

Written Testimony of
Joanne Irene Gabrynowicz
Before the
Subcommittee on Space and Aeronautics of the Committee on Science,
Space, and Technology United States House of Representatives
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Chairwoman Horn, Ranking Member Babin, Members of the Committee: Thank you for giving me the opportunity to *address A Review of NASA's Plans for the International Space Station and Future Activities In Low Earth Orbit*. I am delighted to respond. I thank the Subcommittee for giving me this opportunity.

This statement addresses two points of space law that are particularly germane to plans to develop commercial low Earth orbit (LEO), including the *International Space Station (ISS)*. They speak directly to U.S. national interests. There is a brief conclusion.

The first point is that the US Government is internationally responsible for the activities of its nongovernmental space actors in perpetuity.¹

The second point is that the legal obligations of the U.S. Government continue in force even after the transfer of its *ISS* elements to nongovernmental commercial entities.²

¹ Treaty on Principles Governing the Activities of States in the Exploration and Outer Space Treaty]. Art. VI

² Agreement Among the Government of Canada, Governments of the Member States of the European Space Agency, the Government of Japan, the Government of the Russian Federation, and the Government of The United States of America Concerning Cooperation on the Civil International Space Station, Jan. 29, 1998, T.I.A.S. No. 12927, State Dep't No. 01-52, 2001 WL 679938 [hereinafter IGA].

I. The United States is Internationally Responsible for Its Nongovernmental Space Actors.

1. Art. VI of the Outer Space Treaty

Article VI states that the “activities of non-governmental entities in outer space...shall require authorization and continuing supervision.”³

Art. VI is the legal source for recognizing nongovernmental actors as legitimate space actors. During Outer Space Treaty negotiations, it was the position of the Soviet Union that only States could be legitimate space actors. The U.S., of course, did not agree and took the position that private entities were also legitimate space actors. The compromise between the two positions was “to require authorization and continuing supervision” of nongovernmental space actors. To assure that nongovernmental space entities acted in accord with the law, Art. VI also provides that “States Parties...shall bear international responsibility for...activities...carried on...by non-governmental entities.”⁴

It is crucial that Art. VI of the Outer Space Treaty is central to plans for commercial LEO development. What constitutes “responsibility” is part of a growing body of law that has strengthened and matured in recent years.⁵ The United States Government—and through it—the U.S. taxpayer—will ultimately be responsible for reparation if it is deemed necessary because of events arising from U.S. nongovernmental space activities.

The Government’s responsibility exists in perpetuity. Withdrawing from, or altering the terms of, the Outer Space Treaty can change this but that is an option not favored by the space industry⁶ or the U.S. State Department.⁷

³ Outer Space Treaty, *supra* note 1.

⁴ *Id.*

⁵ James Crawford, Jacqueline Peel, Simon Olleson, *The ILC’s Articles on Responsibility of States for Internationally Wrongful Acts: Completion of the Second Reading*, 12 EJIL 963 (2001).

⁶ *Reopening the American Frontier: Exploring How the Outer Space Treaty Will Impact American Commerce and Settlement in Space, Before the S. Comm. on Commerce, Science and Transportation Subcommittee on Space, Science, and*

A risk sharing regime has been established for launch and reentry services. In it, a provider “shall obtain liability insurance or demonstrate financial responsibility in amounts to compensate for the maximum probable loss from claims” and the NASA Administrator “...shall prescribe taking into account the availability, cost, and terms of liability insurance, any contract between [NASA] and a provider may provide that the United States will indemnify the provider against successful claims”.⁸ An analogous risk sharing regime should be developed for all stages of the planned human exploration roadmap in which nongovernmental actors will be part of the roadmap’s space activities.⁹

II. United States ISS Obligations Remain in Force Even After Transfer of Its ISS Elements to Nongovernmental Commercial Entities.

1. The International Space Station Intergovernmental Agreement

The *IGA* is a remarkable space law achievement. It has governed *ISS* cooperation for 15 States over three decades. It has undergone three iterations, first serving Cold War relationships, then meeting the opportunities presented by the fall of the Soviet Bloc, and now in the globalization era. It also facilitates some of Congress’ most important policies and purposes for the U.S. space

Competiveness, 115 Cong., (2017); Marcia Smith, *Congress Looking at Additional Measures to Facilitate Commercial Space*, (May 30, 2017, 12:00 AM), “the Senate hearing...focused on...has the 50-year-old OST been so overtaken by events that the United States should withdraw from or seek to renegotiate it. None of the witnesses supported either of those courses of action.” <https://spacepolicyonline.com/news/congress-looking-at-additional-measures-to-facilitate-commercial-space/>

⁷ *The Next Fifty Years of the Outer Space Treaty*, Remarks by Brian J. Eagan, Legal Advisor, U.S. State Department, (Dec. 7, 2016), “the Outer Space Treaty serves a constitutional role in the international legal framework for outer space...If the preparations for future space activities underway in the United States and other nations are any indication, the Treaty will serve this function well into its second half century and beyond.” <https://2009-2017.state.gov/s/l/releases/remarks/264963.htm>

⁸ National Aeronautics and Space Administration Transition Authorization Act of 2017, 51 USC § 20148; and Commercial Space Launch Activities § 50915

⁹ 51 USC § 20302

program, that activities in space should be devoted to: peaceful purposes for the benefit of all humankind; the expansion of human knowledge; and, cooperation by the U.S. with nations and groups of nations¹⁰

The *IGA* is part of a three-tier legal framework that includes memoranda of understanding (MOUs), implementing arrangements and, other formal arrangements. It is based on and incorporates the space treaties and addresses 4 bodies of law: jurisdiction, torts, intellectual property, and criminal jurisdiction.

An essential feature of the *IGA* is that “[t]he transfer of ownership...shall not affect the rights and obligations of the Partners.” This is equally applicable to the MOUs and implementing agreements.¹¹ Therefore, if the *ISS* transition will include “transfer of all or parts of the *ISS* itself to commercial entities”¹² including ownership, or “exercise of ownership or equipment”¹³ then the United States will still have the same rights and obligations that were in force prior to the transfer. Changing post-transfer obligations will require, at a minimum, renegotiating post-transfer rights and obligations among the *ISS* Partners. This moves the issue of U.S. post-transfer obligations more into to the realm of politics than law, increasing uncertainty regarding the degree, the nature, and duration of U.S. obligations.

III. Conclusion

There are legal and economic forces at play that can expose the U.S. Government and the U.S. taxpayer to substantial, reoccurring, long-term obligations that can result in hard to quantify financial obligations. Development of LEO and the *ISS* is beginning at a time when the current value of the space economy is being questioned;¹⁴ when recent U.S. national space law increasingly

¹⁰ P.L. 111-314 § 20102 (Dec. 18 2010)

¹¹ *IGA*, *supra* note 2, Article 6.3.

¹² Forecasting Future NASA Demand in Low-Earth Orbit: Revision Two – Quantifying Demand, pg. 1.

¹³ *IGA*, *supra* note 2, Article 6.7.

¹⁴ *Examining the Future of the International Space Station: Hearing Before the S. Subcomm. on Space, Science, and Competitiveness*, 115th Cong. 2 (2018)

places more of the cost of industry risk-taking onto the U.S. taxpayer;¹⁵ and, when recently enacted U.S. national space law has created an uncertain legal environment by the use of illusory language that is mostly aspirational and repetitive and creates little black-letter law.¹⁶ It is in the U.S. national interest for

(statement of Pail K. Martin, Inspector General National Aeronautics and Space Administration). “[I]t is questionable whether a sufficient business case exists under which private companies can create a self-sustaining and profit-making business independent of significant Government funding...Candidly, the scant commercial interest shown in the Station over its nearly 20 years of operation gives us pause about the Agency’s current plan.” at 2

<https://oig.nasa.gov/docs/CT-18-001.pdf> , and,

STPI Questions \$1 Trillion Space Economy Claims, By Marcia Smith, June 5, 2019 11:19 pm <https://spacepolicyonline.com/news/stpi-questions-1-trillion-space-economy-claims/> ; and,

How Big is the Space Economy?, https://www.nesdis.noaa.gov/CRSRA/pdf/ACCRES_Lal_June_2019_Final.pdf, a

¹⁵Amanda Robert, *Commercial Spaceflight Industry Faces uncertain legal, regulatory environment*, Legal Newsline, (June 5, 2017)

<http://legalnewsline.com/stories/511121527-commercial-spaceflight-industry-faces-uncertain-legal-regulatory-environment> “Linda Lipsen, chief executive officer of the American Association for Justice, [said] in a statement before the bill’s passage that it would force victims and taxpayers to pay the costs of any private space travel crash or disaster. ‘The bill jeopardizes both civilians on the ground and the passengers, whose right to hold anyone accountable would be eliminated,’ quoting Linda Lipsen, regarding the *Commercial Space Launch Competitiveness Act* which “extends the indemnification regime and learning period”.

¹⁶ Together, the U.S. national space law statutes enacted since 2015 contain few provisions that actually authorize, require, or prohibit action. They do contain numerous findings, reaffirmations, and Sense of Congress provisions, none of which make law.

Regarding Sense of Congress resolutions, “A ‘sense of’ resolution is not legally binding because it is not presented to the President for his signature. Even if a ‘sense of provision’ is incorporated into a bill that becomes law, such provisions merely express the opinion of Congress or of the relevant chamber.

They have no formal effect on public policy and have no force of law.” (emphasis added). Christopher M. Davis, Cong. Research Serv. 98-825, “Sense of” Resolutions and Provisions”, (2016).

For example, The National Aeronautics and Space Administration Transition Authorization Act of 2017 contains approximately 33 Sense of Congress provisions; 16 findings; and, 4 reaffirmations. The use of these non-law making provisions is a subject well worth its own paper.

the Subcommittee to consider these forces going forward. Thank you for your work to develop the law of space.

Joanne Irene Gabrynowicz
(662) 801-6868; jgabryno@olemiss.edu, www.joannegabrynowicz.com

Prof. Gabrynowicz is Professor Emerita of space law, Director Emerita of the National Center for Remote Sensing, Air, and Space Law, Univ. of the Mississippi Law Center and the Editor-in-Chief Emerita, Journal of Space Law. She managed a faculty and staff of 6 - 8 people, 10 - 15 student workers, and a multi-million dollar budget.

Prof. Gabrynowicz has taught space law since 1987 and currently lectures at various universities including the University of Vienna, the Univ. of Warsaw, the Univ. of Copenhagen, and the Beijing Institute of Technology School of Law. She has lectured at the Harbin Institute of Technology School of Law, the China University of Political Science and Law, and the Beihang University (Beijing University of Aeronautics and Astronautics). In 2014 and 2015 she was invited by the Subcommittee on Space of the U.S. House Committee on Science, Space, and Technology to testify regarding the legality of asteroid mining and remote sensing law. She is currently a member of a Dept. of Interior Federal Advisory Committees and recently served on advisory committees for the National Academy of Science and the Commerce Dept.

Prof. Gabrynowicz briefed former U.S. Secretary of the Interior Gayle Norton as part of the Secretary's preparation for the Earth Observation Summit. Prof. Gabrynowicz briefed Frank A. Rose, Deputy Assistant Secretary for Space and Defense Policy, U.S. Department of State on legal aspects of orbital debris. She was the organizer and chair of the U.S. Federal Advisory Committee for the National Satellite Land Remote Sensing Data Archive.

Prof. Gabrynowicz was a founding faculty member of the Space Studies Department at the University of North Dakota, where she also served as its Director of Graduate Studies. From 1992-94, Prof. Gabrynowicz was a member of The Congress of the United States Office of Technology Assessment Earth Observations Advisory Panel. From 1994-96, she was a member of the National Research Council Committee that produced Bits of Power: Issues in Global Access to Scientific Data. In 1994-95, Prof. Gabrynowicz was awarded a NASA/American Society of Engineering Education Summer Faculty Fellowship from Goddard Space Flight Center where she also served as the 1997 Dean of the NASA Space Academy. Prof. Gabrynowicz has been invited by the U.S. Dept. of Commerce/NOAA, the U.S. National Research Council, the NASA Public Health Applications Program on Confidentiality and Geospatial Data, the Univ. of Cologne Institute of Air and Space Law to participate in a number of studies. Prof. Gabrynowicz was the managing attorney of a NYC law firm. She is a member of the American Bar Association Forum on Aviation and Space Law.

Prof. Gabrynowicz is a Director of the International Institute of Space Law (IISL) and is an official observer for the IISL to the UNCOPUOS Legal Subcommittee and has made a number of presentations to that group on space law issues. She was a member of the Advisory Board for the Permanent Court of Arbitration for the Draft Arbitration Rules on Disputes Relating to Outer Space Activities and has presented to the UN Institute for Disarmament Research. The UN Office of Outer Space Affairs (UNOOSA) invited Prof. Gabrynowicz to lecture on space law at all of its space law capacity building workshops for government officials and policymakers and she is the lead author for UNOOSA's remote sensing law curriculum. In 1999, the IISL invited Prof. Gabrynowicz to write and present the remote sensing law position paper at UNISPACE III. In 2001 she was awarded the Women in Aerospace *Outstanding International Award*. In 2011 she was awarded the IISL *Distinguished Service Award*. In 2014, Prof. Gabrynowicz received the China Institute of Space Law 1st *International Service Award*. In 2016, she was awarded the IISL *Lifetime Achievement Award*. In 2017, her work was recognized by the International Astronomical Union by naming an asteroid "(9002) Gabrynowicz"