

Space Subcommittee Chairman Brian Babin
House Science, Space, and Technology Committee
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Statement before the Commercial Spaceflight Federation

Good morning! Thank you for extending an invitation to speak before you this morning. It's always great to catch up with so many friends in the space community. Before I get started, I wanted to congratulate Alan Stern on his recent election as Chairman of the Commercial Spaceflight Federation (CSF). His advocacy for the Southwest Research Institute (SwRI) and the Flight Opportunities Program at NASA give him a unique perspective to view the challenges and opportunities facing the commercial space sector. Furthermore, his background as a Principal Investigator for the New Horizons Mission to Pluto and as the Associate Administrator for the Science Mission Directorate at NASA will serve as a solid foundation for identifying synergies between civil, commercial, scientific, and human space activities.

I'd also like to congratulate Frank DiBello on his successful term as Chairman. Under Frank's leadership, and Eric's Stallmer's guidance, CSF was a helpful partner in the process that brought about the SPACE Act, and ultimately the Commercial Space Launch Competitiveness Act, which was sponsored by Majority Leader McCarthy along with me and Chairman Smith.

I would be remiss if I did not also mention the hard work put in by their predecessors, Stu Witt and Michael Lopez-Alegria. The Committee spent over three years working on that bill, and it was a product of a lot of stakeholder input. CSF was a helpful and

productive participant in that process. I look forward to continuing that positive relationship with Alan going forward.

I would like to take the opportunity this morning to discuss my views on the state of the commercial spaceflight industry and start a discussion on a vision for the future.

Our nation's history in space has always featured partnerships with industry. From McDonnell Aircraft Corporation building the Mercury and Gemini capsules, to Grumman building the Lunar Excursion Module for Apollo, or the United Space Alliance operating the Space Shuttle fleet, contractors and the private sector have worked hand-in-hand since the dawn of the space age. The future will be no different, and all of you will be part of blazing that trail. In order to ensure that our nation, government, military, industrial base, and society will continue to benefit from the unique advantages that space affords, we must carefully craft a framework for the future.

The 20th century was well served by the governance structures that guided the dawn of the space age. The most prominent framework of this period, the Outer Space Treaty, was negotiated at the height of the Cold War and reflected two very distinct philosophies – communism and liberty. The Soviet Union sought to prevent any non-state actors from operating in space, a position that suited communism since the state was in control of the vast preponderance of society already. The United States, however, argued that space should be free for exploration and use by all, including the private sector and individuals. Fortunately, the United States position was accepted and we reap the benefits of private sector investment and innovation in outer space. On January 27, the Outer Space Treaty will celebrate its 50th anniversary. Despite

the end of the cold war, the advance of private sector space actors, and increasing private sector innovation, often referred to as “non-traditional space activities”, the Outer Space Treaty is just as relevant today as it was 50 years ago. The compromise reached by the drafters to balance the rights of the individual versus the obligations of the state is still valid and workable today.

For instance, Article 1 states that “[o]uter space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.” Article 6 goes on to state that, “[t]he activities of non-governmental entities in outer space, including the Moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty.” These two seemingly contradictory clauses – one allowing for the free exploration and use of space, and one requiring authorization and supervision for the private sector to explore and use Outer Space – are actually just as workable today as they were in 1967.

This is because Article VI establishes responsibility for States Parties to ensure that national activities, including those undertaken by the private sector, are in accordance with Treaty. It does not qualify to the States how or to what extent a State must authorize and supervise. There is flexibility afforded to the States in determining the domestic implementation of assuring private sector activities are carried out in conformity with the Treaty.

The most obvious manifestations of “authorization and supervision” are national laws and regulations. Congress, recognizing the nascent state of not only the commercial human

spaceflight industry, but also the nascent state of all non-traditional space activities, drafted the Commercial Space Launch Competitiveness Act (CSLCA) in order to codify a permissive and lenient environment that would nurture the sectors. Rather than imposing legacy governance constructs on the unique activities, Congress allowed for the consideration of creative alternatives. While some may see regulations as the easiest way to “check the box” on satisfying our international obligations related to Article 6, I would challenge all of you to explore more creative solutions.

The regulatory path is fraught with uncertainty, beholden to the whims of unelected bureaucracies, and unresponsive to the needs of a rapidly innovating field. There are a multitude of other constructs that can satisfy our obligations without stifling innovation or smothering the embers of creativity. Standards-setting bodies, transparency constructs, tort law, and many other solutions should all be on the table.

One of the things I hear all the time is that various early-stage technologies need “regulatory certainty” in order to attract investment. They present anecdotes of venture capitalists hesitating to back budding entrepreneurial endeavors because uncertainty in the regulatory processes is an unquantifiable risk. One potential solution to that is simple –just prohibit regulations. That is the surest form of regulatory certainty. In emerging fields like space, legislative bodies, elected by the people, are certainly capable of addressing issues in a manner that provides clarity, transparency, and flexibility, all while protecting national interests.

While the medium of space and the activities under considerations may be unique, the policies we are debating are certainly not new. In the late 19th century, the United Kingdom and the United States adopted “Red Flag Traffic Laws” in order to regulate early automobiles. Also known as “Locomotive Acts,” as automobile closely resembled trackless trains at the time, these premature attempts to regulate an emerging technology were premature and ill-conceived. Ultimately, many were rescinded, but if they were left in place, it is likely that they would have delayed, if not prevented the industrial revolution. One of the restrictions in the U.K. limited the speed of automobiles to 4 miles per hour in the country, and 2 miles per hour in the city. Another restriction required a man carrying a red flag to walk in front of a vehicle hauling multiple wagons. Another required that automobiles be operated by a crew of no less than three individuals, with an additional person required for every wagon. The same law also required a man with a red flag to walk at least 60 yards in front of the car in order to warn horses and carriages.

Laws considered in the U.S. were even sillier. One law in Pennsylvania breezed through the legislature unanimously in 1896. When any motorist encountered cattle or livestock, the law required the motorist to 1) immediately stop the vehicle, 2) “immediately and as rapidly as possible...disassemble the automobile,” and 3) “conceal the various components out of sight, behind nearby bushes” until the livestock calmed down. The law was eventually vetoed by the Governor, but the case does illustrate the larger point I am trying to make here – that the regulation of nascent technologies is often done haphazardly. If done prematurely, without due regard to the state of the technology, or without the larger goal of advancing innovation, regulations could have a crippling effect on the sector. At this point, we would be

better served by exploring alternative constructs to “authorization” and “supervision,” such as blanket statutory authorizations for classes of activities and enforcement of existing international and domestic requirements for registration and notification to satisfy “supervision.”

If there is one theme I want you to walk away from here with, it is this: the government’s role isn’t to give you permission to do something. The government’s role should be limited to only those areas that require its intrusion, which is a high bar. The burden of proof shouldn’t be on the individual to demonstrate the “right” to act; the burden of proof should be on the state when it seeks to restrict liberty. This isn’t simply a philosophical question; it is also a question of economics. Other states stand willing to challenge U.S. leadership in space through regulatory competition. In a global environment, individuals and companies are free to shop for the most attractive environment to claim as “home.” The implications of this choice go far beyond national pride. When space operators associate themselves with a particular state, they bring jobs, economic growth, and tax revenue. They attract the best and brightest entrepreneurs, scientists, engineers, and technicians, and create an incubator for future success. We cannot afford to scare these folks away.

Today we are discussing new and unique “non-traditional” space activities such as space-to-space remote sensing, commercial space-based signals collection, space resource harvesting, satellite servicing, and commercial habitat services, amongst others. None of these activities were seriously envisioned 50 years ago when the Outer Space Treaty was signed, so it stands to reason that we have no idea what the next 50 years will have in store. Given that truth,

we should be doing everything we can to expand the realm of possibility, not narrow it.

In the previously aforementioned CSLCA, Congress asked for a number of reports in order to gather more information on a number of these topics. Section 108 directed the Office of Science and Technology Policy to assess current and proposed near-term, commercial non-governmental activities conducted in space, to identify appropriate authorization and supervision authorities, and to develop recommendations on an authorization and supervision approach that would prioritize safety, utilize existing authorities, minimize burdens to the industry, promote the U.S. commercial space sector, and meet the United States obligation under international treaties. That report, and an accompanying “mission authorization” legislative proposal, was delivered on April 4th. However, the “mission authorization” legislative proposal submitted with that report was mostly drafted before the passage of the CSLCA, and earlier drafts were shared with Congress, so the final version was not a surprise.

Allow me to take a few minutes to discuss the “mission authorization” proposal. The bottom line is that the Administration is asking for an expansion of regulatory authority for the Secretary of Transportation, in coordination with a number of other Federal agencies, to grant authorizations for missions in outer space. I have serious reservations with this proposal. First, this proposal places the burden of demonstrating consistency with international obligations, foreign policy, and national security with the applicant – leaving the government to decide at its own discretion whether or not an activity should go forward. This is a mistake. Instead, we should have a regime in which the private sector activities are presumed authorized and only after the government has met

certain conditions can it place restrictions on an activity. Second, the interagency construct, specifically the requirement of “concurrence,” and the vague nature of authority granted to the Federal agencies, gives the Executive Branch expansive discretionary regulatory authority – essentially with the ability to regulate any or all aspects of private sector space activities. As we have seen all too often, government regulators have asymmetric incentives against authorizing activities that may be unprecedented, innovative, or that in any way put a particular bureaucrat or agency in perceived political risk. Third, regulatory authority is so broad I question whether commercial actors will have adequate notice as to what particular aspects of their proposed activity must obtain authorization. Fourth, and perhaps most importantly, the Constitution places the responsibility upon Congress to make legislative determinations regarding what requires federal authorization and supervision. It should not be the case that *everything* anyone does in outer space requires federal approval. Article VI grants States the discretion to decide what must be authorized to assure conformity with treaty obligations and how it is to be supervised. Transferring this authority to the executive branch raises serious concerns given how vast the scope of regulatory oversight would be.

While the report and legislation called for expanded executive branch authority to regulate all manner of space activities, a couple passages of the report have gone relatively unnoticed, and I think they are the most important things to take away from the report. The first is that the Administration found that the United States is in full compliance with our international obligations, even after space resource rights were codified in U.S. law. Not once in the report did the Administration claim the United States was unable to fulfill its international obligations. The second is that the

main argument for expanded regulatory authority was because “unprecedented commercial space activities implicate provisions of the Outer Space Treaty in ways not clearly addressed by existing licensing frameworks.” In principle, addressing outdated and burdensome regulation with common-sense reform is a good idea - - especially if the regulators are inhibiting American innovation and investment. But instead of curtailing and cleaning up the current regulatory construct, the Administration requests a significant expansion of authority - - under the false premise that more regulatory authority will lead to more certainty for the private sector. I argue that the proposed expansion of regulatory authority will in fact lead to more uncertainty. This is not a claim I make without experience, but based upon oversight the Space Subcommittee has been conducting on the Department of Commerce’s Commercial Remote Sensing Regulatory Office.

Just last week, the Space Subcommittee held a hearing on this subject and received testimony on the challenges associated with that existing regulatory process. Licenses are taking years to adjudicate rather than the 120 days required by law, and applicants are given no reason for the delay. Congress hasn’t been any more successful in getting answers. The *CSLCA*, directs the Secretary to report every year basic information about how many license applications were received, how they were adjudicated, and how long it took. This information would let Congress know whether or not NOAA is satisfying their statutory responsibilities under existing law. But even this basic information, which was due in May, hasn’t yet been provided to Congress.

In fact, the commercial remote sensing interagency licensing process is broken, limitations are retroactively placed on existing licenses, and confusion abounds related to the extent of existing

authority. With the increase of new applications flowing into that office, and the unique nature of the missions being considered, a fresh new look at the law governing commercial remote sensing is due. Some have argued that a statutory update is not necessary, and that subtle tweaks to the existing regulations would be sufficient. If that were the case, then we wouldn't be at this point. The Administration has had ample opportunity to clean up its own house, but so far that hasn't happened. A common excuse is a lack of funding. If funding were an issue with expediting requests, then the office would prioritize license processing over travel to ground stations in the Maldives. There is no statutory requirement to visit every ground station, but Commerce still mandates it. They could fix that problem on their own and focus limited resources on license processing, but they haven't.

Given all of these problems with the commercial remote sensing regulatory process, it's shocking that it seems to be the model the Administration chose to adopt with the Section 108 report for regulating space activities. Consider that the "mission authorization" proposal sets up similar interagency processes as currently existing for commercial remote sensing, with the caveat that in addition to the Secretary of State and Secretary of Defense having authority to determine license conditions - - you must now include the NASA Administrator, the Director of National Intelligence, and such other appropriate United States Government departments and agencies as the Secretary of Transportation deems appropriate. These agencies, under the force of law, must give their concurrence – an affirmative approval – before any space activities can be undertaken.

While perhaps well intentioned, the Administration's proposal is ill conceived. Instead of creating draconian regulations, we should be

developing a proposal that will streamline the regulatory framework, limit the government's role, promote American innovation and investment, and satisfy our international obligations. The Administration fails to remember that the *Outer Space Treaty* is not self-executing. The Administration, unless explicitly authorized by Congress, cannot deny an American citizen the right to explore and use *Outer Space*.

Recently, Moon Express successfully received, under existing regulatory authority, a favorable determination from the Department of Transportation for its payload to be launched. The good news is that this determination demonstrates that in fact, the Administration can work within existing legal authority – if it so chose. The bad news is that the interagency process to reach the determination carries with it the same challenges that exist with commercial remote sensing and that would exist under the mission authorization proposal. Instead of investing significant time and effort to convince the interagency their activity should be authorized - Moon Express should have a framework – and not necessarily predicated on federal regulations – that presumes their activity is authorized and places the burden on the government to demonstrate otherwise.

This question of how we will regulate our private sector activities is not simply academic. I believe it is one of the fundamental space policy questions of our time. America is great because it is a country where you have the freedom to create without government permission. We are all free, unless we chose, through our legislative process, to limit our freedoms. Other countries, like China, do not share our American value of freedom - - but they gain some advantage when it comes to directing their economies and forcing their people to do things. Whether or not our system of

values will be carried by the future pioneers of outer space will likely hinge on the degree to which America is able to unleash the awesome power of freedom and protect against government regulatory intervention. I for one want to see the future of humanity in outer space governed by the principles of our great nation.

Related to the question of regulation are space traffic management and space situational awareness information and services. The basic notion of whether space traffic is actually managed sufficiently right now by the private sector is an ongoing debate. In the last 10 years, the Space Data Association has developed into a robust forum for exchanging operator-based space situational awareness data. The Joint Space Operations Center (JSPOC) is even a member. For those that aren't members, the commercial sector also offers space situational awareness solutions. The argument that space traffic needs to be managed by the government fails to sufficiently take these ongoing and successful efforts into account. Furthermore, it implies that space operators do not have an adequate incentive to prevent conjunctions.

I would argue that satellite operators are uniquely incentivized to protect capital assets that are valued in tens if not hundreds of millions of dollars. The argument that the orbital domain is subject to the "tragedy of the commons" also requires additional scrutiny. Large private sector actors like communications satellite companies have adequate incentives to protect the environment that they operate in because the very viability of their industry depends on it. Furthermore, smaller space actors like university research payloads and small satellite operators typically associate themselves with government entities to secure funding and launch access and are therefore subject to stringent orbital requirements,

or are subject to existing tangential regulatory constraints through the Federal Communications Commission, the Department of Commerce, or the Department of Transportation.

That isn't to say that nothing can or should be done, just that we should be cognizant of existing authorities, and consider a wide array of solutions, rather than resorting to the crutch of regulatory expansion. It's also important to keep in mind that space situational awareness (SSA) information and services are not an inherently governmental function. We should facilitate, to the greatest extent possible, American investment and innovation in private sector SSA. The future will be a world of ubiquitous commercial and public SSA data, and we want America to be the leader. Likewise, space traffic management does not necessarily have to be an inherently governmental function. I ask you to keep an open mind to models of ensuring safe and sustainable spacecraft operations that are independent of or complementary to government management.

I've mentioned a number of reports Congress has received pursuant to the CSLCA – there are still several outstanding, including an important report from Congress on updates to the *1992 Land Remote Sensing Act*. But this doesn't mean the Space subcommittee isn't hard at work. Over the past year, myself and staff have been meeting with stakeholders – both government and non-government – including many of you in this room. Once all the reports are delivered, I intend to hold substantive hearings and then work on legislative solutions, if necessary. I look forward to working with all of you during this process.

Speaking of schedules, I should also mention the NASA Authorization today. We've got a few months left in the calendar year to get legislative business done. My top priority is a NASA

Authorization. I urge the Senate to take up NASA Authorization bill that sits at their desk, or quickly work with the House to negotiate a compromise. Based on the Congressional Calendar, that may be the best option to get something done in the very limited time we have left. The Senate has a perfectly good bill at their desk, and has for almost two years. It is a bipartisan bill that passed by voice vote in the House, so it certainly meets the “unanimous consent” standard necessary for the Senate to support. The Appropriations process for the Commerce, Science, and Justice bills are very mature, and can easily be reconciled to create a bipartisan authorization level for Fiscal Year 2017.

I should also address one last issue before I wrap-up. The explosion of SpaceX’s Falcon 9 last week serves as a reminder that nothing involving space should be taken for granted, not even fueling. I’ve met with the FAA, NASA, and the NASA IG already. I’m scheduled to meet with SpaceX and the ASAP later this week. I trust they will identify the cause of the problem, fix it, and move forward. The appropriate level of government involvement depends on the nature of the launch. In this instance, it was a fully commercial mission, with no ties to NASA or the government. It was, however, licensed by the FAA. Returning to flight will largely be a decision between SpaceX and its commercial customers, but also the FAA who must ensure public safety. It also has implications for the Commercial Cargo program, the Commercial Crew program, and the launch of NASA’s TESS mission in 2017. Because of these connections, NASA also has a role to play in understanding the root cause of the accident to protect future investments and the lives of our astronauts. I look forward to following the issue closely to ensure that our commercial space sector is strong.

In closing, I ask you to imagine a future in which American innovation in outer space leads. A future in which your sons and daughters see a sustainable American presence in outer space, not because of government programs, but because we were free, as private citizens, to explore, discover, and use outer space. Our success will carry the philosophical principles of our great nation, in peace and for the benefit of all mankind. Thank you.