March 8, 2017

Rep. Brian Babin
Chairman, Space Subcommittee
Committee on Science, Space & Technology
U.S. House of Representatives
2318 Rayburn House Office Building
Washington, DC 2003

Rep. Ami Bera
Ranking Member, Space Subcommittee
Committee on Science, Space & Technology
U.S. House of Representatives
2318 Rayburn House Office Building
Washington, DC 2003

Re: "Regulating Space: Innovation, Liberty & International Obligations"

Dear Chairman Babin and Ranking Member Bera:

TechFreedom writes to you regarding your hearing today to express our views about how Congress should approach the approval of "innovative space activities." Below, we sketch out a legal framework that we believe will allow American ingenuity to flourish beyond Earth orbit and ensure that America remains the lead spacefaring nation through the leadership of its private sector, while also satisfying our obligations under the Outer Space Treaty.

In the Commercial Space Launch Competitiveness Act of 2015 (CSLCA), Congress asked for various reports from potential regulators, and pursuant to Section 108, the Obama White House, through its Office of Science Technology and Policy (OSTP), wrote to Chairmen Thune and Smith on April 4, 2016 recommending an authorization and supervision approach to private outer space activities with specific proposed legislative language which has become known as a "Mission Authorization" regime.[3] This approach has been endorsed by COMSTAC and others.[4]

TechFreedom has reviewed the OSTP response and proposed legislative language and while we agree with the predicate that there is a "gap" in regulatory jurisdiction for activities

[3] Letter from John P. Holdren, Director & Assistant to the President for Science & Tech., to John Thune & Lamar Smith, Comm. on Science, Space & Tech. (Apr. 4, 2016), https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/csla_report_4-4-16_final.pdf, (last visited Feb. 20, 2017) [hereinafter OSTP Letter] (Stating "innovative, unprecedented space activities" are those activities that currently fall outside the regulatory domains of the three major licensing agencies: FAA (for launch and reentry); FCC (for frequency Use); NOAA (for Earth remote sensing)).

[4] *See* COMSTAC Meeting Notes of 10/21/15 (found at: https://www.faa.gov/about/office_org/headquarters_offices/ast/advisory_committee/meeting_news/archive/media/1021comstac_minutes.pdf) .

beyond launch, reentry, frequency use and remote sensing, we believe the OSTP-proposed Mission Authorization approach will fail to give industry the regulatory certainty it needs, and instead will stifle innovation and capital formation for a space economy because it trusts unnamed bureaucrats with picking winners and losers — without transparency, accountability, or an appeals process. Instead, Congress should enact legislation that (i) makes clear those activities which are prohibited under international law (property claims of entire Celestial Bodies,[5] harmful contamination of planetary bodies,[6] placement of weapons of mass destruction in space,[7] *etc*.) and (ii) otherwise authorizes all other activities subject to a requirement that disputes between parties may be resolved through the courts and other dispute resolution mechanisms.

I. The U.S. Has Almost Unlimited Flexibility in Meeting its Obligations under OST Article VI

Article VI holds "States Parties to the Treaty … responsib[le] for national activities in outer space," including those of their private actors, "and for assuring that national activities are carried out in conformity with the provisions set forth in the … Treaty." Similarly, Article VII holds States "internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons" caused by their objects in space. These two obligations can be thought of as *per se* rules (*e.g.*, against militarizing space, territorial appropriation, harmful contamination) and rules of reason (*e.g.*, against harmful interference). The U.S. is responsible for making sure that its nationals do not violate any of the *per se* rules — and may not lawfully authorize any mission that would do so. But rules of reason are less simple in their application. The question is always going to be one of degree, of how to balance the costs and benefits of planned activity with the interests of other parties. In both of these cases, it is the U.S. that is ultimately liable to the international community for the activities of its citizens, and it is the U.S. that must decide how to design a regulatory regime to govern American companies that allocates that risk for the U.S. taxpayer.[8]

Conceptually, there is a wide range of options available for *ex ante* "authorizations" under Article VI. At one of the spectrum, the U.S. government could enact a law that (i) merely requires registration and contact information (meeting the "authorization" prong of Article

[5] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 (hereinafter "OST"), Article II.

[6] OST Article IX.

[7] OST Article IV.

[8] If, for example, a U.S. entity were to attempt to bring back an asteroid into Low Earth Orbit for processing and somehow misjudged the reentry window, and the asteroid entered Earth atmosphere and landed on Madrid, it would be the United States government that would be responsible for the damage to the Spanish government (and its citizens), not the private company.

VI), (ii) specifies a short checklist of prohibited activities, and (iii) provides an enforcement mechanism on the part of the United States government to enjoin any activities it finds in the future to violate the OST (meeting the "continuing supervision" prong of Article VI).[9] At the other end of the spectrum would be a full licensing regime requiring FAR-like oversight of activities to make sure that a private entity could never put the United States in jeopardy of being liable for an OST breach under Article VI. While Congress seemed to message in CSCLA that this approach was untenable, we could easily see established bureaucracies pushing for this level of oversight either through direct regulation or informal practice.[10]

II. OSTP's "Mission Authorization" Structure Is Ripe for Mischief

Under OSTP's "Mission Authorization" approach, an inter-agency review process would be established for initial authorization. As proposed, the process lacks any transparency. There is no requirement in terms of processing times, no standards against which approval or disapproval are measured, no requirement for a full (or written) explanation of reasons for denial, and no appeals process. In short, the proposed review process looks uncannily like the State Department's International Traffic in Arms (ITAR) regime. That process has been abused by different governmental agencies countless times since it was imposed, resulting in the near death of the United States satellite building industry. In both cases, powerful governmental players on the inter-agency review team would apparently each have an independent veto on an authorization request. Most likely, the applicant would never find out who "blackballed" the mission, or why.[11]

---

[9] Those who insist, simplistically, on complete "permissionless innovation" neglect to take into account the few fundamental prohibitions in the OST that cannot be avoided. Yet these prohibitions can be easily codified in U.S. law while allowing the vast majority (if not all) of the contemplated innovative activities to move forward without anything more than simple registration.

[10] Compare, for example, the level of outside oversight SpaceX launches under the NASA commercial cargo program go through compared with SpaceX launches of purely commercial cargo. This "failure is not an option" mentality when applied to non-human missions raises launch costs dramatically. As discussed below, any regulatory approach whereby a bureaucrat can deny a Mission Authorization because it might, somehow, implicate treaty concerns will surely destroy a nascent industry.

[11] An example of this abuse may shed light on how governments picking winners and losers is antagonistic to a free market economy. In 1999 a group of western investors leased the Russian Mir space station – with James Dunstan, one of the co-authors, serving as counsel to MirCorp. More than $30 million was invested and the group was in the process of seeking hundreds of millions more in investment to refurbish the aging space station and open it up to both tourists, and industrial users. MirCorp paid for the first private manned space launch (Soyuz TM-30, launched April 4, 2000). During that mission, MirCorp determined that Mir was in far better shape than Western media had implied, but was going to need additional boost capabilities to remain in orbit until MirCorp could assemble the first business users. The plan was to fly an innovative electromagnetic tether to Mir, and MirCorp sought ITAR approval to "export" the American tether for use on the Russian station. The application sat, and sat, and sat. No amount of inquiry could wrestle any information about the status of the application. The tether was of no significant military use: it would never be used on a spy satellite because it literally glows in the dark, such that humans on Earth can see its passage overhead. While that application sat in the inter-agency process, several agencies within the U.S. government was

If a regulatory regime is adopted for mission authorizations that mirrors, or even remotely resembles, the ITAR regime, then Congress will have failed, and commercial entities will flee the United States to jurisdictions that treat their citizens in a fair manner. To avoid repeating the mistakes of the ITAR regime, Congress must ensure that:

1. The **lead agency** in the inter-agency process must have the clout to push back against other agencies seeking to thwart private enterprise for their own reasons, which have little to do with U.S. national interests – and, indeed, may actively frustrate them (such as by strangling American industry). This is why we question whether having FAA/AST, as currently constituted, can be the lead agency.
2. **Clear processing guidelines** must be developed to keep agencies from blackballing projects on a whim. This will take a significant amount of expertise that is lacking even within FAA/AST. While that office has engineers capable of analyzing launch and reentry risks, it is ill-equipped to analyze, for example, whether Company B can mine an asteroid after Company A has already received authorization for such activities, or to determine how close Company B can land to Company A's lander on the Moon. In short, "non-interference" analyses will need to be conducted, and FAA/ATS does not have the expertise to do so. Agencies that *do* have that expertise might have an interest in conducting similar missions, calling into question the integrity of their analyses.[12]
3. The process must be **transparent**. Applicants must be able to find out where in the process they are, what agencies might have questions about the mission, and when a decision will be rendered.
4. Any denial must come with a **fully reasoned decision**. A simple "no" will turn off the private sector to this type of regulatory regime.
5. There must be an **appeal process**, whereby an applicant can challenge that decision in court. In short, the Administrative Procedures Act must apply to this process, rather than the "black box" that characterizes the ITAR process.

While it is theoretically possible to write legislation that would cover all of these "sins," we have no doubt but that bureaucrats, attempting to protect their own "turf," could find other ways of denying or slowing down a private sector company's attempt to conduct innovative space activities that might compete with a government program that is seeking billions of dollars of the federal budget.

---

pressuring the Russians to ditch the Mir and concentrate on completing the first modules for the ISS. With Mir slowly deorbiting, with pressure from NASA and others, and with MirCorp unable to raise capital because of the uncertainty of Mir's future. Roscosmos, the Russian Space Agency, ultimately had no choice and announced that it would deorbit Mir on March 23, 2001. "Miraculously," MirCorp received its ITAR export authorization on March 24, 2001 – *the very next day*.

[12] Instances of government competing with the private sector in space abound. We can provide a laundry list of such instances if requested.

III. A "Mission Registration" Approach

Giving multiple agencies veto power is a recipe for delay and obstruction. Instead, we suggest allowing those planning to conduct a mission to register with a government entity, and provide full disclosure of the mission scenario. They would also have to demonstrate that the mission would not violate any of the OST prohibitions captured in the statute. An inter-agency review would be conducted under a strict shot-clock of 120 days; after that time, the mission would be deemed authorized, unless the lead agency issued an appealable order, consistent with the Administrative Procedure Act's "arbitrary and capricious" standard, clearly identifying the grounds on which the registration was denied.[13] In other words, self-certification of compliance with the statute would provide a presumption of compliance — a kind of safe harbor – but that presumption could, of course, be rebutted by the agency or any private party (domestic or, ideally, foreign as well) seeking to oppose the proposed mission as inconsistent with the Treaty.

A registrant would be under an obligation to keep the registering agency upraised of any changes to the mission, and the lead agency could in the future, if it later deemed that the mission might violate the OST prohibitions or other U.S. policy concerns, seek a court injunction to revoke the registration/authorization with the burden of proof or revocation resting with the government agency.[14]

IV. Dispute Resolution Under a Mission Registration Approach

The only "gap" this leaves in the regulatory jurisdiction of the United States is its obligation under Article IX of the OST not to authorize missions that might cause harmful interference to the activities of other "State Parties" or that might cause harmful contamination of space or celestial bodies (which, again, could be to future users). Some kind of system of tort law for the former and environmental law for the latter is inevitable.

In order to meet U.S. obligations under OST Article IX, we propose that the U.S. issue a Public Notice indicating that the application for registration has been filed and general information about mission type (*e.g.*, on-orbit satellite servicing, asteroid mining, etc.).[15] Another country (but not a foreign national) at that point could seek consultation with the United States if it

[13] In order to curb "paper missions," (*see infra* Section IV), the statute should direct the lead agency to adopt general regulations specifying mission milestones for different types of missions similar to what the FCC has done with satellite licensing. A party missing a milestone would lose its registration and have to start the process over.

[14] We feel that any revocation would need to be done at the court level to assure an independent review of the revocation process. Allowing an agency to revoke the authorization subject to court appeal by the applicant would unfairly place the burden of proceeding and burden of proof with the private entity, and not on the government agency, where it belongs.

[15] A fuller registration of the payload would be made prior to launch consistent with the obligations of the Registration Convention.

believed that a mission might violate Article IX. The statute should be written such that other countries could not abuse the consultation process by objecting to each registration as a way of either slowing down U.S. interests, or gaining valuable proprietary information concerning the nature of the mission, or the technology involved.

The practical problem with the U.S. taking the "high road" of notifying the world community in advance of planned missions, however, is that it might prompt other nations to create "paper missions"[16] to stake out coveted locations in the solar system. A country, for example, could authorize a mission to land near Shackleton crater on the Moon and then claim a large non-interference zone around the landing site that would effectively preclude other operations nearby. Any "prior notice" regime, therefore, must come with strict milestones to demonstrate to the international community that such authorizations are legitimate. In that way, the United States can demand similar regimes from foreign governments in order to acknowledge any Article IX non-interference rights of their citizens.

A private party would be left with the ability to seek an injunction against another party it believed might cause harmful interference to its activities using traditional common law tort theories. As much as any particular private U.S. company might like to have the weight of the U.S. government behind it to enforce its rights to a particular mission, such a heavy-handed (and government-picking-winners) approach would be costly for the government to engage in, and simply not necessary given the well-established field of tort law. At most, Congress could consider requiring arbitration or other alternative dispute resolution platform in the statute for all cases arising under a Mission Registration regime. Ideally, the same common law developed between U.S. parties should be applicable in disputes between U.S. and foreign parties. For that to happen, the U.S. common law must be firmly grounded in Article IX's prohibition against harmful interference, while also taking care not to violate Article II's prohibition on territorial appropriation.

Respectfully,

James E. Dunstan, Senior Adjunct Fellow, TechFreedom[18]

Berin Szóka, President, TechFreedom[19]

---

[16] The International Telecommunication Union (ITU) and state regulatory bodies such as the FCC have long dealt with attempts to warehouse valuable orbital locations (especially within the geostationary orbit), through the filing of "paper satellite" applications – applications to provide service by entities clearly technically or financially unable to launch a satellite within the timeframes specified in those applications. This has led, on the U.S. side, to the implementation of very strict construction and launch milestones.

[18] Jim Dunstan is a Senior Adjunct Fellow of TechFreedom and the founder of Mobius Legal Group, PLLC where he has spent more than 30 years representing companies in the outer space, telecommunications, and high technology sector. He can be reached at jdunstan@mobiuslegal.com.

[19] Berin Szóka is President of TechFreedom, a nonprofit, nonpartisan technology policy think tank. He can be reached at bszoka@techfreedom.org.