

Testimony of Eric W. Stallmer
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Chairman Cruz, Ranking Member Udall, and Members of the Subcommittee, thank you for holding this hearing and for providing me the opportunity to testify as President of the Commercial Spaceflight Federation. The Commercial Spaceflight Federation (CSF) is the industry association of leading businesses and organizations working to make commercial spaceflight a reality. Our mission is to promote the development of commercial spaceflight, pursue ever higher levels of safety and reliability, and share best practices and expertise throughout the industry.

I hope to provide three main take-aways from my testimony today providing insight on the sector's past, it's present, and how lessons learned from these eras can be applied to the future for the growth of America's space program.

First, NASA and the commercial sector are partners in America's "great national enterprise" in space. Since the dawn of the space program, the partnership between government and the private sector has been a testament to our accomplishments in space. The partnerships early in the U.S.' space program were different than the partnerships we see and encourage today, but this is owed to the evolution of our nation's space program and the continued involvement from both parties. Later in my testimony, I will discuss successful commercial partnerships and how these can be applied to our nation's space exploration goals moving forward.

Second, further expansion beyond the government will create an ecosystem that will make space ours, and will enhance and strengthen U.S. leadership in space. Many of CSF's member companies are working to push Earth's economic sphere outward from Low-Earth orbit and beyond. Suborbital platforms will provide an avenue for space tourism and research that could not be conceived otherwise. Orbital vehicles will increase utilization of the International Space Station (ISS) for industry and research institutions in addition to increasing destinations in low-Earth orbit (LEO). Beyond LEO activities span the spectrum from mining celestial bodies for resources valuable to Earth to habitats on the Moon. All of these activities and more are creating a market in space that will continue to grow.

Finally, policies must be in place to encourage growth and innovation in the industry and keep the U.S. space sector competitive. Tools such as contracts using Other Transaction Authority (OTA) can continue this trending growth. The Commercial Space Launch Amendments Act (CSLA) and export control are other policy areas ripe for reform that will shape the advancement for the industry. Later in my testimony, I will discuss how Congress and industry can work together on these important policies to encourage progress and not hinder it.

Public-Private Partnerships

The Federal government and the commercial space sector have worked together in various capacities since the beginning of America's space exploration program. From Mercury through Apollo, NASA's success in the space race was not without the help of commercial companies such as Bell, North American Aviation, and what was then known as the Grumman Aircraft Engineering Corporation. This era saw collaboration with industry in which NASA engineers would design the systems and competitively bid out portions of the project. While this proved to be a successful method for developing specially-designed, fully government systems, more modern and innovative approaches have become available to procure a wide variety of necessary capabilities and services.

Commercial procurement now allows the government to assume the role of customer while still being involved in the development of the system. The government benefits from no longer the sole customer; its role changes from top-down control to capitalizing on development of commercially-owned capabilities. The government also benefits from the firm, fixed-price and milestone based approach utilized in commercial contracts, which controls cost and drives efficiencies. This approach allows NASA and the commercial sector to become true partners in America's "great national enterprise" in space. It enables the public and the private sector to collectively advance our nation's reach into the cosmos.

Suborbital

The NASA-commercial partnership starts in the shallower waters of space, in the suborbital realm. Initiatives such as NASA's Flight Opportunities Program (FOP) use commercial reusable vehicles for technology development that will allow and enable future missions to new destinations, keeping the U.S. at the forefront of exploration technology. In addition to robustly testing new technologies, these platforms offer brief access to the space environment for scientific data collection. Many researchers see them as stepping stones to using the International Space Station (ISS), increasing its utilization and raising its commercial success. Made In Space, a company based out of Silicon Valley, used FOP to test its 3D printers operation in microgravity for a fraction of the price of an orbital mission. After testing and building confidence on Earth, the company sent one of its printers to the ISS where it is currently operating. To date, the company has printed 14 objects from a calibration coupon to a ratchet. This perfectly exemplifies the success of a public-private partnership developing technology for future exploration, where astronauts could create a spare parts to support ambitious new missions.

Low-Earth Orbit

The ISS has been described as the crown jewel of the United States space exploration enterprise; it is a platform to perform a wide variety of experiments focused on life and physical sciences, human research, exploration research, and technology development. Almost a decade ago, in the NASA Authorization Act of 2005, Congress codified a new agreement between NASA and the U.S. commercial space industry to better achieve the nation's space exploration goals together. Congress designated the U.S. segment of the International Space Station a national laboratory, no longer the sole domain of

NASA, but rather a shared resource to be utilized by both the Federal government and private industry. An excellent example of the ISS being used in this fashion is the Bigelow Expandable Activity Module (“BEAM”), which will be launched and attached to the ISS later this year. Bigelow Aerospace has invested hundreds of millions of dollars in bringing expandable habitat technology to fruition, and, in partnership with NASA, the ISS will be utilized as a platform to demonstrate this vital new technology. Additionally, in anticipation of the Space Shuttle’s retirement, Congress directed NASA to partner with the commercial space industry to develop cargo transportation capabilities to the International Space Station.

To that end, NASA created the Commercial Orbital Transportation Services (COTS) Program to stimulate efforts within the private sector to develop safe, reliable, and cost-effective transportation capabilities to the ISS and LEO. COTS competitively funded two commercial companies--SpaceX and Orbital ATK--through cost-sharing, milestone-based, Space Act Agreements to help develop these capabilities. The program tied payments to the successful completion of contractually agreed upon milestones, and incentivized companies to contribute a significant amount of their own funds towards development. Following up on the success of the COTS program, NASA entered into a separate set of FAR-based, firm, fixed-price contracts with the companies to supply a series of cargo missions to the ISS through at least 2016. As of last month, 8 resupply missions have successfully been completed, with 12 more to come.

The pioneering COTS and CRS partnership has benefited American human spaceflight efforts in several ways, including:

1. Providing timely critical supplies to ISS crew members;
2. Increasing the utilization of the ISS for research experiments and technology development, including the world’s only capability to return ISS science to Earth;
3. Developing affordable, fixed-cost domestic access to the ISS from multiple competing providers; and
4. Dissimilar redundancy to assure continued critical access through the life of the program.

A variation of this model is being applied in the Commercial Crew Program (CCP), which is developing nationally-needed safe and reliable astronaut access to and from LEO. At present, NASA is paying more than \$70 million per seat to fly our astronauts to the ISS on Russian Soyuz vehicles. That price increases annually with no increase in safety or reliability. Commercial Crew will allow NASA greater insight into the development and production of the vehicles than is currently available with the Soyuz. U.S. providers are also more affordable than the Russians. NASA contracted with SpaceX and Boeing under the Commercial Crew Transportation Capability contract, a firm, fixed-price milestone based FAR contract. SpaceX will be utilizing its all-American Falcon 9 launch vehicle and Dragon spacecraft, while Boeing is employing its CST-100 capsule and the Atlas V rocket; each can carry up to seven people. These transportation systems will also allow NASA to expand the ISS’ crew size to its planned seven persons, roughly doubling U.S. crew time for utilization. This will allow much more scientific research and technology development activities to be conducted on our national lab. Additionally, with the private sector providing more economical

transportation to LEO, NASA's budget resources will be freed up to pursue additional avenues for further exploration of space.

Beyond Low-Earth Orbit

As the commercial space industry has taken a larger partnership role in exploring LEO, it has enabled NASA to focus on extending human presence beyond LEO. NASA has continually stated that the United States' long-term human exploration goal is to send humans to Mars, with precursor missions along the way to prepare for trips to the Red Planet. To that end, NASA is building a new heavy lift rocket, the SLS, and Orion crew capsule, to take astronauts beyond LEO in the early 2020s. The development of a heavy lift launch vehicle and crew capsule are important pieces of the United States beyond LEO human exploration plans. Those development efforts run in parallel with other independent commercial efforts to achieve similar goals like the SpaceX Falcon Heavy rocket, and will benefit from other complementary deep space exploration efforts. I'd like to reference NASA Office of Inspector General's *2014 Report on NASA's Top Management and Performance Challenges* on this matter. The November 2014 report states:

“even after the SLS and Orion are fully developed and ready to transport crew, NASA will continue to face significant challenges concerning the long-term sustainability of its human exploration program. For example, unless NASA begins a program to develop landers and surface systems, NASA astronauts will be limited to orbital missions. In the current budget environment, however, it appears unlikely that NASA will obtain significant funding to begin development of this additional exploration hardware anytime soon, effectively delaying such developments into the 2020s. Given the time and money necessary to develop landers and associated systems, it is unlikely that NASA would be able to conduct any manned surface exploration missions until the late 2030s at the earliest.”

This challenge is an opportunity to highlight the opportunity to leverage commercial efforts. While the audit correctly surmises that there are unlikely to be sufficient budgetary resources in the near- or mid-term for NASA to develop a lander and surface systems through traditional government contracting approaches, it fails to recognize the significant contributions that the commercial space industry is making in these areas. Private companies like Moon Express, Bigelow Aerospace, Masten Space Systems, and Golden Spike are all building capabilities to explore and commercially develop the Moon. These companies, and others, are interested in the Moon because it offers the potential to support near-term opportunities for economic growth. To NASA's credit, it has begun exploring public-private partnerships for beyond LEO exploration via the Advanced Exploration Systems (AES) program, which is supporting initiatives such as Lunar Cargo Transportation and Landing by Soft Touchdown (CATALYST). In the Fiscal Year 2015 appropriations bill, Congress included language that strongly reaffirmed the importance of the private sector contributing landers, habitats, and propulsion systems to beyond LEO human spaceflight through public-private partnerships as is occurring via the AES program. Hardware developed by AES will serve a critical role in ensuring that NASA can utilize the transportation capacities of SLS and Orion to conduct surface missions to the Moon and eventually Mars. Including the commercial space industry as

an early partner in reaching U.S. human exploration goals beyond LEO is a logical extension of the successful COTS and CRS partnership model proven in LEO, and can help alleviate budgetary constraints and compliment the Agency's investment in its transportation systems.

Commercial companies are also exploring other destinations beyond LEO, like asteroids. For example, Planetary Resources is working to identify, track, analyze, and eventually interact with near-Earth asteroids. While these companies and others work to supplement NASA programs for exploration, even more importantly, they are working to create a sustainable ecosystem in space. NASA continues to play an invaluable role in creating early markets for and in the support of American entrepreneurial companies at the edge of competitive technology areas such as spaceflight but much more can be done to incubate markets in space.

To conclude, Congress can further support the growth of the commercial space industry by promoting a true partnership between the Government and private sector. Government investment in leading edge launch technologies will remain essential, but it is vital to the industry that taxpayer dollars not compete with private investment. The industry acknowledges that decisions regarding when to exit Government funded programs and when to rely on commercial capabilities are difficult ones. In light of this, the commercial space launch industry would like to maintain an ongoing dialogue with Congress and with the leading U.S. Government R&D agencies on the most effective way for government investment to ensure U.S. leadership without competing with commercial operators.

Commercial Space as a Business

This economic model is not a new one. When one looks through the 20/20 lens of history, you will find that a flourishing commercial industry enables the long-term well-being of a nation's strategic goals. In the eighteenth and nineteenth century, Great Britain was the leader of the open seas. It was home to the largest mercantile marine afloat, more than half a million tons of shipping, and a Royal Navy that fielded a force larger than the fleets of Spain and France combined.¹ This was by design, not accident. By thoughtfully passing maritime laws that encouraged the growth of its commercial shipping industry, the British built the crucial foundations of a sustainable maritime power: a thriving shipbuilding industry and the maintenance of a pool of experienced seamen. As Alfred Mahan more succinctly put it, a thriving commercial shipping industry is the force that naturally produces a healthy navy.²

In the 1980s President Reagan and Congressional leaders shared a similar vision for American commercial leadership in space. Mr. Chairman, it will probably not surprise you that the first commercial launch in the United States was conducted in Texas, from Matagorda Island in 1982. Two years later, in 1984, the Reagan Administration created

¹ Sugden, John (2011). Nelson: A Dream of Glory. Pimlico.

² Cropsey, Seth, & Milikh, Arthur. Mahan's Naval Strategy: China Learned It. Will America Forget it? World Affairs

² Cropsey, Seth, & Milikh, Arthur. Mahan's Naval Strategy: China Learned It. Will America Forget it? World Affairs (March/April 2012).

the Office of Commercial Space Transportation and then Congress enacted the Commercial Space Launch Act to centralize the function of licensing and promoting the new commercial space launch industry. Since its establishment, the commercial spaceflight industry has grown tremendously to include a diverse range of companies and applications. The commercial space sector is an emerging high-tech industry that has continued to make significant progress in the past few years in terms of growth in revenue, employees, and capability. Orbital companies such as SpaceX, Sierra Nevada Corporation, Blue Origin, and Boeing have begun the crew vehicles that will provide U.S. human spaceflight capability to LEO. SpaceX has already successfully berthed a cargo version of its Dragon capsule to the ISS six times under NASA's COTS and CRS programs, and then returned it safely to Earth. Additionally, reusable technology will have the potential to further disrupt the launch industry to bring even more business to U.S. soil. Over the past year in particular, SpaceX has made significant and unprecedented strides in achieving reusability with the first stage of its Falcon 9 rocket.

U.S. suborbital companies are leading the development of reusable manned vehicles. Virgin Galactic is working on the second version of its SpaceShipTwo vehicle and XCOR Aerospace has begun assembling its Lynx suborbital vehicle and is conducting tests on its propulsion system. Blue Origin has also successfully conducted a test of its pusher escape system for its orbital and suborbital crew capsule. Late last year, Paragon Space Development Corporation StratEx™ team broke Felix Baumgartner's record skydive through technology development and advancements that have been provided to and will be incorporated into World View's future commercial balloon platform which was spun off from Paragon. These and other suborbital platforms are gearing up to offer flights to private individuals and researchers, and their scientific, industrial and educational payloads to altitudes that were previously unachievable for the everyday consumer. Each month brings new accomplishments for these companies, and each stride forward builds the robust market for research, space tourism, education, and other applications.

Going beyond public-private partnerships with NASA, the commercial launch industry's activities continue to grow rapidly. In fiscal year 2013, Federal Aviation Administration's Office of Commercial Space Transportation (AST) licensed and permitted 18 commercial launches, a six-fold increase over the previous year. To support this growth, states have been competitively investing in commercial spaceports to ensure their state economies have a key role in this 21st century business. States who have developed or are developing commercial spaceports include, Alaska, Texas, New Mexico, Florida, Virginia, Colorado and California. These facilities provide competing venues to test equipment, launch orbital and suborbital missions, and train crew and spaceflight participants in the types of environments they will experience in space. Companies around the country are also supplying spacecraft parts and subsystems, ranging from screws and fasteners to environmental control systems, engines and spacesuits.

These and other entrepreneurial activities in the commercial space sector are reinvigorating our space industrial base. Domestic launch competition is lowering the cost and increasing the reliability of our access to space, vital for launches needed for national security. Additionally, the private sector is working towards replacing foreign

dependence for national security-related technologies, evidenced in the work being done by Blue Origin and United Launch Alliance in their BE-4 engine, a replacement for the Russian RD-180 engine, and SpaceX's entry into the national security space market.

While strengthening our nation's industrial base, the commercial sector is creating new cost-effective applications for exploring space and creating a better life for people on Earth. The commercial space industry is creating new opportunities for humanitarian applications in addition to commercial business. Planet Labs' fleet of small satellites will be providing daily images of Earth that can be used to evaluate project sites, monitor crops, as well as observe forest fires for early detection and warning. Other companies such as OneWeb and SpaceX are planning to provide broadband internet access to even the most remote parts of the world through the deployment of affordable small satellite constellations.

Other companies are looking to use space for resource utilization to further space exploration and to better life here on Earth. While the price tags on platinum metal groups remain high, they are used to manufacture 1 of 4 goods we use every day, from electronics to medical devices. The major sources of these metals are concentrated overseas in regions of Africa and Russia. One company aimed at mining asteroids has the potential to increase our access to the resource. Planetary Resources is currently developing a platform to detect and mine platinum-rich asteroids. Just one of these asteroids contains more platinum than has been mined in the entire history of humankind. This technology will also play a critical role in detecting near-Earth asteroids in the future for science and the safety of our planet.

The industry is also providing new opportunities in research, science, and resource utilization. Little is known about the mesosphere, often called the "ignorosphere," which lies above the maximum altitude for aircraft and balloons and below the minimum altitude for orbital spacecraft. New suborbital reusable platforms that will come online in the next few years will provide access for in-situ data for this portion of our atmosphere, allowing us to increase our understanding of phenomena such as red sprites and noctilucent clouds that occur in that realm.

Finally, the commercial space industry is creating thousands of high-tech jobs in the U.S. In addition, the sector is creating a renewed interest in science, technology, engineering and mathematic (STEM) careers. The industry is exciting the next generation and allowing them to personally participate in the nation's journey into space. With new commercial space platforms, students can build and fly their experiments into space on suborbital platforms, build and launch their own satellites, and even use flight hardware already in space for classroom projects. Inspiring the next generation is inspiring our future problem-solvers and the entrepreneurs that will shape our lives in the coming years. As Jeff Bezos, the founder of Amazon and Blue Origin, so eloquently put it:

“Millions of people were inspired by the Apollo Program. I was five years old when I watched Apollo 11 unfold on television, and without any doubt it was a big contributor to my passions for science, engineering, and exploration.”

In order to continue this trend of technological advancement, we must provide the best possible environment for the burgeoning commercial space sector.

Policy

Other Transaction Authority

Policies that have shown success in the past should continue to be used to encourage growth and success in the future. The COTS and CRS commercial models are representative of the successful public-private partnerships leading to fixed price, fully and openly competed government contracts that use mechanisms to encourage private sector innovation while still satisfying the strict requirements of government procurement. COTS employed milestone-based Space Act Agreements through its Other Transaction Authority (OTA) rather than the traditional Federal Acquisition Regulations (FAR) to keep costs low and performance high. Traditional, cost-plus FAR contracts can, in some instances, focus too much on needless bureaucracy and take attention away from performance and safety. Conversely, firm fixed price agreements allow the objectives of the contractor and the agency to be aligned in an affordable fashion, shifting the burden of cost overruns onto the private sector. With these performance based payments, the contractor is highly incentivized to be efficient and keep costs low in its development. Additionally, the agency is restricted from changing the direction mid-program, which tends to cause delays and increase the program's lifetime as well as the cost to the taxpayer.

At the same time, we support Congressional transparency measures regarding Space Act Agreements (SAAs). Creating a database of SAAs (with proprietary information redacted) that companies and the public can access allows for both NASA officials and private sector entities to learn from past agreements and improve the future use of SAAs.

For these reasons and reflections of past success, I urge Congress to encourage the continued use of OTAs to allow commercial companies to create future partnerships and products that will enhance government capabilities, safety, and affordability.

Federal Regulations

Policies in federal regulations must also be taken into account to continue the trend of innovation and growth from the commercial space sector. Congress has been very cognizant of the needs for these policies dating back to 1984 when the Commercial Space Launch Act authorized the Secretary of Transportation to license and promote commercial launch activities. Since its inception, the office's mandate was to promote the commercial space industry and ensure the safety of the uninvolved public. It has been years since its last full reauthorization and consequently, CSF believes that the regulatory processes to ensure a favorable and safe development of industry need to be revisited. I will talk about a few of those regulatory issues next.

Congress approved the Commercial Space Launch Amendments Act in 2004, instituting a human spaceflight regulatory “learning period” to allow for both industry and FAA AST to learn, quickly and jointly, how to best promote safety. The stated learning period gave the Federal Aviation Administration’s Office of Commercial Space Transportation (AST) freedom to regulate with the stipulation that all regulations for the safety of passengers must be based on an event that led to serious injury or that had the potential of serious injury. In addition, commercial human spaceflight operators use an informed consent regime that requires them to inform spaceflight participants of the inherent risks of spaceflight and the specific safety record of the vehicle type for their flight. Participants are also informed that the government has not certified the vehicle as safe, and must sign a consent form before flight.

The initial learning period put in place was 8 years from the enactment of the CSLAA of 2004, expiring in December 2012. Congress expected that commercial operations would immediately follow the flights of SpaceShipOne, and this eight-year period would be filled with commercial launches that would help develop a knowledge base from which FAA could regulate intelligently. However, because of the due diligence of the companies in designing and building the safest possible vehicles, and their efforts to raise private investment, there were no commercial human spaceflights in that eight-year period. Recognizing the important purpose served by the learning period, in 2012 the FAA Modernization and Reform Act extended it to October 1, 2015 (the duration of the broader FAA reauthorization). The importance of the learning period is to create a regulatory regime based on data from actual flights, rather than speculative analysis based on other vehicles or technologies. Initial test flights of crewed suborbital vehicles began in 2013 and regular operational flights are expected in the next couple of years. Additional time and data are required to determine appropriate regulations for the industry and we ask that the original eight-year learning period be restored to allow for innovation to grow and for safety to improve in the long term.

The Commercial Space Launch Act established a reasonable and prudent approach to liability in light of domestic and international legal liabilities. Customers who purchase a launch for their payload, or who sponsor the launch of a spaceflight participant, are required to be protected by the obligatory third-party damage insurance policy and are required to execute a mutual waiver of claims against all other parties. These customers are also indemnified from excess claims by the federal government. However, spaceflight participants are explicitly excluded from this regime.

The launch of a human spaceflight vehicle that carries only one participant could in fact be entirely funded by that person, and therefore the participant could be exposed to third-party claims. It is not logical for the law to put spaceflight participants at greater financial risk for partaking in human spaceflight activity, as many of them could be researchers, employees of the customer, or winners of a promotional contest and would not otherwise have substantial resources to pay excess claims should they arise. The spaceflight participant should be protected by insurance and, if needed, government risk-sharing from third party claims that may arise due to their flight. Moreover, the

participants should be included in the mutual waiver of claims that protects all other parties in the launch from each other. For these reasons, CSF believes that the spaceflight participant should be included in all parts of the liability regime.

Finally, it is important to address the “risk-sharing regime” under the CSLA. In 1988, Congress put in place a “risk sharing regime” to prepare for any damage caused to uninvolved third parties from FAA-licensed commercial space activities. This regime requires commercial space operators to take on stringent financial responsibilities by purchasing insurance or demonstrating available financial resources to cover any third-party damages up to the Maximum Probable Loss (MPL), calculated by the FAA pursuant to Federal regulation. In exchange, in the event of an extremely unlikely event of an accident that causes damage above the MPL, the Federal government agreed to seek an expedited appropriation to cover damage above the insured amount. This “risk-sharing” regime has never been activated since its enactment in 1988. However, it is a necessity for U.S. launch companies to more effectively compete with foreign launch companies whose own governments provide even stronger protections. CSF strongly urges Congress to permanently extend the risk-sharing regime.

With the rapid growth in the number of state spaceports, which are owned and operated by state governments much like regional commercial airports, it is also important that the Commercial Space Launch Act be updated to extend the scope of property insurance coverage expressly to the property of State and local governments associated with licensed spaceports. This change would provide much needed clarity to the insurance coverage for state spaceports and encourage more investment in space launch infrastructure throughout the U.S.

Commercial launch operators are highly focused on developing concepts of operation that offer maximum operational flexibility to launch when needed, as well as to maximize affordability. In order to accomplish this, it is essential to avoid parallel coordination and approvals among multiple agencies wherever possible. In addition, there is a compelling need to streamline the regulatory process and utilize commercial practices to the greatest extent possible. Finally, commercial launch providers must have the opportunity to avoid the dictated use of mandatory range services, and be provided the opportunity to self-perform or subcontract to the most efficient provider that is able to meet the requirements. These attributes are what will ultimately draw commercial customers to establish launch operations at existing launch ranges.

Export Control Reform

We commend Congressional authorization to modernize the United States Munitions List (USML) and the Administration’s prompt use of that authority. Placing items deemed ‘dual-use’ on the Commerce Control List (CCL) will allow them to be more appropriately regulated. Commercial communications satellites will especially benefit from being regulated under the Export Administration Regulations (EAR) due to their broad civilian applications. With this reform, the American commercial satellite industry will become more competitive in the international market, grow our nation’s space industrial base, and bring high-tech jobs back to the US. However, the devastating impact that ITAR restrictions had on the well-established commercial satellite industry

over the past fifteen years is a demonstration of the damage that overly broad ITAR regulation could do to the commercial human spaceflight industry. As I stated previously, this industry, much like the satellite industry, has the potential to greatly contribute to our space industrial base, a major asset to our national security.

The U.S. is currently a leader in commercial spaceflight and to continue this leadership, we must take a look at adapting our export control environment with the evolution of commercial technologies. Companies that wish to operate their vehicles from allied countries are running into a major hurdle due to the “presumption of denial” policy for MTCR Category I items. The Missile Technology Export Committee, a Department of State agency that presides over the export of MTCR equities, has stated that their primary concern is ensuring appropriate safeguards are put in place to protect missile technology, regardless if an item is controlled on the ITAR or the EAR. Because of this position, we believe the MTCR “presumption of denial” policy is an issue that must be addressed in addition to those pertaining to ECR ITAR revisions. The MTCR Guidelines state that their purpose is to limit the risk of non-proliferation of weapons of mass destruction (WMD) by controlling transfers that could make a contribution to delivery systems of those weapons. The Guidelines are “not designed to impede national space programs or international cooperation in such programs...” Since the MTCR has been established, space programs have expanded beyond the governmental domain into the commercial domain, and the regime is now currently impeding international collaboration for a strong global space economy. The difficulties incurred to offer U.S. commercial spaceflight services abroad, will birth foreign domestic competitors which could ultimately replace America’s leadership in the commercial space sector and hurt U.S. national security interests.

For this reason, I urge Congress to encourage the Administration to perform continued regular reviews to reform USML categories and other proliferation measures to adapt to the quickly changing environment of commercial technology today in order to enhance both national security and the domestic economy.

Conclusion

When I took over as President of the CSF six months ago, I made it a priority to personally visit our member companies all over this great nation, from Midland to Mojave, to Seattle and the Florida Cape. I am energized and beyond enthused about what I have seen. The Commercial Space Industry is alive and well and the United States is leading the way. We are experiencing private sector investment unlike anything we have seen in history, and its because these investors see that the expansion of the economic sphere into space is real and very close.

As you debate legislation this year, I would implore you to think of the commercial space industry as a valuable and tremendous partner that will continue to help the United States achieve its ever-more-ambitious missions in space, and codify the competitive policies that will maintain the domestic commercial space industry’s global leadership for years to come.

I have three young children that regularly ask “when can we go to space?” I am very confident from working in this industry that the answer is, “very soon.”