# Columbia R1

# 1NC

### 1

#### Interp: The affirmative must define “outer space” in a delineated text in the 1AC.

#### “Outer Space” is flexible and has too many interps – normal means shows no consensus

Leepuengtham 17 [Tosaporn Leepuengtham (Research Judge, Intellectual Property and International Trade Division, Supreme Court of Thailand). "International space law and its implications for outer space activities." 01-27-2017, Accessed 12-9-2021. https://www.elgaronline.com/view/9781785369612/06\_chapter1.xhtml // duongie

Those states which favor the precise demarcation of outer space support the spatial approach, whereas those who oppose to such demarcation prefer the functional approach, as the latter allows more flexibility in terms of the development of space technology.34 This lack of a definition and delimitation of outer space is problematic, since certain particular areas are neither explicitly defined as ‘air space’ or ‘outer space’. For example, it is vague whether an area located between 80 km and 120 km above sea level would be classified as either air space or outer space in the absence of demarcation, since 80 km is the maximum attitude for convention aircraft, and 120 km is the lowest attitude in which space activities could be carried out.35 Satellites which are stationed in a geostationary orbit are a good example of this ambiguity. Owing to this lack of any internationally recognized delimitation, equatorial states claim sovereignty over that part of the geostationary orbit which is located over their respective territories;36 whereas technologically developed countries believe that the geostationary orbit is an integral part of outer space.37 This uncertain status of areas leads to legal jurisdictional problems. According to international law, a state has sovereignty over the airspace above its territory.38 However, national sovereignty does not extend into outer space.39 Thus, it is necessary to determine where a state’s airspace ends to ensure that the appropriate legal regime is applied. One possible scenario which might occur and which is relevant to the subject of this book is the creation or infringement of an intellectual work is in just such an ambiguous location. This would cast doubt on the ‘legal’ location of creation or infringement, and the question of which applicable legal regime arises. Should we apply the law of the underlying state or is there no law to apply? For example, would satellite signals transmitted from a satellite stationed in a geostationary orbit located over equatorial countries be considered as works created or, if intercepted, be infringed, in outer space or in the sovereign air space of those respective countries? These hypothetical examples highlight why a boundary is necessary if unpredictability arising from different legal application is to be avoided. While it might be argued that this issue is being overemphasized at this stage, given increasing use of space technology, this problem is worth considering now rather than later.

#### Violation – you don’t.

#### Prefer –

#### 1] Stable Advocacy – they can redefine in the 1AR to wriggle out of DA’s which kills high-quality engagement and becomes two ships passing in the night –We lose access to Tech Race DA’s, Asteroid DA’s, basic case turns, and core process counter plans that have different definitions and 1NC pre-round prep.

#### Education is a voter –

#### Fairness sis a voter –

#### CI – arb, CI creates better norms

#### No RVIs

#### DTD

### 2

#### The US commercial space industry is booming – private space companies are driving innovation.

**Lindzon 21** [(Jared Lindzon, A FREELANCE JOURNALIST AND PUBLIC SPEAKER BORN, RAISED AND BASED IN TORONTO, CANADA. LINDZON'S WRITING FOCUSES ON THE FUTURE OF WORK AND TALENT AS IT RELATES TO TECHNOLOGICAL INNOVATION) "How Jeff Bezos and Elon Musk are ushering in a new era of space startups," Fast Company, 2/23/21, https://www.fastcompany.com/90606811/jeff-bezos-blue-origin-elon-musk-spaces-space] TDI

In early February, Jeff Bezos, the founder of Amazon and one of the planet’s wealthiest entrepreneurs, dropped the bombshell announcement that he would be stepping down as CEO to free up more time for his other passions. Though Bezos listed a few targets for his creativity and energy—The Washington Post and philanthropy through the Bezos Earth Fund and Bezos Day One Fund—one of the highest-potential areas is his renewed commitment and focus on his suborbital spaceflight project, Blue Origin. Before space became a frontier for innovation and development for privately held companies, opportunities were limited to nation states and the private defense contractors who supported them. In recent years, however, billionaires such as Bezos, Elon Musk, and Richard Branson have lowered the barrier to entry. Since the launch of its first rocket, Falcon 1, in September of 2008, Musk’s commercial space transportation company SpaceX has gradually but significantly reduced the cost and complexity of innovation beyond the Earth’s atmosphere. With Bezos’s announcement, many in the space sector are excited by the prospect of those barriers being lowered even further, creating a new wave of innovation in its wake. “What I want to achieve with Blue Origin is to build the heavy-lifting infrastructure that allows for the kind of dynamic, entrepreneurial explosion of thousands of companies in space that I have witnessed over the last 21 years on the internet,” Bezos said during the Vanity Fair New Establishment Summit in 2016. During the event, Bezos explained how the creation of Amazon was only possible thanks to the billions of dollars spent on critical infrastructure—such as the postal service, electronic payment systems, and the internet itself—in the decades prior. “On the internet today, two kids in their dorm room can reinvent an industry, because the heavy-lifting infrastructure is in place for that,” he continued. “Two kids in their dorm room can’t do anything interesting in space. . . . I’m using my Amazon winnings to do a new piece of heavy-lifting infrastructure, which is low-cost access to space.” In the less than 20 years since the launch of SpaceX’s first rocket, space has gone from a domain reserved for nation states and the world’s wealthiest individuals to everyday innovators and entrepreneurs. Today, building a space startup isn’t rocket science. THE NEXT FRONTIER FOR ENTREPRENEURSHIP According to the latest Space Investment Quarterly report published by Space Capital, the fourth quarter of 2020 saw a record $5.7 billion invested into 80 space-related companies, bringing the year’s total capital investments in space innovation to more than $25 billion. Overall, more than $177 billion of equity investments have been made in 1,343 individual companies in the space economy over the past 10 years. “It’s kind of crazy how quickly things have picked up; 10 years ago when SpaceX launched their first customer they removed the barriers to entry, and we’ve seen all this innovation and capital flood in,” says Chad Anderson, the managing partner of Space Capital. “We’re on an exponential curve here. Every week that goes by we’re picking up the pace.”

#### The plan creates a restriction that encourages companies to move their operations to states with lower standards.

Albert 14 [(Caley Albert, J.D. Loyola Marymount University) “Liability in International Law and the Ramifications on Commercial Space Launches and Space Tourism,” Loyola of Los Angeles International and Comparative Law Review, 11/1/14, https://digitalcommons.lmu.edu/cgi/viewcontent.cgi?article=1708&context=ilr] TDI

A parallel can be drawn here between the commercial space industry and the maritime law concept of the Flag of Convenience. The term has evolved over time, but in this day and age, it is commonly used to mean the owner of a vessel does not want to create an obligation with a country with stricter standards for registry; hence, the owner will register strictly for economic reasons with a country that has a more convenient registry.133 By flying a Flag of Convenience, ship owners are able to avoid taxation on earnings of ships registered under these flags, and in some cases, they can also receive relief from stricter crew standards and corresponding operating costs.134 A Flag of Convenience is flown by a vessel that is registered in one state, which the vessel has little if any connection to, when in reality the vessel is owned and operated from another state.135 This way the vessel avoids any unfavorable economic requirements from its true home state.136 In this sense, “flag shopping” is similar to “launch forum shopping,” similar in that Flags of Convenience are utilized for economic reasons, such as to avoid high taxes and compliance with certain restrictive international conventions, commercial space companies will forum shop when choosing which country to launch from. As of today, there has yet to be a catastrophic commercial launch incident, so for now commercial space companies do not have an incentive to forum shop, but if there is, the indemnification policies described above may lead companies to seek out countries that provide more coverage so they pay less in the event something goes wrong. This comparison to Flags of Convenience brings up two separate yet equally important issues. First, launch companies may try to follow the Flags of Convenience model and soon catch on to the wisdom of their maritime predecessors by “registering” in countries with more favorable conditions. Of course, in this case the concern is not with registration so much as launching. If launch companies follow the Flags of Convenience model, they will seek out the most convenient state for launch, most likely the state that provides the most liability coverage and has the least safety precautions. Launching from states with low safety standards increases the potential for catastrophic launch events. This, in turn, will place states that are potentially incapable of paying for damages from launch disasters in a position they would not normally assume if these commercial companies had not been drawn to their shores with the promise of more favorable regulations. Second, launch customers may also seek out companies located in states with lower cost liability regimes (lower insurance policy limits) since those companies will presumably charge less to launch their payloads. In this scenario, instead of the launch companies seeking out states with lower liability caps and softer regulations, the launch customers themselves will seek companies located in states with lowcost liability regimes. Here, the effect will be the same as above. Under the Liability Convention, the launching state will be liable for any damage caused by a vehicle launched from within its borders; hence, if customers start engaging in “launch forum shopping,” states will be incentivized to put in place low-cost liability regimes, which in turn will increase the states’ potential payout in the event of a catastrophic launch incident. Looking at the indemnification program the United States has in place in comparison to other countries, it is possible to see how either launch companies or launch customers could engage in “launch forum shopping” when a catastrophic launch incident ever occur. It is also important to keep in mind that various factors go into where a company or customer decides to launch from. A state’s indemnification program is just one factor in this decision. With this in mind, it is clear that if a launch incident did occur in the United States, the commercial launch company would be liable for much more than it would in another country. For instance, why would a commercial space company launch in the United States, where it would be liable up to $500 million and the additional costs that the government would not cover? The argument can be made that a catastrophic space incident has yet to occur, and even if it did, it is unlikely to cost above the $2.7 billion covered by the United States government. **Other states like Russia or France, which has the two-tier liability system, would simply cover all claims above the initial insurance**, which is much lower than the $500 million mark required by the United States. In that case, the commercial company would never have to pay more than the initial liability insurance. If there ever is a catastrophic commercial space incident in the future, it is easy to see why commercial companies or launch customers might be drawn to “launch forum shop” outside the United States.

#### Maintaining US space dominance requires a homegrown commercial space industry – private companies offshoring gives China the advantage they need.

**Cahan and Sadat 21** [(Bruce Cahan, J.D) (Dr. Mir Sadat, ) "US Space Policies for the New Space Age: Competing on the Final Economic Frontier," based on Proceedings from State of the Space Industrial Base 2020 Sponsored by United States Space Force, Defense Innovation Unit, United States Air Force Research Laboratory, 1/6/21, https://www.politico.com/f/?id=00000177-9349-d713-a777-d7cfce4b0000] TDI

Today, China’s commercial space sector is in its infancy but is set to grow with continued national and provincial support, which have been rapidly increasing over the past three years.64 Since 2004, the United States and China accounted for 74% of the $135.2 billion venture capital (VC) invested in commercial space. 65 The early 2020s are pivotal, as it would be far cheaper for China and Chinese commercial space firms to acquire space technologies from the United States or allied nation companies seeking revenues or facing cashflow constraints, than to build the companies and their teams and technologies from scratch in China. The tight coupling of Chinese military goals and an economy organized to achieve those goals magnifies the economic threats and market disruptions that the United States must immediately address, in order for DoD and national security operations to rely on US commercial space capabilities. 3. ISSUES AND CHALLENGES Peaceful Uses of Space and Space Exploration Space has been primarily a shared, not a warfighting, domain.67 With each passing second of Planck time,68 space enables a modern way of life, provides instantaneous global imagery, assures telecommunications, and captures humanity’s imagination for civil space exploration. As a result, space is a burgeoning marketplace and territory for commercial ventures and investors. Strengthening the US commercial space industrial base is vital to and beyond US national security. Civil space activities are a source of US “soft power” in global commerce, cooperation, and investment. 69 The civil space sector, led by NASA, is fundamental to America’s national security. 70 NASA is on an ambitious critical path to return to the Moon by 2024,71 along with developing the capabilities and infrastructure for a sustained lunar presence. NASA’s lunar plans provide a lunar staging area for missions to Mars and beyond. They offer a strategic and economic presence for the United States on the Moon. Congress, the White House, DoD, and NASA must recognize that economic and strategic dominance in service of national security requires catalyzing and accelerating growth of a vibrant, private US industrial and cultural expansion into the Solar System. Human visitation and eventual settlement beyond the Earth require sustaining visionary leaders, aided by, and aiding, US national security. A recurring theme in US policy is “maintaining and advancing United States dominance and strategic leadership in space” because US global competitors and adversaries are competent and capable of outpacing American space capabilities. 72 The stakes are high: At this historic moment, there is a real race for dominance over cislunar access and resources. Regulations Should Foster US Commercial Space as a National Asset Leveraging the reimagination and disruption of terrestrial industries, the US commercial space industry is pushing the frontiers of the United States and global space economics and capabilities. A pre-COVID19 assessment by the US Chamber of Commerce projected that the US space market will increase from approximately $385 billion in 2020, to at least $1.5 trillion by 2040. 73 This projection represents a seven percent (7%) annual compound average growth rate (CAGR), driven largely by expanded business opportunities in Low Earth Orbit (LEO). Total addressable market (TAM) for US commercial space companies could be far larger were they to have federal and financial support for initiating cislunar space operations and opportunities. Recent advancements in commercial space technologies and business models have driven down costs and unlocked new areas of economic growth and space capabilities that outpace and de-risk acquiring capabilities through traditional US government economic development, research and development (R&D), procurement and regulatory policies and processes. US regulations must ensure that US companies lead in commercial space. In specific, technological advances that lower access costs and expand space mission capabilities, content, continuity, and redundancies must be fully supported by or incorporated into US government programs, budgets, requirements, and acquisition processes. Until commercial space offerings are fully incorporated, and federal acquisition policies and personnel commit to innovation, US government fiscal buying power, intelligence and program support will lag and remain inadequate in comparison to US private sector companies and the nation’s global competitors and adversaries in space. Addressing COVID-19’s Impact on US Commercial Space The COVID-19 pandemic damaged and still challenges the US space industrial base. US domestic investors’ funding of space R&D remains inconsistent across the lifecycle of New Space companies and the spectrum of technologies necessary to grow the space economy. To date, public R&D, government procurements and visionary space entrepreneurs have played a major role in establishing and funding the New Space industrial base. In the last five years, $11 billion of private capital has been invested.74 Traditional private investors may become reluctant to fund space technologies due to perceptions of higher risk over longer time horizons before receiving profitable returns on their capital. Institutional and long-horizon investors who manage patient capital have an appetite for illiquid, but higher yielding, terrestrial alternative asset investments such as commodities, private equity limited partnerships and real estate.75 The COVID-19 pandemic has created economic uncertainties making the New Space’s funding model unreliable. COVID-19 significantly impacted venture capital (VC)-backed companies: the pace of VC space investments fell 85% between April - June, as compared to January – March, in 2020. 76 Pre-COVID-19, the New Space industrial base confronted multiple challenges in raising later stages of venture capital such as (1) the lag between having an early-stage startup with an idea and commercializing a viable revenue-generating product, (2) the lack of market liquidity for founder and private equity space investments to attract and retain talented teams, and (3) the lack of a market to re-sell contracts for space goods and services when customers buy more capacity than needed. Even prior to the COVID-19 pandemic, federal financing of US R&D was at a historically minor level, as compared to businesses and universities.77 US government support for basic research has steadily declined as a percent of GDP. The federal government will experience near- to medium-term budget constraints.78 The vibrant venture community in the United States has taken up a portion of this slack by increasing R&D investment in later-stage and applied research. However, founding teams and VC financing rely on government to fund earlier R&D for basic science and engineering. Therefore, government must resume the sustainable and impactful past levels of support for basic research, an essential role in the space economy’s public-private partnership that ensures US leadership in space. Space as Existential Terrain for National Security In this Digital Era, space integrates and drives all elements of US national security. The Cold War may be over, but since the early 2010s, a renewed era of great power competition has emerged across terrestrial land, air, sea, and cyber domains. This competition extends into space, where a great game ensues.79 Space is no longer an uncontested or sanctuary domain. Competent and capable global competitors and peer adversaries are challenging US military, commercial, and civil space interests. The United States, along with its allies and partners, has had to accept and anticipate that space may be a warfighting domain, as suggested primarily by Russian and Chinese counter-space capabilities, military operations, and declarative statements. On December 20, 2019, the bipartisan National Defense Authorization Act (NDAA) for Fiscal Year 202080 authorized the creation of the US Space Force, under the Department of the Air Force, to secure US national interests in an increasingly contested domain.81 Back in October 1775, the Continental Congress established the US Navy to ensure that commercial and government fleets could freely navigate the Atlantic coastline - today, that includes the South China Sea. Likewise, the USSF’s mission is to ensure unfettered access to and the freedom to operate in space. The 2017 National Security Strategy considers space to be a “priority domain.”82 Freedom of navigation is a sovereign right that nations have fought to achieve and defend. 83 The USSF’s main role is to organize, train and equip, as well as to protecting US space interests and supporting terrestrial and joint warfighters (e.g., US Space Command). Thus, USSF must secure US national interests in space, whether military, commercial, scientific, civil, or enhancing US competitiveness for cislunar leadership.

#### Undermines fourth gen warfighting – space dominance key.

**Yoo 18** – Emanuel S. Heller Professor of Law at the University of California, Berkeley, and a visiting scholar at AEI since 2003. He served as a deputy assistant attorney general in the Office of the Legal Counsel of the U.S. Department of Justice from 2001 to 2003, where he worked on constitutional and national security matters, as General Counsel of the U.S. Senate Committee on the Judiciary from 1995-96, and as a law clerk to Justice Clarence Thomas of the U.S. Supreme Court (John, Winning the Space Race, October 15th, <http://www.aei.org/publication/winning-the-space-race/>) \*edited for offensive language

Control of space already **underlies the United States’ predominance in nuclear and conventional warfare.** Intercontinental and submarine launched ballistic missiles, the **heart of the US nuclear deterrent**, pass through space to reach their targets. Reconnaissance satellites monitor rival nations for missile launches, strategic deployments, and major troop movements. Communications satellites provide the high-speed data transfer that stitches the US Armed Forces together, from generals issuing commands to pilots controlling drones. With economic rivals such as China and India, and rogue states like Iran and North Korea developing space programs that pursue similar missions, the importance of space technology to US interests and international peace will only increase. Space not only enhances military operations, but also exposes new vulnerabilities. Anti-satellite missiles can make an opponent’s space-based communication networks easier to disable than purely ground-based systems. Losing reconnaissance satellites could ~~blind~~ gut the US’s strategic monitoring and disabling the GPS system would degrade its operational and tactical abilities. Space invites asymmetric warfare because anti-satellite attacks could even the technological odds against western powers that have become dependent on information-enhanced operations. As the nation most dependent on space-based networks, **the United States may have the most to lose.** Strategists divide competition in this emerging arena into four categories. First is space support, which refers to the launching and management of satellites in orbit. The second is force enhancement, which seeks to improve the effectiveness of terrestrial military operations. The importance of these basic missions is well-established. Indeed, the very first satellites performed a critical surveillance role in the strategic competition between the United States and the Soviet Union. Spy satellites replaced dangerous aerial reconnaissance flights in providing intelligence on rival nuclear missile arsenals. Later space-based systems provided the superpowers with early warnings of ballistic missile launches. These programs **bolstered stability and aided progress in nuclear arms reduction talks**. Satellites created “national technical means” of verification: the capability to detect compliance with arms control treaties without the need to intrude on territorial sovereignty. They **reduced the chances of human miscalculation** by increasing the information available to decision makers about the intentions of other nations. The US has made the most progress in the second mission, force enhancement, by using space to boost conventional military abilities. GPS enables the exact deployment of units, the synchronization of combat maneuvers, clearer identification of friend and foe, and precision targeting. In its recent wars, the US has used satellite information to find the enemy, even to the level of individual leaders, deploy on-station air or ground forces, and fire precision-guided munitions to destroy targets with decreased risk of collateral damage. American military leaders have argued that continued integration of space and conventional strike capabilities will allow the US to handle the twenty-first century threats—**terrorism, rogue nations, asymmetric warfare, and** regional challengers—more effectively with less resources.

### 3

#### CP Text – States except the United States, ought to ban the appropriation of outer space for asteroid mining by private entities. The United States should fund the appropriation of outer space for the mining of rare earth metals from asteroids by private entities to beat China and protect against Chinese REM gatekeeping

Stavridis 21 [(James, retired US Navy admiral, chief international diplomacy and national security analyst for NBC News, senior fellow at JHU Applied Physics Library, PhD in Law and Diplomacy from Tufts) “U.S. Needs a Strong Defense Against China’s Rare-Earth Weapon,” Bloomberg Opinion, March 4, 2021, <https://www.bloomberg.com/opinion/articles/2021-03-04/u-s-needs-a-strong-defense-against-china-s-rare-earth-weapon>] TDI

You could be forgiven if you are confused about what’s going on with rare-earth elements. On the one hand, news reports indicate that China may increase production quotas of the minerals this quarter as a [goodwill gesture](https://www.scmp.com/news/china/diplomacy/article/3122501/china-raises-rare-earth-quotas-goodwill-trade-signal-us) to the Joe Biden administration. But other sources say that China may ultimately ban the export of the rare earths altogether on “[security concerns](https://www.bloomberg.com/news/articles/2021-02-19/china-may-ban-rare-earth-technology-exports-on-security-concerns?sref=QYxyklwO).” What’s really going on here? There are 17 elements considered [rare earths](https://www.bloomberg.com/news/articles/2021-02-16/why-rare-earths-are-achilles-heal-for-europe-u-s-quicktake) — lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium, scandium and yttrium — and while many aren’t actually rare in terms of global deposits, extracting them is difficult and expensive. They are used across high-tech manufacturing, including smartphones, fighter aircraft and components in virtually all advanced electronics. Of particular note, they are essential to many of the clean-energy technologies expected to come online in this decade. I began to focus on rare-earth elements when I commanded the North Atlantic Treaty Organization’s presence in Afghanistan, known as the International Security Assistance Force. While Afghans live in an extremely poor country, [studies](https://thediplomat.com/2020/02/afghanistans-mineral-resources-are-a-lost-opportunity-and-a-threat/) have assessed that they sit atop $1 trillion to $3 trillion in a wide variety of minerals, including rare earths. Some [estimates](https://www.fraserinstitute.org/article/afghanistans-rare-earth-element-bonanza) put the rare-earth levels alone at 1.4 million metric tons. But every time I tried to visit a mining facility, the answer I got from my security team was, “It’s too dangerous right now, admiral.” Unfortunately, despite a great deal of effort by the U.S. and NATO, those security challenges remain, deterring the large foreign-capital investments necessary to harvest the lodes. Which brings us back to Beijing. China controls roughly 80% of the rare-earths market, between what it mines itself and processes in raw material from elsewhere. If it decided to wield the weapon of restricting the supply — something it has repeatedly [threatened](https://www.wsj.com/articles/china-trade-fight-raises-specter-of-rare-earth-shortage-11559304000) to do — it would create a significant challenge for manufacturers and a geopolitical predicament for the industrialized world. It could happen. In 2010, Beijing threatened to cut off exports to Japan over the disputed Senkaku Islands. Two years ago, Beijing was reportedly considering restrictions on exports to the U.S. generally, as well as against specific companies (such as defense giant Lockheed Martin Corp.) that it deemed in violation of its policies against selling advanced weapons to Taiwan. President Donald Trump’s administration issued an executive order to spur the production of rare earths domestically, and created an [Energy Resource Governance Initiative](https://www.state.gov/wp-content/uploads/2019/06/Energy-Resource-Governance-Initiative-ERGI-Fact-Sheet.pdf) to promote international mining. The European Union and Japan, among others, are also aggressively seeking newer sources of rare earths. Given this tension, it was superficially surprising that China announced it would boost its mining quotas in the first quarter of 2021 by nearly 30%, reflecting a continuation in strong (and rising) demand. But the increase occurs under a shadow of uncertainty, as the Chinese Communist Party is undertaking a “review” of its policies concerning future sales of rare earths. In all probability, the tactics of the increase are temporary, and fit within a larger strategy. China will go to great lengths to maintain overall control of the global rare-earths supply. This fits neatly within the geo-economic approach of the [One Belt, One Road](https://www.bloomberg.com/opinion/articles/2019-10-30/china-is-determined-to-reshape-the-globe) initiative, which seeks to use a variety of carrots and sticks — economic, trade, diplomatic and security — to create zones of influence globally. In terms of rare earths, the strategy seems to be allowing carefully calibrated access to the elements at a level that makes it economically less attractive for competitors to undertake costly exploration and mining operations. This is similar to the oil-market strategy used by Russia and the Organization of Petroleum Exporting Countries for decades. Some free-market advocates believe that China will not take aggressive action choking off supply because that could [precipitate retaliation](https://www.bloomberg.com/opinion/articles/2021-02-22/china-weaponizing-rare-earths-technology-will-probably-backfire) or accelerate the search for alternate sources in global markets. What seems more likely is a series of targeted shutdowns directed against specific entities such as U.S. defense companies, Japanese consumer electronics makers, or European industrial concerns that have offended Beijing. The path to rare-earth independence for the U.S. must include: Ensuring supply chains of rare earths necessary for national security; promoting the exploitation of the elements domestically (and removing barriers to responsibly doing so); mandating that defense contractors and other critical-infrastructure entities wean themselves off Chinese rare earths; sponsoring research and development to find alternative materials, especially for clean energy technology; and creating a substantial stockpile of the elements in case of a Chinese boycott. This is a bipartisan agenda. The Trump administration’s [strategic assessment](https://www.commerce.gov/news/press-releases/2019/06/department-commerce-releases-report-critical-minerals) of what needs to be done (which goes beyond just 17 rare earths to include a total of 35 critical minerals) is thoughtful, and should serve as a basis for the Biden administration and Congress.

#### REM access key to military primacy and tech advancement – alternatives fail

Trigaux 12 (David, University Honors Program University of South Florida St. Petersburg) “The US, China and Rare Earth Metals: The Future Of Green Technology, Military Tech, and a Potential Achilles‟ Heel to American Hegemony,” USF St. Petersberg, May 2, 2012, <https://digital.stpetersburg.usf.edu/cgi/viewcontent.cgi?article=1132&context=honorstheses>] TDI

The implications of a rare earth shortage aren’t strictly related to the environment, and energy dependence, but have distinct military implications as well that could threaten the position of the United States world’s strongest military. The United States place in the world was assured by powerful and decisive deployments in World War One and World War Two. Our military expansion was built upon a large, powerful industrial base that created more, better weapons of war for our soldiers. During the World Wars, a well-organized draft that sent millions of men into battle in a short amount of time proved decisive, but as the war ended, and soldiers drafted into service returned to civilian life, the U.S. technological superiority over its opponents provided it with sustained dominance over its enemies, even as the numerical size of the army declined. New technologies, such as the use of the airplane in combat, rocket launched missiles, radar systems, and later, GPS, precision guided missiles, missile defense systems, high tech tanks, lasers, and other technologies now make the difference between victory and defeat. The United States military now serves many important functions, deterring threats across the world. The United States projects its power internationally, through a network of bases and allied nations. Thus, the United States is a powerful player in all regions of the world, and often serves as a buffer against conflict in these regions. US military presence serves as a buffer against Chinese military modernization in Eastern Asia, against an increasingly nationalist Russia in Europe, and smaller regional actors, such as Venezuela in South America and Iran in the Middle East. The U.S. Navy is deployed all over the world, as the guarantor of international maritime trade routes. The US Navy leads action against challenges to its maritime sovereignty on the other side of the globe, such as current action against Somali piracy. Presence in regions across the world prevents escalation of potential crisis. These could result in either a larger power fighting a smaller nation or nations (Russia and Georgia, Taiwan and China), religious opponents (Israel and Iran), or traditional foes (Ethiopia and Eretria, Venezuela and Colombia, India and Pakistan). US projection is also key deterring emerging threats such as terrorism and nuclear proliferation. While not direct challenges to US primacy, both terrorism and nuclear proliferation can kill thousands. The US Air Force has a commanding lead over the rest of the world, in terms of both numbers and capabilities. American ground forces have few peers, and are unmatched in their ability to deploy to anywhere in the world at an equally unmatched pace. The only perceived challenge to the United States militarily comes from the People’s Republic of China.76 While the United States outspends all other nations in the world put together in terms of military spending, China follows as a close second, and has begun an extensive modernization program to boot.77 The Chinese military however, is several decades behind the United States in air power and nuclear capabilities.78 To compensate, China has begun the construction of access-denial technology, preventing the US from exercising its dominance in China’s sphere of influence.79 Chinese modernization efforts have a serious long-term advantage over the United States; access to rare earth metals, and a large concentration of rare earth chemists doing research.80 This advantage, coupled with the U.S. losing access to rare earth metals, will even the odds much quicker than policymakers had previously anticipated. 81 The largest example is US airpower. With every successive generation of military aircraft, the U.S. Air Force becomes more and more dependent on Rare Earth Metals.82 As planes get faster and faster, they have to get lighter and lighter, while adding weight from extra computers and other features on board.83 To lighten the weight of the plane, scandium is used to produce lightweight aluminum alloys for the body of the plane. Rare Earth metals are also useful in fighter jet engines, and fuel cells.84 For example, rare earths are required to producing miniaturized fins, and samarium is required to build the motors for the F-35 fighter jet.85 F-35 jets are the next generation fighter jet that works together to form the dual plane combination that cements U.S. dominance in air power over the Russian PAK FA.86 Rare earth shortages don’t just affect air power, also compromising the navigation system of Abrams Tanks, which need samarium cobalt magnets. The Abrams Tank is the primary offensive mechanized vehicle in the U.S. arsenal. The Aegis Spy 1 Radar also uses samarium.87 Many naval ships require neodymium. Hell Fire missiles, satellites, night vision goggles, avionics, and precision guided munitions all require rare earth metals. 88 American military superiority is based on technological advancement that outstrips the rest of the world. Command and control technology allows the U.S. to fight multiple wars at once and maintain readiness for other issues, as well as have overwhelming force against rising challengers. This technology helps the U.S. know who, where, and what is going to attack them, and respond effectively, regardless of the source of the threat. Rare Earth Elements make this technological superiority possible. To make matters worse, the defense industrial base is often a single market industry, dependent on government contracts for its business. If China tightens the export quotas further, major US defense contractors will be in trouble.89 Every sector of the defense industrial base is dependent on rare earth metals. Without rare earths, these contractors can’t build anything, which collapses the industry.90 Rare Earth shortages are actually already affecting our military, with shortages of lanthanum, cerium, europium and gadolinium happening in the status quo. This prevents us not only from building the next generation of high tech weaponry, but also from constructing more of the weapons and munitions that are needed in the status quo. As current weapon systems age and they can’t be replaced, the US primacy will be undermined. Of special concern is that U.S. domestic mining doesn’t produce “heavy” rare earth metals that are needed for many advanced components of military technologies. Given the nature of many military applications, substitutions aren’t possible. 91

#### Primacy and allied commitments solve arms races and great power war – unipolarity is sustainable, and prevents power vacuums and global escalation

Brands 18 [(Hal, Henry Kissinger Distinguished Professor at Johns Hopkins University's School of Advanced International Studies and a senior fellow at the Center for Strategic and Budgetary Assessments) "American Grand Strategy in the Age of Trump," Page 129-133]

Since World War II, the United States has had a military second to none. Since the Cold War, America has committed to having overwhelming military primacy. The idea, as George W. Bush declared in 2002, that America must possess “strengths beyond challenge” has featured in every major U.S. strategy document for a quarter century; it has also been reflected in concrete terms.6 From the early 1990s, for example, the United States consistently accounted for around 35 to 45 percent of world defense spending and maintained peerless global power-projection capabilities.7 Perhaps more important, U.S. primacy was also unrivaled in key overseas strategic regions—Europe, East Asia, the Middle East. From thrashing Saddam Hussein’s million-man Iraqi military during Operation Desert Storm, to deploying—with impunity—two carrier strike groups off Taiwan during the China-Taiwan crisis of 1995– 96, Washington has been able to project military power superior to anything a regional rival could employ even on its own geopolitical doorstep. This military dominance has constituted the hard-power backbone of an ambitious global strategy. After the Cold War, U.S. policymakers committed to averting a return to the unstable multipolarity of earlier eras, and to perpetuating the more favorable unipolar order. They committed to building on the successes of the postwar era by further advancing liberal political values and an open international economy, and to suppressing international scourges such as rogue states, nuclear proliferation, and catastrophic terrorism. And because they recognized that military force remained the ultima ratio regum, they understood the centrality of military preponderance. Washington would need the military power necessary to underwrite worldwide alliance commitments. It would have to preserve substantial overmatch versus any potential great-power rival. It must be able to answer the sharpest challenges to the international system, such as Saddam’s invasion of Kuwait in 1990 or jihadist extremism after 9/11. Finally, because prevailing global norms generally reflect hard-power realities, America would need the superiority to assure that its own values remained ascendant. It was impolitic to say that U.S. strategy and the international order required “strengths beyond challenge,” but it was not at all inaccurate. American primacy, moreover, was eminently affordable. At the height of the Cold War, the United States spent over 12 percent of GDP on defense. Since the mid-1990s, the number has usually been between 3 and 4 percent.8 In a historically favorable international environment, Washington could enjoy primacy—and its geopolitical fruits—on the cheap. Yet U.S. strategy also heeded, at least until recently, the fact that there was a limit to how cheaply that primacy could be had. The American military did shrink significantly during the 1990s, but U.S. officials understood that if Washington cut back too far, its primacy would erode to a point where it ceased to deliver its geopolitical benefits. Alliances would lose credibility; the stability of key regions would be eroded; rivals would be emboldened; international crises would go unaddressed. American primacy was thus like a reasonably priced insurance policy. It required nontrivial expenditures, but protected against far costlier outcomes.9 Washington paid its insurance premiums for two decades after the Cold War. But more recently American primacy and strategic solvency have been imperiled. THE DARKENING HORIZON For most of the post–Cold War era, the international system was— by historical standards—remarkably benign. Dangers existed, and as the terrorist attacks of September 11, 2001, demonstrated, they could manifest with horrific effect. But for two decades after the Soviet collapse, the world was characterized by remarkably low levels of great-power competition, high levels of security in key theaters such as Europe and East Asia, and the comparative weakness of those “rogue” actors—Iran, Iraq, North Korea, al-Qaeda—who most aggressively challenged American power. During the 1990s, some observers even spoke of a “strategic pause,” the idea being that the end of the Cold War had afforded the United States a respite from normal levels of geopolitical danger and competition. Now, however, the strategic horizon is darkening, due to four factors. First, great-power military competition is back. The world’s two leading authoritarian powers—China and Russia—are seeking regional hegemony, contesting global norms such as nonaggression and freedom of navigation, and developing the military punch to underwrite these ambitions. Notwithstanding severe economic and demographic problems, Russia has conducted a major military modernization emphasizing nuclear weapons, high-end conventional capabilities, and rapid-deployment and special operations forces— and utilized many of these capabilities in conflicts in Ukraine and Syria.10 China, meanwhile, has carried out a buildup of historic proportions, with constant-dollar defense outlays rising from US$26 billion in 1995 to US$226 billion in 2016.11 Ominously, these expenditures have funded development of power-projection and antiaccess/area denial (A2/AD) tools necessary to threaten China’s neighbors and complicate U.S. intervention on their behalf. Washington has grown accustomed to having a generational military lead; Russian and Chinese modernization efforts are now creating a far more competitive environment.

#### Nuke war causes extinction – it won’t stay limited

Edwards 17 [(Paul N. Edwards, CISAC’s William J. Perry Fellow in International Security at Stanford’s Freeman Spogli Institute for International Studies. Being interviewed by EarthSky/card is only parts of the interview directly from Paul Edwards.) “How nuclear war would affect Earth’s climate,” EarthSky, September 8, 2017, earthsky.org/human-world/how-nuclear-war-would-affect-earths-climate] TDI

We are not talking enough about the climatic effects of nuclear war. The “nuclear winter” theory of the mid-1980s played a significant role in the arms reductions of that period. But with the collapse of the Soviet Union and the reduction of U.S. and Russian nuclear arsenals, this aspect of nuclear war has faded from view. That’s not good. In the mid-2000s, climate scientists such as Alan Robock (Rutgers) took another look at nuclear winter theory. This time around, they used much-improved and much more detailed climate models than those available 20 years earlier. They also tested the potential effects of smaller nuclear exchanges. The result: an exchange involving just 50 nuclear weapons — the kind of thing we might see in an India-Pakistan war, for example — could loft 5 billion kilograms of smoke, soot and dust high into the stratosphere. That’s enough to cool the entire planet by about 2 degrees Fahrenheit (1.25 degrees Celsius) — about where we were during the Little Ice Age of the 17th century. Growing seasons could be shortened enough to create really significant food shortages. So the climatic effects of even a relatively small nuclear war would be planet-wide. What about a larger-scale conflict? A U.S.-Russia war currently seems unlikely, but if it were to occur, hundreds or even thousands of nuclear weapons might be launched. The climatic consequences would be catastrophic: global average temperatures would drop as much as 12 degrees Fahrenheit (7 degrees Celsius) for up to several years — temperatures last seen during the great ice ages. Meanwhile, smoke and dust circulating in the stratosphere would darken the atmosphere enough to inhibit photosynthesis, causing disastrous crop failures, widespread famine and massive ecological disruption. The effect would be similar to that of the giant meteor believed to be responsible for the extinction of the dinosaurs. This time, we would be the dinosaurs. Many people are concerned about North Korea’s advancing missile capabilities. Is nuclear war likely in your opinion? At this writing, I think we are closer to a nuclear war than we have been since the early 1960s. In the North Korea case, both Kim Jong-un and President Trump are bullies inclined to escalate confrontations. President Trump lacks impulse control, and there are precious few checks on his ability to initiate a nuclear strike. We have to hope that our generals, both inside and outside the White House, can rein him in. North Korea would most certainly “lose” a nuclear war with the United States. But many millions would die, including hundreds of thousands of Americans currently living in South Korea and Japan (probable North Korean targets). Such vast damage would be wrought in Korea, Japan and Pacific island territories (such as Guam) that any “victory” wouldn’t deserve the name. Not only would that region be left with horrible suffering amongst the survivors; it would also immediately face famine and rampant disease. Radioactive fallout from such a war would spread around the world, including to the U.S. It has been more than 70 years since the last time a nuclear bomb was used in warfare. What would be the effects on the environment and on human health today? To my knowledge, most of the changes in nuclear weapons technology since the 1950s have focused on making them smaller and lighter, and making delivery systems more accurate, rather than on changing their effects on the environment or on human health. So-called “battlefield” weapons with lower explosive yields are part of some arsenals now — but it’s quite unlikely that any exchange between two nuclear powers would stay limited to these smaller, less destructive bombs.

### 4

#### The role of the ballot is to vote for the debater that produces the best material consequences based on the fiated implications of the plan –

#### [1] No performative or methodological offense – It’s extra-T which is a voter for limits, spiking out of neg ground making any discussion worse.

#### [2] Strat Skew – the resolution is the only stasis point and adding other factors to the round decks predictable limits which guts pre round prep.

#### [3] Inclusion – Novices and Lay debaters all use the material consequences in the plan – proven by every lay tournament outside the circuit – by increasing the burden to your model you exclude them from the space.

## Case

### Fwrk

#### The aff’s rehearsal of generative capacity reifies the policing function of the academy by creating the conditions for appropriation.

Moten 18 [(Fred, is a Professor in the Department of Performance Studies, at NYU Tisch School of the Arts) “Stolen Life,” 2018, pg. 183-187] TDI

Criticism, the capacity to see things in their branching and unfolding and generative differentiation, attends to generation while critique, as Marx deploys it, attends to the regulation and policing of generation; meanwhile, critique, which seems to be deployed almost everywhere in the normative human sciences to police generation, is so driven by its own implicit claims upon national identity or political subjectivity—which are themselves subject to a force, and have been understood by way of a logic, of dissipation implying a mystery of loss and of what was lost—has all but become degenerate. The neoliberal lament regarding “the crisis of democracy” (which was, according to Samuel Huntington and his fellows, a function of there being too much democracy) can be understood as the animating trace of certain folks, claiming to be on the left, whose lament of the current loss of “our democracy” is driven by nostalgic fantasies of a privilege supposedly held within the structure of, rather than given in resistance to, American exclusion. It’s not coincidence that this convenient repression of American exclusion is usually accompanied by an assertion of American exception that either takes the form of an invocation of “our” best intentions or, more pragmatically, as the assertion of a right to do just about anything in the name of national defense, whose complete, completely delusional detachment from imperial aggression is sanctioned by the serial invocation of crisis. When people respond to the suppression of the alternative—and Hall and his fellows brilliantly illuminate how state interpretation of the alternative as crisis is a fundamental element of that suppression—the word riot is deployed in order to augment that suppression; but when suppression of the alternative is more (im)properly understood as a response to the alternative, it also becomes possible to understand that with regard to the insistent previousness of the alternative it is more accurate to say, over Sly Stone’s growl or Joe Strummer’s sneer, that there is, and already has been, a riot going on. This is about the anoriginary force of tumultuous derangement, a generative sociopoesis given in and as everyday sensuality. To rise to the defense of this sacred, ordinary, generative violence—to protect it from the ongoing murder—is often to risk a kind of appropriation of the very propriative force one seeks to combat with an otherwise animating fugitivity. Such uprising can take the form of burnin’ and lootin’, but, even more easily, such appropriation can take the form of a critical account of the justificatory causes of burnin’ and lootin’. Meanwhile, what always remains or, more precisely, what must be understood as the irreducible remainder that animates such physical acts as well as such critical accounts, are everyday and everynight things. It’s not about the looting of loot or the assault of persons who take shape as shops and wares, or about the insurgents’ loss of or exclusion from citizenship or belonging that supposedly makes the former inevitable; it is, rather, all about insurgence as the performative declaration of what we are and what we have and what we give. Put another way, the seemingly infinite production of crisis finds its limit in the infinite rehearsal of generative capacity, in the open field of a generative grammar, in the fecundity of a range of generative principles, all of which reveal the sclerotic constraints that are fostered by an empiricist attitude whose structuring force in the determination of Anglo-American intellectual identity can be traced back to a certain valorization of the grasp, and the philosophical nomination of the possessive individual to the office of manager of the enclosure, by way of the bloody fingerprints of a transcendental subject who is unable or unwilling to see things but who can neither let things go nor pass things on. The riot that’s goin’ on is a party for self-defense. The question concerning its causes, its sources, shouldn’t be left to liberal or neoliberal pundits and prime ministers, even when their more or less racist and ageist elitism leads them to say, with a kind of ignorant and imprecise accuracy, that the causes are cultural. What they don’t mean is that culture is the imprecise word we give to regenerative resources of insurgent social life. There’s another way of living that exhausts imposed arrangements. It’s where and how people fight. When seemingly random and unorganized acts of self-defense erupt against the violence of the state and capital, the only important question is how to maintain their connection to the social field they are meant to defend. This is a question concerning the corrosive, reconstructive force of certain practices that Michael Herzfeld thinks of in terms of “cultural intimacy—the recognition of those aspects of a cultural identity that are considered a source of external embarrassment but that nevertheless provide insiders with their assurance of common sociality, the familiarity with the bases of power that may at one moment assure the disenfranchised a degree of creative irreverence and at the next moment reinforce the effectiveness of intimidation.”5 But what if we begin to consider, against the grain and over the edge of whatever combination of the critique of authenticity and the appeal to upright, paralytic sovereign recitations of the citizen consumer, that the social poetics Herzfeld is after is an undercommon intellectual project that begins to emerge precisely when the distinction between insiders and outsiders breaks down, when a certain kind of communal claim is made in a certain kind of walking down certain city streets, and when that claim is given in and as an active disruption of the nation-state, in and as a kind of masque in which the very habits of the damned are taken on and, thereby, altered in their free, constant, and already given alteration. Meanwhile, we confront the emergence of new black acts—of the kind E. P. Thompson describes in Whigs and Hunters—now outlawing autonomous cybersocial organization for self-defense under the self-regulating cover of the ones who internalize the embarrassment they refuse, which is the generativity noncitizens claim. The notion that crisis lies in the ever-more-brutal interdiction of our capacity to represent or be represented by the normal is as seductive, in its way, as the notion that such interdiction is the necessary response to our incapacity for such representation. Their joint power is held in the fact that whether abnormality is a function of external imposition or of internal malady it can only be understood as pathological. Such power is put in its accidental place, however, by the ones who see, who imaginatively misunderstand, the crisis as our constant disruption of the normal, whose honor is given in and protected by its representations, with the anterepresentational generativity that it spurns and craves. This is the crisis that is always with us; this is the crisis that must be policed not just by the lethal physical brutality of the state and capital but also by the equally deadly production of a discourse that serially asserts that the crisis that has befallen us must overwhelm the crisis that we are; that crisis follows rather than prompts our incorporative exclusion.

Definti – they have things ot the ground

#### No justification for the role of the ballot – the aff doesn’t win spill up

#### Dharani 19 – is extra T because it prescribes action and the topic only says in passive voice that aprporiation is unjust – reject extra T intinifte limits which pushes us to the margin and makes it impossible to engage.

#### Also extra T to tell countries to launch missiles in enforecemnt – double bind they fiat so exra T or they don’t which means no solvency

#### Squo solves – it's international custom and everyone follows it.

**Pershing, 19** **(Abigail D. Pershing, Robina Fellow at European Court of Human Rights, 3-23-2019, accessed on 11-27-2021, *The Yale Journal of International Law*, "Interpreting the Outer Space Treaty's Non-Appropriation Principle: Customary International Law from 1967 to Today", https://digitalcommons.law.yale.edu/cgi/viewcontent.cgi?article=1697&context=yjil) \*brackets in original //D.Ying**

Although the internationally recognized scope of the non-appropriation principle has been pared back to allow for the ownership of space resources upon extraction, there is still currently a general acceptance in customary international law that the principle prohibits States, individuals, and private corporations from owning in situ property in space. State practice, domestic legislation, and legal scholarship all tend to support this conclusion. 1. State Practice Currently, States act in accordance with the original understanding of the non-appropriation treaty insofar as they have not endorsed individuals’ claims to in situ property in space (as distinct from endorsement of property rights to resources after extraction). One anecdote that exemplifies the United States’ unwillingness to acknowledge private individuals’ in situ property rights in outer space comes from the case Nemitz v. United States. 86 On February 12, 2001, NASA’s Near Earth Asteroid Rendezvous Shoemaker became the first spacecraft to land on the surface of an asteroid when it touched down on Eros, a twenty-one-mile long asteroid in the sun’s orbit.87 On February 16, 2001, NASA received a letter from Gregory Nemitz, in which Nemitz claimed ownership over Eros (effectively asserting in situ property rights over the asteroid) and attempted to charge NASA a twenty dollar “parking/storage fee” for NASA’s use of the asteroid.88 NASA General Counsel Edward Frankle’s eventual response, after a series of back-and-forth exchanges, was to deny that Nemitz had any property rights to the asteroid as a celestial body because to acknowledge otherwise would be in contravention of Article II of the Outer Space Treaty.89 The matter was settled in court, with the presiding judge relying on similar reasoning in finding for NASA.90 Other challenges to the principle of non-appropriation of in situ space property, most notably in the Bogotá Declaration of 1976, have also been struck down.91 In the Declaration, eight equatorial nations, including Colombia, Congo, Ecuador, Indonesia, Kenya, Uganda, and Zaire (now the Democratic Republic of the Congo), with Brazil as an observer, claimed sovereignty over in situ space property in the form of geostationary orbits above their territories.92 Geostationary orbits, thirty-six thousand kilometers above Earth’s equator, are particularly valuable because at this distance a satellite orbits the Earth at a speed equal to the Earth’s rotation, allowing that satellite to remain over a fixed point on the Earth’s surface.93 However, the Bogotá Declaration’s attempted appropriation of geostationary orbits was rejected internationally as inconsistent with Article II of the Outer Space Treaty.94 Since the Bogotá Declaration, there have not been any significant challenges to the non-appropriation principle concerning appropriation of in situ space property.95 There are also no major persistent State objectors who claim the right of ownership of in situ property.96 Although customary international law has come to accept State and individual ownership of extracted space resources, current State practice supports the conclusion that appropriation of in situ space property (in the form of entire celestial bodies, as with Eros, or particular swaths of space or orbits, as in the Bogotá Declaration) remains impermissible under the non-appropriation clause of the Outer Space Treaty. 2. Opinio Juris: Domestic Legislation The United States has ensured that its commitment to the non-appropriation principle (other than the exception discussed above concerning extracted resources) is codified in domestic law. Restricting its otherwise expansive language, the SPACE Act of 2015 reads: “It is the sense of Congress that by the enactment of this Act, the United States does not thereby assert sovereignty or sovereign or exclusive rights or jurisdiction over, or the ownership of, any celestial body.”97 Other countries have also recognized this limitation to private ownership of space in customary international law. For instance, commentary to the new Luxembourg law emphasizes that [t]he scope of this law is . . . limited to space resources and does not apply to asteroids, comets and celestial bodies as such, whose appropriation is prohibited by the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, a.k.a. the 1967 Outer Space Treaty.98 In their explicit compliance with international law, other States’ outer space laws similarly reject private appropriation of space.99

### Space War

#### No space war – it’s hype and systems are redundant

Johnson-Freese and Hitchens 16 [Dr. Joan Johnson-Freese is a member of the Breaking Defense Board of Contributors, a Professor of National Security Affairs at the Naval War College and author of Space Warfare in the 21st Century: Arming the Heavens. Views expressed are those of the author alone. Theresa Hitchens is a Senior Research Scholar at the Center for International and Security Studies at Maryland (CISSM), and the former Director of the United Nations Institute for Disarmament Research (UNIDIR) in Geneva, Switzerland. Stop The Fearmongering Over War In Space: The Sky’s Not Falling, Part 1. December 27, 2016. https://breakingdefense.com/2016/12/stop-the-fearmongering-over-war-in-space-the-skys-not-falling-part-1/]

In the last two years, we’ve seen rising hysteria over a future war in space. Fanning the flames are not only dire assessments from the US military, but also breathless coverage from a cooperative and credulous press. This reporting doesn’t only muddy public debate over whether we really need expensive systems. It could also become a self-fulfilling prophecy. The irony is that nothing makes the currently slim possibility of war in space more likely than fearmongering over the threat of war in space.

Two television programs in the past two years show how egregious this fearmongering can get. In April 2015, the CBS show 60 Minutes ran a segment called “The Battle Above.” In an interview with General John Hyten, the then-chief of U.S. Air Force Space Command, it came across loud and clear that the United States was being forced to prepare for a battle in space — specifically against China — that it really didn’t want.

It was explained by Hyten and other guests that China is building a considerable amount of hardware and accumulating significant know-how regarding space, all threatening to space assets Americans depend on every day. If viewers weren’t frightened after watching the segment, it wasn’t for lack of trying on the part of CBS.

Using terms like “offensive counterspace” as a 1984 NewSpeak euphemism for “weapons,” it was made clear that the United States had no choice but to spend billions of dollars on offensive counterspace technology to not just thwart the Chinese threat, but control and dominate space. While it didn’t actually distort facts — just omit facts about current U.S. space capabilities — the segment was basically a cost-free commercial for the military-industrial complex.

In retrospect though, “The Battle Above” was pretty good compared to CNN’s recent special, War in Space: The Next Battlefield. The latter might as well have been called Sharknado in Space – because the only far-out weapons technology our potential adversaries don’t have, according to the broadcast, seems to be “sharks with frickin’ laser beams attached to their heads!”

First, CNN needs to hire some fact checkers. Saying “unlike its adversaries, the U.S. has not yet weaponized space” is deeply misleading, like saying “unlike his political opponents, President-Elect Donald Trump has not sprouted wings and flown away”: A few (admittedly alarming) weapons tests aside, no country in the world has yet weaponized space. Contrary to CNN, stock market transactions are not timed nor synchronized through GPS, but a closed system. Cruise missiles can find their targets even without GPS, because they have both GPS and precision inertial measurement units onboard, and IMUs don’t rely on satellite data. Oh, and the British rock group Pink Floyd holds the only claim to the Dark Side of the Moon: There is a “far side” of the Moon — the side always turned away from the Earth — but not a “dark side” — which would be a side always turned away from the Sun.

More nefariously, the segment sensationalized nuggets of truth within a barrage of half-truths, backed by a heavy bass, dramatic soundtrack (and gravelly-voiced reporter Jim Sciutto) and accompanied by sexy and scary visuals.

Make no mistake there are dangers in space, and the United States has the most to lose if space assets are lost. The question is how best to protect them. Here are a few facts CNN omitted.

The Reality

The U.S. has all of the technologies described on the CNN segment and deemed potentially offensive: maneuverable satellites, nano-satellites, lasers, jamming capabilities, robotic arms, ballistic missiles that can be used as anti-satellite weapons, etc. In fact, the United States is more technologically advanced than other countries in both military and commercial space.

That technological superiority scares other countries; just as the U.S. military space community is scared of other countries obtaining those technologies in the future. The U.S. military space budget is more than 10 times greater than that of all the countries in the world combined. That also causes other countries concern.

More unsettling still, the United States has long been leery of treaty-based efforts to constrain a potential arms race in outer space, as supported by nearly every other country in the world for decades. Indeed, under the administration of George W. Bush, the U.S. talking points centered on the mantra “there is no arms race in outer space,” so there is no need for diplomat instruments to constrain one. Now, a decade later, the U.S. military – backed by the Intelligence Community which operates the nation’s spy satellites – seems to be shouting to the rooftops that the United States is in danger of losing the space arms race already begun by its potential adversaries. The underlying assumption — a convenient one for advocates of more military spending — is that now there is nothing that diplomacy can do.

However, it must be remembered that most space-related technologies – with the exception of ballistic missiles and dedicated jammers – have both military and civil/commercial uses; both benign — indeed, helpful — and nefarious uses. For example, giving satellites the ability to maneuver on orbit can allow useful inspections of ailing satellites and possibly even repairs.

Further, the United States is not unable to protect its satellites, as repeated during the CNN broadcast by various interviewees and the host. Many U.S. government-owned satellites, including precious spy satellites, have capabilities to maneuver. Many are hardened against electro-magnetic pulse, sport “shutters” to protect optical “eyes” from solar flares and lasers, and use radio frequency hopping to resist jamming.

Offensive weapons, deployed on the ground to attack satellites, or in space, are not a silver bullet. To the contrary, U.S. deployment of such weapons may actually be detrimental to U.S. and international security in space (as we argued in a recent Atlantic Council publication, Towards a New National Security Space Strategy). Further, there are benefits to efforts started by the Obama Administration to find diplomatic tools to restrain and constrain dangerous military activities in space.

These diplomatic efforts, however, would be undercut by a full-out U.S. pursuit of “space dominance.” This includes dialogue with China, the lack of which Gen. William Shelton, retired commander of Air Force Space Command, lamented in the CNN report.

Given CNN’s “cast,” the spin was not surprising. Starting with Ghost Fleet author Peter Singer set the sensationalist tone, which never altered. The apocalyptic opening, inspired by Ghost Fleet, posited a scenario where all U.S. satellites are taken off-line in nearly one fell swoop. Unless we are talking about an alien invasion, that scenario is nigh on impossible. No potential adversary has such capabilities, nor will they ever likely do so. There is just too much redundancy in the system.

### Heg

**Hegemony prevents great-power conflict — multipolar revisionism fragments the global order and causes nuclear war.**

**Brands & Edel, 19** — Hal Brands; PhD, Henry A. Kissinger Distinguished Professor of Global Affairs at the Johns Hopkins School of Advanced International Studies. Charles Edel; PhD, Senior Fellow and Visiting Scholar at the United States Studies Centre at the University of Sydney. (“The Lessons of Tragedy: Statecraft and World Order;” Ch. 6: Darkening Horizon; Published by *Yale University Press*; //GrRv)

Each of these geopolitical challenges is different, and each reflects the distinctive interests, ambitions, and history of the country undertaking it. Yet there is **growing cooperation** between the countries that are **challenging** the **regional pillars of the U.S.-led order.** **Russia** and **China** have **collaborated** on issues such as energy, sales and development of **military technology**, opposition to additional U.S. military deployments on the Korean peninsula, and naval exercises from the South China Sea to the Baltic. In Syria, Iran provided the **shock troops** that helped keep Russia’s ally, Bashar al-Assad, in power, as Moscow provided the air power and the diplomatic cover. “Our **cooperation** can **isolate America**,” supreme leader Ali Khamenei told Putin in 2017. More broadly, what links these challenges together is their **opposition** to the constellation of **power, norms, and relationships** that the U.S.-led order entails, and in their propensity to use **violence**, coercion, and intimidation as means of making that opposition **effective**. Taken collectively, these challenges constitute a **geopolitical sea change** from the post-Cold War era. The revival of **great-power competition** entails higher international tensions than the world has known for decades, and the revival of **arms races, security dilemmas**, and **other artifacts** of a more **dangerous past**. It entails **sharper conflicts** over the international rules of the road on issues ranging from freedom of navigation to the illegitimacy of altering borders by force, and **intensifying competitions** over states that reside at the intersection of rival powers’ **areas of interest**. It requires confronting the prospect that **rival powers** could **overturn** the **favorable regional balances** that have **underpinned** the U.S.-led order for decades, and that they might construct **rival spheres of influence** from which America and the liberal ideas it has long promoted would be excluded. Finally, it necessitates recognizing that great-power rivalry could lead to **great-power war**, a prospect that seemed to have followed the Soviet empire onto the ash heap of history. Both **Beijing** and **Moscow** are, after all, **optimizing their forces** and **exercising aggressively** in preparation for potential **conflicts** with the United States and its allies; Russian doctrine explicitly emphasizes the limited use of **nuclear weapons** to achieve escalation dominance in a war with Washington. In Syria, U.S. and Russian forces even came into **deadly contact** in early 2018. American airpower decimated a contingent of government-sponsored Russian mercenaries that was attacking a base at which U.S. troops were present, an incident demonstrating the increasing boldness of Russian operations and the corresponding potential for escalation. The world has not yet returned to the epic clashes for global dominance that characterized the twentieth century, but it has returned to the **historical norm** of **great-power struggle**, with all the associated dangers. Those dangers may be even greater than most observers appreciate, because if today’s great-power competitions are still most intense at the regional level, who is to say where these competitions will end? By all appearances, Russia **does not simply want to be** a “**regional power**” (as Obama cuttingly described it) that dominates South Ossetia and Crimea.37 It **aspires** to the **deep European** and **extra-regional impact** that **previous incarnations** of the Russian state enjoyed. Why else would Putin boast about how far his troops can drive into Eastern Europe? **Why else** would Moscow be **deploy**ing military power into the **Middle East?** **Why else** would it be continuing to cultivate intelligence and **military relationships** in regions as remote as **Latin America?** Likewise, China is **today** focused primarily on securing its own **geopolitical neighborhood**, but its ambitions for **tomorrow** are **clearly much bolder.**

### Neolib

**We’re past the tipping point – but carbon capture is attainable and solves**

**Mack 19** (Eric Mack, May 28, 2019, “Carbon positive: Turning a planetary pollutant into an asset”, Nesta, https://www.nesta.org.uk/feature/tipping-point/carbon-positive-turning-planetary-pollutant-asset/)

Last year, **the International Panel on Climate Change estimated** in a widely publicised and disturbing report that to avoid catastrophic change **we must not only drastically reduce our carbon dioxide output, but also begin actively pulling about 20 billion metric tons of CO2 out of the atmosphere each year** (IPCC, 2018). A suite of technologies known as “**carbon capture and utilisation” could go a long way** towards addressing the second part of the equation. While the name may sound drab and technical, these innovations could be one of our most powerful levers in addressing climate change. With justifiable scepticism about our collective ability and will to reduce emissions quickly enough, **carbon capture may be needed to stave off runaway climate change.** And even if it isn’t, there’s still a long-term need to get excess CO2 out of the system, a process that could take an extremely long time if left to nature’s depleted capacities. As “carbon wrangler” Julio Friedmann wrote in 2018: “We have a moral responsibility to clean up our mess and restore the world’s atmosphere to how we found it.” The basic concept behind capturing CO2 is to move vast amounts of air through a filter or solution that traps the carbon dioxide molecules. From there, it can be stored, used as-is or converted to a more useful molecule with the help of a little chemistry. Considerable attention has been paid to the idea of **simply burying it underground**: the idea that we can put it to good use has been comparatively neglected. But it is starting to gain traction. A **recent proposal suggests that the world’s air conditioners could also double as carbon capture systems, collecting CO2 and water vapor from the air** (Dittmeyer, R, et.al. 2019). Simple electrolysis can peel H2 off the water and combine it with carbon dioxide to locally produce hydrocarbon fuel using the Fischer-Tropsch process. Laboratory experiments have also used captured CO2, electricity and a little lithium to create carbon nanofibers (Ren, J., et.al. 2015) that **can be used in the manufacture of everything from better batteries and golf clubs to aircraft.** Climeworks is one of a handful of companies that has taken similar technology beyond the lab and is already pulling CO2 directly from the air. The Swiss start-up has set the ambitious goal of removing one per cent of global carbon dioxide emissions by 2025. The company’s small, modular direct air capture system is up and running in Switzerland and other locations in Europe, including a small demonstration unit in Italy that will capture 150 tons of CO2 per year to be converted into natural gas fuel. **Canada’s Carbon Engineering has also been capturing CO2 for several years, converting it into liquid fuels that could be used in today’s cars, trucks and even commercial jets.** CEO Steve Oldham claims the **technology can be “scaled up to capture gigatons of CO2 directly from the atmosphere**… we’re now ready to move into much larger scale.” The company published a breakdown of its technology in a peer-reviewed journal last year (Keith, 2018), and is aiming to scale up enough to pull a gigaton of CO2 from the air per year – more than two per cent of what the world emits in the same time-span.