Lead an innovative and sustainable program of exploration with commercial and international partners to enable human expansion across the solar system and to bring back to Earth new knowledge and opportunities. Beginning with missions beyond low-Earth orbit, the United States will lead the return **of humans to the Moon for long-term exploration and utilization, followed by human missions to Mars and other destinations;**’

White House, [Space Policy Directive 1](#), December 11, 2017

Todd Harrison, [Back to the Moon? Understanding Trump's Space Policy Directive 1](#), December 14, 2017

Jeff Foust, [Where, But Not How or When](#), the Space Review, December 18, 2017



Promoting Cooperative Solutions for Space Sustainability

US Space Policy

US National Space Strategy, March 23, 2018

(note: a “strategy” is a way of implementing a “policy”)

- * American leadership in space exploration
- * Preeminence through market-based innovation
- * Peace Through Strength
- * Unified, government-wide approach to space
- * New direction for the US in space (Back to the Moon, and establishment of a US National Space Council)

White House, [President Donald J. Trump is Unveiling an America First National Space Strategy](#), March 23, 2018

Marcia Smith, [White House Releases Fact Sheet on New National Space Strategy – Updated](#),
Spacepolicyonline.com



Promoting Cooperative Solutions for Space Sustainability

US Space Policy

Space Policy Directive 2, May 24, 2018

Streamlining Regulations on Commercial Use of Space

Easier launch license process

Requires the FAA to complete a review of launch regulations and propose changes, such as allowing for a single license regardless of location. Report due February 1, 2019.

Coordination with National Space Council

Review of existing US Gov. regulations on commercial spaceflight not just launch licenses. Focus on de-regulation

Review/revision of commercial remote sensing licenses

Department of Commerce-base “one stop shop” for commercial licenses

White House, [Space Policy Directive 2](#), May 24, 2018

Wilbus Ross, [That Moon Colony Will Be a Reality Sooner Than You Think, NY Times](#), May 24, 2018

Jeff Foust, [A step towards a “one-stop shop” for commercial space regulations, the Space Review](#), May 29, 2018

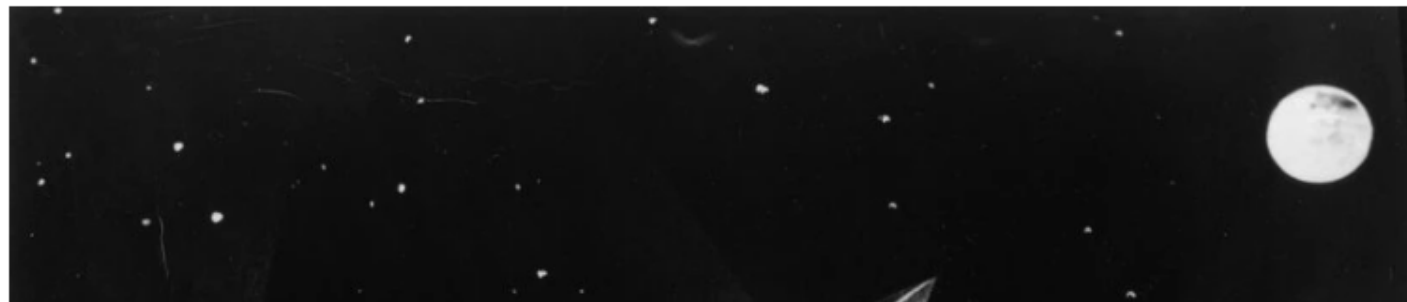
Opinion

That Moon Colony Will Be a Reality Sooner Than You Think

By **Wilbur Ross**

Mr. Ross is the secretary of commerce.

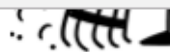
May 24, 2018



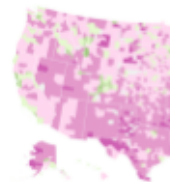
Unfortunately, our system for regulating private space exploration and commerce has not kept up with this rapidly changing industry. For example, when it comes to licensing cameras in space, we review small, [high school science-project satellites](#) the same as billion-dollar national defense assets, leaving too little time and too few resources for crucial national security needs.

On Thursday, President Trump signed [Space Policy Directive 2](#), which will make important strides toward modernizing our outdated space policies. These changes include creating a new office, the Space Policy Advancing Commercial Enterprise Administration, within my office to oversee coordination of the department's commercial space activities, establishing a "one-stop shop" to work on behalf of the budding private space sector.

ADVERTISEMENT



A 'Generatio
Perpetuated'
Daughters D
Chores



The Age Tha
Have Babies
Gap Divides



Promoting Cooperative Solutions for Space Sustainability

US Space Policy

Space Policy Directive 3, May 24, 2018

National Space Traffic Management Policy

Establishes roles and responsibilities for space situational awareness and space traffic management.

* Gives the Commerce Department the responsibility for providing what's known as "space safety data and services," such as warnings of potential collisions between space objects, to civil and commercial operators both in the United States and other nations—that is, pretty much everyone but the U.S. military, which will take care of its own satellites.

The Defense Department will retain the role of collecting space situational awareness (SSA) data, providing a subset of that—presumably scrubbed of classified satellites—to Commerce. However, Commerce will have the ability to augment that DOD data with data from other sources, including other nations as well as the growing number of commercial SSA providers.

White House, [Space Policy Directive 3](#), June 18, 2018

Jeff Foust, [Managing Space Traffic Expectations](#), TheSpaceReview, June 25, 2018

Space Force?

A new creation, or a re-organization of existing capabilities and tasks?

Space ‘Force’ versus ‘Space Guard’ or “Space Corps”

Parity with existing military structures? (Russian Aerospace Defense Forces, Chinese Aerospace Force)

Bleddyn Bowen & Camren Hunter, [*Donald Trump’s Space Force isn’t as New or as Dangerous As it Seems*](#), TheSpaceReview, Aug. 27, 2018

The Hill, [*Russian Embassy trolls Trump campaign with its own ‘Space Force’ logo*](#), Aug. 10, 2018

Sandra Irwin, [*Defining the job duties of Space Force will be a Knotty Task*](#), SpaceNews, Aug. 27, 2018



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President



Vice President



Cabinet



Judicial
(interprets laws)



Supreme Court



Other Federal Courts



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COMMITTEE ON SCIENCE, SPACE, & TECHNOLOGY

Lamar Smith, Chairman

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House Approves Space Technology and Commercial Space Bills

The U.S House of Representatives approved two bipartisan space bills that promote the Nation's leadership in rocket propulsion development and provide licenses for commercial space support vehicles and flights. These bills will ensure America remains a leader in space exploration and development.

[Read More](#)

The passage of H.R. 5345 reaffirms our commitment to the global leader in the global economy."

- Rep. L





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Lamar Smith, Chairman



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[Read More](#)

- [Subcommittee On Energy](#)
- [Subcommittee On Environment](#)
- [Subcommittee On Oversight](#)
- [Subcommittee On Research And Technology](#)
- [Subcommittee On Space](#)



...the passage of H.R. 5345 reaffirms our commitment to the global leader in the global economy."

- Rep. L



Promoting Cooperative Solutions for Space Sustainability

US House subcommittee on space

The Subcommittee on Space has legislative jurisdiction and general oversight and investigative authority on all matters relating to astronomical and aeronautical research and development including:

- national space policy, including access to space
- sub-orbital access and applications
- National Aeronautics and Space Administration and its contractor and government-operated labs
- space commercialization, including the commercial space activities relating to the Department of Transportation and the Department of Commerce
- exploration and use of outer space
- international space cooperation
- the National Space Council
- space applications, space communications and related matters
- earth remote sensing policy
- civil aviation research, development, and demonstration
- research, development, and demonstration programs of the Federal Aviation Administration
- and space law

.....
(Original Signature of Member)

115TH CONGRESS
2D SESSION

H. R. 6226

To direct the Secretary of Commerce to provide for civil space situational awareness services and information, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

Mr. SMITH of Texas introduced the following bill; which was referred to the Committee on _____

A BILL

To direct the Secretary of Commerce to provide for civil space situational awareness services and information, and

U.S. SENATE COMMITTEE ON COMMERCE, SCIENCE, & TRANSPORTATION

SENATOR JOHN THUNE, CHAIRMAN • SENATOR BILL NELSON, RANKING MEMBER

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Thune Statement on Proposed Rule Updates for Truck Drivers

U.S. Sen. John Thune (R-S.D.), chairman of the Senate Committee on Commerce, Science, and Transportation, issued the following statement on today's announcement by the Federal Motor Carrier Safety Administration (FMCSA) on proposed changes to hours of service (HOS) requirements for truckers.

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SPACE, SCIENCE, AND COMPETITIVENESS

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The Subcommittee on Space, Science and Competitiveness has responsibility for science, technology, engineering, and math research and development and policy; standards and measurement; and civil space policy. The Subcommittee conducts oversight on the National Science Foundation, the National Aeronautics and Space Administration, the National Institute of Standards and Technology, the Office of Science and Technology Policy, and the National Technical Information Service. Advancements in science and technology are vital to the nation's continued economic security, innovation, and competitiveness.

Subcommittee Members

Republicans

Democrats

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[SURFACE TRANSPORTATION AND MERCHANT MARINE INFRASTRUCTURE, SAFETY AND SECURITY](#)



AUGUST

August 2018

8/29/18 **Executive Session**

8/28/18 **Harmful Algal Blooms: The Impact on Our Nation's Waters**

8/23/18 **Nominations Hearing**

8/20/18 **Pipeline Safety in the Great Lakes: Incident Prevention and Response Efforts at the Straits of Mackinac**

8/16/18 **Oversight of the Federal Communications Commission**

8/1/18 **The Search for Life: Utilizing Science to Explore our Solar System and Make New Discoveries**

8/1/18 **Executive Session**

July 2018

7/31/18 **The Internet and Digital Communications: Examining the Impact of Global Internet Governance**

7/26/18 **Nominations Hearing**

7/25/18 **Destination Mars – Putting American Boots on the Surface of the Red Planet**

7/25/18 **The Race to 5G: Exploring Spectrum Needs to Maintain U.S. Global Leadership**

7/24/18 **Strengthening and Empowering U.S. Amateur Athletes: Moving Forward with Solutions**

August 1, 2018

The Search for Life: Utilizing Science to Explore our Solar System and Make New Discoveries

253 Russell

U.S. Sen. Ted Cruz (R-Texas), chairman of the Subcommittee on Space, Science, and Competitiveness, will convene a hearing titled "The Search for Life: Utilizing Science to Explore our Solar System and Make New Discoveries," at 2:30 p.m. on Wednesday, August 1, 2018. The second in a **series of hearings** leading up to a potential NASA reauthorization, this hearing will focus on the National Aeronautics and Space Administration's (NASA) scientific priorities in space exploration.

Witnesses:

- Dr. Sara Seager, Professor of Physics and Planetary Science, Massachusetts Institute of Technology
- Dr. David Spergel, Professor of Astronomy, Princeton University
- Dr. Ellen Stofan, Director, Smithsonian National Air and Space Museum
- Dr. Thomas Zurbuchen, Associate Administrator for the Science Mission Directorate, NASA

*Witness list subject to change.

Hearing Details:

Wednesday, August 1, 2018

2:30 p.m.

Subcommittee on Space, Science, and Competitiveness

This hearing will take place in Russell Senate Office Building, Room 253. Witness testimony, opening statements, and a live video of the hearing will be available on **www.commerce.senate.gov**.

Witness Panel 1

Dr. Sara Seager

Professor of Physics and Planetary Science, Massachusetts Institute of Technology

Dr. Sara Seager Testimony.pdf (154.6 KBs)

Dr. David Spergel

Professor of Astronomy, Princeton University

Dr. David Spergel Testimony.pdf (805.3 KBs)

Dr. Ellen Stofan

Director, Smithsonian National Air and Space Museum

Dr. Ellen Stofan Testimony.pdf (114.4 KBs)

Dr. Thomas Zurbuchen

Associate Administrator for the Science Mission Directorate, NASA

Dr. Thomas Zurbuchen Testimony.pdf (117.5 KBs)

Permalink: <https://www.commerce.senate.gov/public/index.cfm/2018/8/the-search-for-life-utilizing-science-to-explore-our-solar-system-and-make-new-discoveries>



Promoting Cooperative Solutions for Space Sustainability

US Senate Subcommittee on Space, Science, and Competitiveness

The US Senate Subcommittee on Space, Science and Competitiveness has responsibility for

- **science, technology, engineering, and math research and development and policy;**
- **standards and measurement**
- **civil space policy**

The Subcommittee conducts oversight on

- **the National Science Foundation**
- **the National Aeronautics and Space Administration**
- **the National Institute of Standards and Technology**
- **the Office of Science and Technology Policy**
- **and the National Technical Information Service**



Promoting Cooperative Solutions for Space Sustainability

US Space Policy

Implementation of US space policy.

(who does what)

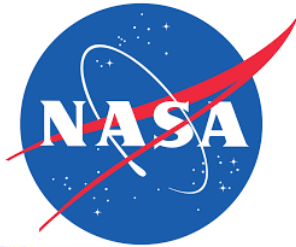
Current US Organization for Space

Vice President of the United States



National Space Council

Oversight of Government
Space Activities



Oversight of Private Sector
Space Activities



Space Situational
Awareness



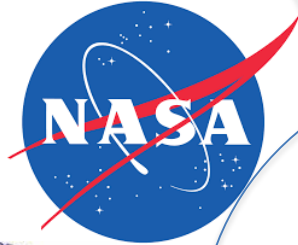
Future US Organization for Space?

Vice President of the United States

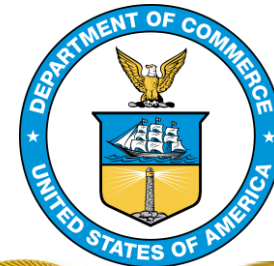


National Space Council

Oversight of Government
Space Activities



Oversight of Private Sector
Space Activities



Space Situational
Awareness



Promoting Cooperative Solutions for Space Sustainability

Further references

Space Policy Online (a bit US focused)

<https://spacepolicyonline.com/>

The Space Review (a bit US focused)

<http://www.thespacereview.com/>

Space News (a bit US focused)

<https://spacenews.com/>

Space Policy (journal)

<https://www.journals.elsevier.com/space-policy>

Space Watch Global (**might be behind a paywall**)

<https://spacewatch.global/>

Jonathan's Space Report

<http://planet4589.org/>

Thank you!

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www.swfound.org