U.S. National Space Policy Comparison

Comparing the 2010 National Space Policy to the 2006 National Space Policy

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Similar: The topics covered by the 2010 and the 2006 National Space Policies are very similar. However, in the 2006 Policy, National Security Space Guidelines come first (after background, principles, and goals), while in the 2010 Policy National Security Space Guidelines are the last item in the document. Similarly, issues like international cooperation, space nuclear power, radio frequency, and other issues come first in the 2010 Policy, while these come after the sector guidelines in the 2006 Policy.

Introduction

Similar: The introduction/background sections have some similarities. In both cases, they mention the many benefits of space, both in advancing scientific knowledge as well as practical benefits on Earth.

However, there are many differences. The introduction section in 2010 is much longer (six paragraphs as opposed to two paragraphs in the 2006 policy). It provides more detail on the benefits derived from space. It talks about the challenges faced due to space debris, and it notes that the United States and other nations have to work together to address these challenges.

One of the major changes in tone can be seen in the closing paragraph. The 2010 policy closes by discussing the need for strengthened international cooperation in space to improve people's lives. The 2006 policy background concludes by stating that "those who effectively utilize space ... will hold a substantial advantage over those who do not," and reiterates the need for the United States to maintain space capabilities.

Principles

Similar: The principles in both policies are very similar in substance, but the tone is different in almost every case. In general, each principle has been re-worded to refer to universal principles, rather than issues referring only to the United States For example, the 2006 policy states, "The United States considers space systems to have the rights of passage through and operations in space without interference. Consistent with this principle, the United States will view purposeful interference with its space systems as an infringement on its rights." The 2010 policy states, "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."

New: The 2010 policy includes a principle that focuses on the need for all states to act responsibly, and suggests openness and transparency. This was not present in the 2006 policy.

Removed: There are two principles that were in the 2006 policy that are not found in the 2010 policy. One states that "the United States will seek to cooperate with other nations…" The other states that "the United States will oppose the development of new legal regimes or other restrictions…"

Goals

Similar: Some of the goals deal with roughly the same subject matter: globally competitive domestic industry, international cooperation for mutual benefit, mission assurance, and pursuing human and robotic initiatives. However, each of these goals is dealt with slightly differently. In general, the 2010 policy gives specific areas that the goals apply to: energize domestic industry in space launch, terrestrial applications, etc., expand international cooperation in collection and sharing of space-derived information, increase assurance from environmental, mechanical, electronic, or hostile causes, and pursue human and robotic initiatives to develop innovative technologies, foster new industries, etc. In the 2006 policy, the same goals are often linked to furthering U.S. national security, homeland security, and foreign policy objectives. Also, rather than mentioning mission assurance, the 2006 policy simply states that a goal is to "enable unhindered U.S. operations in and through space to defend our interests there."

New: The 2010 policy includes goals of strengthening stability in space (improving space security). It also includes a goal of improving space-based Earth and solar observation capabilities.

Removed: The 2006 policy included a goal to 'strengthen the nation's space leadership.' The word 'leadership' does not appear in the goal section of the 2010 policy. The 2006 policy also includes a goal stating that the United States should 'enable a robust science and technology base.'

Intersector Guidelines

Similar: The first guideline, regarding the space-related science, technology, and industrial bases, is taken almost word for word from the 2006 policy. The 2006 policy had a bit more detail, mentioning that departments should encourage new discoveries, there should be incentives for high-risk/high-payoff capabilities and prize competitions should be used. The last three goals – Develop and retain space professionals, improve space system development and procurement, and strengthen interagency partnerships - also have very similar counterparts in the 2006 policy. In the 2010 policy, the section on developing space professionals also mentions education and supporting STEM programs. The section on improving space system development and procurement has slightly different specific goals for departments. The 2010 guideline on strengthening interagency partnerships mentions making capabilities and expertise available to each other. This was not in the previous policy.

New: Two new guidelines were added to this section that were not in the 2006 policy. These are the guidelines: "Enhance Capabilities for Assured Access to Space" and "Maintain and Enhance Space-based Position, Navigation, and Timing Systems." The first focuses on the need for the United States government to have launch capabilities. It states that all U.S. government payloads should be launched on vehicles manufactured in the United States. The second focuses on the need for the United States to maintain leadership in GNSS, and states that it will maintain GPS with continuous, worldwide access.

International Cooperation

Similar: Both policies include a section on international cooperation, and both identify areas for potential cooperation. However, the list of possible cooperative areas is much longer in the 2010 policy (the 2006 policy only mentions space surveillance information and Earth-observing systems). The paragraph about the Secretary of State carrying out diplomatic efforts is identical in both policies.

New: The 2010 policy has broken the International Cooperation guideline into three sections: Strengthen U.S. Leadership, Identify Areas for Potential International Cooperation, and Develop Transparency and Confidence-Building Measures (TCBMs). The first and last sections are new. The first states that the United States should identify areas of mutual interest and benefit, lead in the responsible behavior in space, promote full and open access to government environmental data, promote appropriate cost and risk-sharing in international partnerships, and leverage the space capabilities of allies and space partners. The last section states that the United States should pursue bilateral and multilateral TCBMs, and that the United States will consider proposals for arms control measures.

Preserving the Space Environment and the Responsible Use of Space

Similar: A similar section existed in the 2006 National Space Policy, but it was entitled "Orbital Debris." Both policies include a guideline about continued development and adoption of international standards to minimize debris. The guideline about continuing to follow the United States Government Orbital Debris Mitigation Standard Practices is the same, word-for-word, in both policies.

New: The 2010 policy includes a sub-guideline to 'develop, maintain, and use SSA information from commercial, civil, and national security sources..." It also includes sub-guideline to "pursue research and development of technologies and techniques… to mitigate and remove on orbit debris…" Finally, it includes a sub-guideline that requires exceptions to the U.S. orbital debris mitigation standard practices to notify the Secretary of State. It also has a new section to "foster the development of space collision warning measures." This states that the government can collaborate with industry and foreign nations on space object databases.

Removed: The 2006 policy included a guideline stating that the secretaries of commerce and transportation should coordinate with the FCC to continue to address orbital debris issues through their respective licensing procedures. This does not appear in the 2010 policy.

Effective Export Policies

Similar: Both policies state that space-related items that are currently/generally available in the global marketplace shall be considered favorably, and that sensitive or advanced exports may require more effort. The 2010 policy says they may "require a government-to-government agreement or other acceptable arrangement," while the 2006 policy says they "shall be approved only rarely, on a case-by-case basis." The 2006 policy provides more detail about what technologies are sensitive (those with capabilities significantly better than those achievable by current or near-term foreign systems).

New: The 2010 policy includes a paragraph stating that departments and agencies should seek to enhance competitiveness while also addressing national security needs.

Space Nuclear Power

Similar: The space nuclear power section in the 2010 policy is taken almost word-for-word from the 2006 policy.

Removed: The 2006 policy included six additional detailed guidelines regarding space nuclear power. The guidelines provided more detail about the responsibilities of the U.S. government and licensing procedures.

Radiofrequency Spectrum and Interference Protection

Similar: Both policies include, almost word-for-word, the same guidelines dealing with protecting U.S. global access to radiofrequency spectrum, addressing requirements for radiofrequency spectrum and orbital assignments prior to approving acquisition of space capabilities, and seeking appropriate regulatory approval for U.S. Government earth stations operating with commercially owned satellites. Both include a guideline about radio interference, though the 2010 policy focuses on enhancing capabilities in cooperation with civil, commercial, and foreign partners, to locate interference, while the 2006 policy states that the United States should assure to the maximum practical extent that space capabilities of the United States are not affected by harmful interference.

New: The 2010 policy includes two guidelines not mentioned in the 2006 policy. These are to "seek to ensure the necessary national and international regulatory frameworks will remain in place over the lifetime of the system," and "identify impacts to government space systems prior to reallocating spectrum for commercial, federal, or shared use."

Assurance and Resilience of Mission-Essential Functions

New: This section does not appear in the 2006 policy. In the 2010 policy, it deals with mission assurance, mentioning the protection and resilience of selected spacecraft, developing plans and capabilities for operating in a degraded, disrupted, or denied space environment, and addressing mission assurance requirements in the acquisition of future space capabilities.

Sector Guidelines

Commercial Space Guidelines

Similar: Many of the commercial guidelines are identical to those in the 2006 policy. These include guidelines to: "purchase and use commercial space capabilities to the maximum practical extent when… available in the marketplace," "modify commercial space capabilities to meet government needs when… cost-effective," "Develop government space systems only when it is in the national interest and there is no… U.S. commercial or… foreign commercial service… available," "Refrain from conducting United States Government activities that preclude, discourage, or compete with U.S. commercial space activities," "ensure that United States Government space technology and infrastructure are made available for commercial use," and "ensure that the regulatory environment for licensing space activities is timely and responsive." Both include guidelines on funding as well. However, the 2006 policies states that the United States should "pursue commercial space objectives without the use of direct Federal subsidies," while the 2010 policy has a guideline to "actively explore the use of innovative, nontraditional requirements for acquiring commercial space goods and services."

New: The 2010 policy defines "commercial" as space goods, services, and activities provided by private sector enterprises that bear a reasonable portion of the investment risk and responsibility for the activity, operate in accordance with typical market-based incentives… and have the legal capacity to offer these goods or services to … nongovernmental customers." This definition was not included in the 2006 policy. The 2010 policy also includes five guidelines not mentioned in the 2006 policy. These include guidelines to: "pursue potential opportunities for transferring routine, operational space functions to the commercial space sector," "cultivate increased technological innovation and entrepreneurship in the commercial space sector through the use of incentives such as prizes and competitions," "foster fair and open global trade and commerce," "encourage the purchase of U.S. commercial space services," and "actively promote the export of U.S. commercially developed

and available space goods and services." The 2010 policy also specifically mentions that the U.S. Trade Representative has a responsibility for international trade agreements, and should lead efforts to negotiate and implement trade disciplines governing trade in goods and services related to space.

Civil Space Guidelines

Space Science, Exploration and Discovery

Similar: Both the 2010 policy and the 2006 policy dealt with space science and exploration. However, in the 2006 policy this section is very brief – one paragraph. It simply states that the NASA administrator shall "execute a sustained and affordable human and robotic program of space exploration and develop, acquire, and use civil space systems to advance fundamental scientific knowledge of our Earth system, solar system, and universe."

New: In the 2010 policy, there is much more detail in this section. It includes a number of guidelines that essentially lay out the president's proposal for NASA, including crewed missions beyond the Moon by 2025, and Mars in the mid-2030's, continued operation of the ISS to 2020 or beyond, partnerships with commercial for transport of crew and cargo to ISS, a new space technology development and test system, research and development on next-generation launch systems, a strong program of space science, and a program to track NEOs.

Environmental Earth Observation and Weather

Similar: The 2006 and 2010 policy both include sections dealing with Earth observation. They both mention that the Secretary of Commerce should work with NOAA and NASA to support operational requirements. They also both mention polar-orbiting satellites. However, the 2010 policy states that the Secretary of Commerce is responsible for the afternoon orbit, while the Secretary of Defense is responsible for the morning orbit. The 2006 policy stated that NOAA , the DoD, and NASA would continue to consolidate civil and military polar-orbiting operational environmental sensing systems.

New: The new policy states that the NASA administrator will enhance U.S. global climate change research and sustained monitoring capabilities. It also gives the Secretary of Commerce the specific guidelines of transferring mature R&D Earth-observation satellites to long-term operations, using international partnerships to sustain observations, and being responsible for requirements, funding, and acquisition of civil operational satellites, with NASA as an acquisition agent.

Removed: The 2006 policy included guidelines that specifically stating that NOAA should continue a program of civil geostationary operational environmental satellites, and that it should work with NASA to ensure that civil space acquisition processes and capabilities are not duplicated.

Land Remote Sensing

Similar: Both policies dealt with land remote sensing. In both cases they direct the Secretary of the Interior, through USGS, to determine operational requirements for collection, processing, archiving, and distribution of land surface data.

New: The 2010 policy states that USGS should conduct research on natural and human-induced changes to the Earth and should manage a global land surface data national archive. It also states that USGS is responsible for providing remote sensing information related to the environment and disasters to other civil government agencies. The 2010 policy also says that NASA, NOAA, and USGS should ensure there is not unnecessary duplication, and continue to develop civil applications and information tools based on data collected by Earth

observation satellites, which will be made available to the public. It states that NOAA will provide regulation and licensing for commercial remote sensing systems.

Removed: In 2006, there was a specific guideline for NASA to conduct a program of research to advance scientific knowledge of the Earth. It also stated that NASA and NOAA shall transition mature research and development capabilities to long-term operations. It also states that the U.S. should take a leadership role in international fora to establish a long-term plan for coordination of an integrated global Earth observation system, and promote adoption of policies internationally that facilitate full and open access to government environmental data on equitable terms.

National Security Space Guidelines

Secretary of Defense & Director of National Intelligence

Similar: Both policies note that the Secretary of Defense and Director of National Intelligence shall support U.S. national security and enable defense and intelligence operations during times of peace, crisis, and conflict.

New: The new policy has a number of new guidelines. These include guidelines to "ensure cost-effective survivability of space capabilities," "reinvigorate U.S. leadership by promoting technology development, improving industrial capacity, and maintaining a robust supplier base," "assure critical national security space-enabled missions… include rapid restoration… and leveraging foreign, and/or commercial space and non-space capabilities," "maintain and integrate space surveillance, intelligence, and other information to develop accurate and timely SSA," "improve the ability to rapidly detect natural and man-made disturbances to space systems," and "develop and apply advanced technologies and capabilities that respond to changes to the threat environment."

Removed: The 2006 policy included guidelines to: "support the President and Vice President in the performance of Executive functions," "develop and deploy space capabilities that sustain U.S. advantage," and "employ appropriate strategies that result in an operational force structure and optimized space capabilities."

Secretary of Defense

Similar: The second two guidelines in this section are taken word for word from the 2006 policy. These are: "maintain the capabilities to execute the space support, force enhancement, space control, and force application missions," and "provide, as a launch agent…, affordable and timely space access for national security purposes." Both the 2006 and 2010 policies have a guideline giving the Secretary of Defense responsibility for SSA activities. They also both include a guideline on defending U.S. space systems, though the tone is very different. The 2010 policy guideline is to, "Develop capabilities, plans, and options to deter, defend against, and, if necessary, defeat efforts to interfere with or attack U.S. or allied space systems." The 2006 guideline states, "Develop capabilities, plans, and options to ensure freedom of action in space, and, if directed, deny such freedom of action to adversaries."

Removed: In the 2006 policy, the Secretary of Defense is also given guidelines to, "establish specific intelligence gathering requirements," "provide space capabilities to support continuous, global strategic and tactical warning, as well as… integrated missile defense," and "establish… policies and procedures to protect sensitive information regarding… defense activities related to space."

Director of National Intelligence
Similar: Both the 2010 and 2006 policies include guidelines to support national defense and homeland security planning, and to coordinate on any radiofrequency surveys. Both include a guideline for the DNI to integrate intelligence information to improve enhanced SSA.

New: The 2010 policy includes six guidelines not found in the 2006 policy. These include: "enhance intelligence collection," "develop, obtain, and operate space capabilities," "provide collection, processing, analysis, and dissemination of information on foreign space," "develop and enhance innovative analytic tools... to share information… to understand foreign space-related activities," "identify and characterize current and future threats to U.S. space missions," and "support monitoring, compliance, and verification for transparency and confidence-building measures and, if applicable, arms control agreements."

Removed: The 2006 policy included four guidelines not found in the 2010 policy. These include: "Establish objectives, intelligence requirements… for the intelligence community to ensure timely and effective collection… and dissemination of national intelligence," "ensure that timely information and data support foreign, defense, and economic policies," "provide a robust foreign space intelligence collection and analysis capability," and "establish and implement policies… to classify attributable collected information and operational details of intelligence activities related to space,"

Space-Related Security Classification

Removed: This entire section, which concluded the 2006 policy, in not present in the 2010 policy. It dealt with how space technologies should be classified, and noted some government activities that were not classified (photoreconnaissance with near real-time activity, etc.)

About the Space Foundation
The Space Foundation is an international, nonprofit organization and the foremost advocate for all sectors of the space industry - civil, commercial, military and intelligence. Founded in 1983, the Space Foundation is a leader in space awareness activities, educational programs that bring space into the classroom, and major industry events, all in support of its mission "to advance space-related endeavors to inspire, enable, and propel humanity." An expert in all aspects of the global space industry, the Space Foundation publishes *The Space Report: The Authoritative Guide to Global Space Activity* and provides three indices that track daily performance of the space industry. Through its Space Certification and Space Technology Hall of Fameprograms, the Space Foundation recognizes space-based technologies and innovations that have been adapted to improve life on Earth. Headquartered in Colorado Springs, the Space Foundation conducts research and analysis and government affairs activities from its Washington, D.C., office and has field representatives in Houston, Texas, and Cape Canaveral, Fla. For more information, visitwww.SpaceFoundation.org. Follow us on Twitter, Facebook, and LinkedIn, and read about the latest space news and Space Foundation activities in *Space Watch*.

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