

Space Policy Issues for the Next Administration

Space Transportation Association

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I'd like to begin by thanking Rich Coleman and the Space Transportation Association for the invitation to be with you today to discuss, and offer my views upon, what is and has been on all of our minds – what can we expect in space policy from the next administration? What should we expect? I'm not sure I can help much with the former, but I do have a few thoughts about the latter, about the critical areas of space policy that must be addressed no matter who takes office next January.

Since “space” is unlikely to be the first issue on the table for the new administration, we in the space community will have to be proactive, bringing forward the problems that must be addressed and the solutions that will best serve our nation. I hope we can do so in a collaborative fashion, with discussion across the community and every effort made to come to reasoned choices. If not, if we continue the policy drift we have seen in recent years, then this too is a choice; we are choosing to let nature take its course. As I am fond of pointing out, this is indeed a strategy of sorts – but the Second Law of Thermodynamics pretty much guarantees that the resulting outcomes will be less satisfactory than if we choose the future we would like to have, and make the effort required to attain it.

In what follows I will offer a few thoughts on what I believe to be some critical matters of national space policy. The views expressed here are my own and not those of any person or organization with whom or with which I am associated. However, I would be less than honest if I failed to acknowledge that those views do also owe much to the continued collaboration with the many others in the space community with whom I have had the privilege of working since leaving NASA in 2009. They are too numerous to credit, but – you know who you are.

To begin, it seems to me that policy makers must understand and, as importantly, act upon the understanding, that space is strategically critical to the United States as we exist in the world today. We must help them to understand.

From the beginning of the Space Age, space activities have been “tools” of both hard and soft power for participating nations. Space is crucial to U.S. leadership in the world, national security, foreign policy, public safety, and the economy. The United States is a “space nation” fully as much as, in an earlier era, Great Britain was a “maritime nation.” We can and should debate what kind of air, maritime and space capabilities best serve the nation and which activities should have what priority for resources. But we can no more debate the need to be preeminent in space than we can debate the need for an Air Force or a Navy.

Space policy must be integrated into wider U.S. national security and foreign policy priorities. If we are to be effective in space, we need to align our space policies, programs, and budget priorities with enduring national interests. As a critical element of national power, “space” and its influence are about much more than just the size of the NASA and national security space budgets. It consists of the military, intelligence, scientific, economic, and diplomatic capabilities enabled by space. It is a measure of the attractiveness of the United States as a global leader, a source of international stability, and an engine for innovation and economic growth. Space policy priorities and themes should be part of broader decision-making on national security and foreign policy issues.

In recent years, U.S. global influence has been diminished by the removal of the Moon as a focus for near-term human space exploration efforts, by the failure to engage international partners in concrete plans for exploration after the International Space Station, by confused attempts at space arms control, and by our slow response to increasing threats posed by Russia and China to our military space capabilities. The next administration will, in one way or another, have to deal with these issues. As always, the failure to decide what we shall do is itself a decision.

Entirely too few people in government fully grasp the extent to which U.S. stature in the world depends upon space. Unfortunately, our adversaries do fully understand.

With that said, I would like to parse my further remarks into several broad categories, including national security space, civil space, and private sector activities, recognizing always the linkage among them through a common industrial base, geopolitics, economics, science, and international diplomacy.

National Security Space

We must begin by recognizing that our national security space assets are no longer secure. In the face of growing foreign threats, the United States must protect the space capabilities upon which our security and economy, and those of our partners and allies, rely. We are belatedly recognizing these threats, together with the fact that our national space systems were designed in an era and according to a paradigm in which they could not be held at risk. Space was a U.S. sanctuary. This is simply no longer the case. In recognition of this fact, several billion dollars have recently been allocated to, and many studies have addressed, issues of space protection and defense. We must ensure that product, and not merely paper, is the result.

The continued failure to react robustly to developing threats by potential adversaries will soon give them the absolute capability to hold our reconnaissance, navigation, and communications assets at risk, assets which are critical both to our economy and to our way of fighting war. Further, our continued failure to counter the imminent threat posed by adversary hypersonic boost-glide vehicles will render impotent our ability to project air and sea power to the far reaches of the globe. If we accept the limitations that will be imposed upon us by such enemy

capability, we will have ceded the global primacy that we established and from which we have benefitted since World War 2.

We must reject that future, and instead embrace a new view of our role and place in the space domain. We must adopt the worldview that has guided our national security strategy in the maritime and air domains for three full generations since World War 2. The United States must know what is in space, where it is, where it will be, who has put it there, what it is doing, and what is its likely purpose. We must be prepared to defend our space assets and those of our friends and allies. We must be both willing and able to deploy counterforce measures against bad actors. And finally, must make certain that our potential adversaries are fully aware of that capability and willingness.

Civil Space

Space is a popular and powerful symbol of U.S. leadership in both national security and that of our partners and allies, economic growth, scientific discovery, and national pride. During the New Horizons mission to Pluto, 42 million viewers worldwide were watching the NASA webcast. Space, and NASA in particular, has a powerful social footprint that addresses shared human emotions of curiosity and awe. Space themes can be used to connect and symbolize issues beyond specific projects and programs, such as rising threats to national security, opportunities for international leadership, inspiration for scientific discovery and economic growth, and hope for a positive future.

We must use space power and influence proactively to advance enlightened national interests through international partnerships at bilateral and multilateral levels. The civil space program that best advances U.S. economic, national security, and scientific interests is for the United States to lead an international return to the Moon. The abandonment of the Moon and, in so doing, our international partners, was a mistake of epic proportions, one which should be remedied by the next administration. Doing so will result in a new paradigm in which, ultimately, cislunar space becomes an “American lake”. This is the path that will best prepare us to lead future expeditions to Mars.

We must re-establish, and then maintain, bipartisan Congressional support for civil space programs of both human exploration and scientific discovery that have clear and broadly shared purposes, embraced both domestically and internationally, and that are sustained by a steady budget. We must recognize that we can, in fact, afford to do so. The budget for NASA is a political choice – it is a reflection of what we value as a society. NASA’s budget has been declining in constant dollar terms for decades; if the agency had today the same constant-dollar budget as in 1992, it would be about \$25 billion dollars, even using OMB deflation indices, or about one-third more than at present. To the question of affordability, as my valued friend and colleague Scott Pace has noted in Congressional testimony, the administration’s stimulus program was larger than NASA’s budget from 1958 through 2008. To emphasize: the United States sent humans to the Moon, built and operated a Space Shuttle fleet for 30 years, completed the initial robotic exploration of the solar system, built and operated several space

telescopes, and contributed its share of the International Space Station, all for less than the cost of the American Recovery and Reinvestment Act.

If we continue to drift, then in the absence of meaningful U.S. initiatives traditional partners such as Europe and Japan are increasingly making their own plans independently of the United States. China is planning to deploy its own space station in less than a decade, about the same time that the International Space Station may be ending. Without significant changes to U.S. policy and plans, China will be able to offer cooperative relationships with other nations at a time when the United States has nothing to offer. If China is able to offer pragmatic opportunities for space cooperation on its own space station or as part of efforts to send humans to the Moon, and the United States cannot, then other countries will likely find it attractive to forge closer relationships with China. Such a shift in international space influence away from the United States and toward China will inevitably impact a wide range of U.S. national security, diplomatic, scientific, and economic interests extending far beyond space. The resulting shift in global power and influence can only be detrimental to the United States.

Government and the Private Sector

Space policies should promote the alignment of government and industry in support of national interests. Civil, commercial, and national security space efforts must complement each other to maximize U.S. national power, interests, and values. The United States leads the world in private sector space entrepreneurial investment and innovation. But to maintain that lead, we must ensure a stable and business friendly regulatory environment for both new entrants and established entities.

The primary risks faced by the private sector are unstable government policy and regulatory uncertainties. For example, today's so-called "commercial" cargo and crew transportation contracts – actually private-public partnerships where most of the investment comes from the public – depend upon having the ISS as a destination. The long-term viability of these ventures, which I believe to be in the national interest, depends upon an expansion of present U.S. activity in low Earth orbit outward to destinations in cislunar space, the surface of the Moon, and beyond. Private sector demand is as yet insufficient to support a significant space industrial base. Government demand will continue to be critical to sustaining post-ISS facilities even as new private ventures emerge.

Innovative commercial space activities face important regulatory uncertainties. Under international law, the United States is responsible for the activities of persons subject to its jurisdiction or control, and this responsibility is usually exercised through licensing of specific activities. Technical capabilities are developing quickly, however, and in many instances, the United States lacks appropriate regulations to legitimize new activities such as in-space operations and the exercise of property rights, thus creating uncertainties for business ventures and investments. In the face of such uncertainties, investment capital which might flow to

space ventures will be allocated instead to ventures having more predictable regulatory regimes.

It must be understood that private sector space activities are not a substitute for national leadership. We should by all means use and promote public-private partnerships to advance both national security and economic interests, while at the same times negotiating terms that ensure the public receives a good return on its investment. But we must also recognize that while there is considerable commercial application of the aerospace industrial base, national security and civil government demand still dominate most sectors. Accordingly, public policy must be designed to protect and sustain that industrial base, both to meet government requirements and to promote U.S. commercial competitiveness abroad.

Private sector entities can and should conduct their own activities in space when and as they believe such activities will allow a business case to be closed. Further, and importantly, a robust private sector can be a supplier to the U.S. government in national ventures. But the private sector, no matter how successful, cannot be a substitute for national leadership in both bold new civil space endeavors and the sustenance of critical national security space infrastructure. Civil and national security initiatives, international collaborations, scientific discovery, and human exploration require government leadership and the internal infrastructure and intellectual preeminence to sustain it.

Concluding Remarks

So, in the future, will the United States ensure a *Pax Americana* in space, as we have done for three generations on the high seas? Will we continue human space flight to low Earth orbit after the end of the ISS? Will the United States lead efforts to explore and settle the Moon and Mars? If we do choose to push deeper into space, with what countries will we partner? This is the last generation of Americans for whom the answers to these questions are choices we can make, irrespective of the desires of others in the world who do not necessarily wish us well. This is the last generation that can look to space and not see others advancing beyond where we have been. This is the last generation of Americans who can ensure that good behavior rather than bad is established and enforced as we journey outward beyond our planet.

The significance of expanding the range and scope of human space activities is not limited to science and engineering, but has enormous political significance as well. As with past frontiers, it is those who show up, not those who stay home, who will create, promulgate, and enforce the rules and norms of behavior in new areas of human activity. We owe it to the generations before us, those who left us a world with America as the only true superpower, to ensure that the world of generations hence can still make that claim. Without a proper understanding by our elected leaders of the role of space in human affairs, it will not happen.

Thank you.