## 1NC – T

#### Interpretation: outer space consists of regions outside the atmospheres of celestial bodies

Tanabe 19 [(Rosie, updater and writer at NWE) “Outer space,” New World Encyclopedia, 1/8/2019] JL

Outer space (often called space) consists of the relatively empty regions of the universe outside the atmospheres of celestial bodies. *Outer* space is used to distinguish it from airspace and terrestrial locations. There is no clear boundary between Earth's atmosphere and space, as the density of the atmosphere gradually decreases as the altitude increases.

#### **Violation: planets have atmospheres**

Williams 16 [(Matt, Curator of Universe Today's Guide to Space) “What Is The Atmosphere Like On Other Planets?” Universe Today, 1/7/2016]  
For starters, it should be noted that every planet in the Solar System has an atmosphere of one kind or another. And these range from incredibly thin and tenuous (such as Mercury’s “exosphere”) to the incredibly dense and powerful – which is the case for all of the gas giants. And depending on the composition of the planet, whether it is a terrestrial or a gas/ice giant, the gases that make up its atmosphere range from either the hydrogen and helium to more complex elements like oxygen, carbon dioxide, ammonia and methane.

#### Standards:

#### Limits – their interpretation allows for the elimination of private appropriation on Earth, Mars, comets, moons, etc. – that destroys neg prep burdens since outer space activity is vague and distracts from core topic controversies like the ethicality of satellites in orbital slots

#### Ground – affs about celestial bodies deny the neg links to core generics that utilize the LEO like debris good, satellites good, and DAs about constellations like Starlink – that kills clash by forcing negatives to the fringes of argumentation that disagree with everything and kills fairness by giving the aff a major prep advantage since they only need to frontline the few negative arguments

#### No plan text in a vacuum – arbitrarily divorcing plan texts from advantage areas kills 1NC strategy by greenlighting aff shiftiness and incentivizes Frankenstein affs that kill topic ed

#### Fairness and education are voters – debate’s a game, and fairness is necessary to determine the winner of the game, and education is the reason why schools fund debate.

#### Drop the debater – dropping the argument doesn’t rectify abuse since winning T proves why we don’t have the burden of rejoinder against their aff.

#### Use competing interps – reasonability invites arbitrary judge intervention since there’s no consensus as to what’s reasonable.

#### No RVIs – fairness and education are logical litmus tests and they incentivize baiting theory and prepping it out which turns substance crowdout

## 1NC – T

#### Interpretation: the affirmative may only defend a plan that affects “private entities” – that excludes governments

UpCounsel n.d. [(UpCounsel, interactive online service that makes it faster and easier for businesses to find and hire legal help solely based on their preferences) “Private Entity: Everything You Need to Know”] JL

A private entity can be a partnership, corporation, individual, nonprofit organization, company, or any other organized group that is not government-affiliated. Indian tribes and foreign public entities are not considered private entities.

#### Violation – they advocate for “global commons” regime which requires states to pursue space resources more sustainably and adapt to polluted orbits

#### **Global commons is implemented for governments and public entities – 1AC Vollmer – inserted**

absolute liability mechanisms.175 As such, shared global liability will consider the responsibility of nation-states and private entities in isolation.176 This will coerce cooperation among all agencies, nations, and private entities because the equitable share of responsibility will drive collective resolution. ¶ V. CONCLUSION¶ In light of the emerging global sentiments regarding environmental conservation and sustainability, instituting a regime that clearly defines a legal consequence in the event of environmental ruin boasts greater coercive force than non-binding resolutions. 9 This international agreement aligns with the universal value that the international community places on the utility of geospace.

#### **1AC Silverstein – inserted**

Debris in higher orbits can persist for a century or more. The costs of adapting to increasingly polluted orbits would be immense, and the opportunity costs would be even higher. For instance, all else being equal, hardening satellites against collisions increases their mass and volume, in turn raising launch costs per satellite. These costs, rooted in a failure to govern space as a commons, will be borne by all space actors, including emerging states and commercial entities.¶ EXISTING FORMS OF SPACE GOVERNANCE¶ A well-designed governance system, founded on a widespread understanding of Earth orbits as a great commons, could temper these risks. Currently, space is not wholly unregulated, but existing regulations are limited both in scope and implementation.

#### Vote neg for limits – their interpretation skirts the core topic controversies of private property rights and reinterpretation of the OST and kills uniqueness – national appropriation is already prohibited – unlimited topics incentivize obscure affs that negs won’t have prep on, which kills clash and neg flex – extra T creates a slippery slope that incentivizes Frankenstein affs with infinite additional planks to circumvent neg links

## 1NC – CP

#### **CP: States except the Republic of Iran should adopt a binding international agreement that bans the appropriation of outer space by private entities by establishing outer space as a global commons subject to regulatory delimiting and global liability.**

#### JCPOA passes now, but it’s tentative and the window is closing

Norman 3/15 [(Laurence, deputy bureau chief at Dow Jones Newswires and The Wall Street Journal based in London) “Russia Softens Iran Demands, Re-Opening Way for Nuclear Deal,” The Wall Street Journal, 3/15/2022] JL

Russia walked back recently made demands on Washington related to the Iran nuclear deal, clearing the way for Tehran and Washington to revive the 2015 agreement, senior western diplomats said.

On Tuesday, after Russia’s Foreign Minister Sergei Lavrov met in Moscow with his Iranian counterpart, both Mr. Lavrov and Hossein Amir-Abdollahian said Russia wasn’t standing in the way of the accord.

Russia earlier this month had demanded guarantees from Washington that its economic ties with Iran wouldn’t be affected by the Western sanctions imposed on Moscow over Ukraine. The last-minute move was the driving factor that prevented a deal to revive the 2015 nuclear agreement over the past 10 days, western diplomats have said.

The European Union, which coordinates the talks, announced a break in the negotiations on Friday, blaming “external factors” for preventing a deal that is “essentially ready.”

A senior Western diplomat said Tuesday evening that Russia’s chief negotiator at the talks, Mikhail Ulyanov, had informed the EU that Russia would accept narrower guarantees ensuring that Russia could carry out the nuclear work it is mandated to do under the 2015 nuclear deal. That includes a uranium swap with Iran, the redesign of the Fordow nuclear facility and the provision of nuclear fuel to Iranian reactors.

“Russia says happy with guarantees on nuclear projects and not asking for anything else,” said the diplomat, who asked to remain unidentified because of the sensitive nature of the talks. “So we can go ahead with negotiations that are now exclusively US-Iran.”

State Department spokesman Ned Price said Tuesday evening that “we are not going to sanction Russia for undertaking, for participating in nuclear projects that are part of the” nuclear deal.

The negotiations, which have taken place for almost a year now, aim to reach agreement on the steps Washington and Tehran will take to return into compliance with the 2015 agreement, which lifted most international sanctions on Tehran in exchange for tight but temporary restrictions on Iran’s nuclear work.

After the Trump administration took the U.S. out of the accord and reimposed sweeping sanctions on Iran, saying the accord was too weak, Tehran expanded its nuclear work and has now gathered almost enough nuclear high-grade enriched uranium for a nuclear weapon, according to the United Nations nuclear agency.

Iran says its nuclear program is purely peaceful and U.S. officials have said there is no evidence Iran has decided to build a nuclear weapon.

Over the weekend, a senior U.S. official told The Wall Street Journal that only “a handful of issues left” remained between the U.S. and Iran to reach an accord, mainly on the issue of the scope of sanctions relief Iran would receive from Washington. The official said the U.S. side felt the resolution of these issues was “within reach.”

The U.S. official and senior European diplomats said they wouldn’t negotiate broad carve-outs from Western sanctions over Russia’s invasion of Ukraine with Moscow to save the nuclear deal. They warned that if Russia didn’t back off its demands, they would seek to complete an agreement with Iran, bypassing Russia.

Mr. Ulyanov said Tuesday evening on Twitter it was a lie that Russia had stood in the way of the accord with its demands for guarantees. He added that “some demands were accepted.” Iran, which has friendly ties with Moscow, has also continued to blame Washington for not completing the deal.

Negotiations between the U.S. and Iran could resume without negotiators returning to Vienna, where the talks have been held since April 2021, the senior western diplomat said. Iran so far has refused to talk directly with the Americans and instead have negotiated through the European powers at the talks. With so few issues still to be resolved, negotiators could work from capitals to resolve the remaining differences.

Time is pressing. U.S. and European officials say that Iran’s nuclear work has expanded close to a point that the deal’s main benefit to the West—keeping Iran months away from amassing enough nuclear fuel for a nuclear weapon—would be impossible.

European diplomats in particular have warned that with the war in Ukraine becoming ever-deadlier, the diplomatic window for concluding the deal is closing.

#### American consistency in negotiations is key to Iranian support

Al-Monitor 3/17 [(Al-Monitor, news website launched in February 2012 by the Arab American entrepreneur Jamal Daniel, based in Washington, DC, United States, provides reporting and analysis from and about the Middle East) “Iran says nuclear deal within closest reach yet,” 3/17/2022] JL

"We have inched to an agreement closer than ever," Iran's Foreign Minister Hossein Amir-Abdollahian told his British counterpart Liz Truss in a phone conversation on the status of the talks over the revival of the Iran nuclear deal.

Amir-Abdollahian maintained that Iran is ready to sign a final deal if its "red lines" are minded. "What determines a good and lasting deal is America's realistic behavior by not presenting new and unfitting demands."

Seeking reentry into the nuclear deal after its 2018 withdrawal, the United States has engaged with Tehran through intermediaries in eight rounds of negotiations over a period of nearly a year.

The other parties — the UK, France, Germany, China and Russia — have by and large sought to work toward bridging the Tehran-Washington gaps. Last week, however, Russia poured sand in the gears with its last-minute demand that Ukraine-related sanctions not hamper its trade with the Islamic Republic.

Still, Moscow said on Tuesday that the United States had provided it with those guarantees, reviving hopes that the negotiators would reconvene and pick up from where they left off and take what seemed to be the final steps from the previous round.

In Iran, the Fars News Agency also quoted a German Foreign Ministry spokesperson as saying that work on the draft of the final text of the agreement has now been completed.

Over the course of the talks, the Islamic Republic has pushed for verifiable sanctions relief and robust guarantees that the deal will not be simply torn up by future US administrations. Concessions exchanged between the two sides remain the subject of speculation. There have been other non-JCPOA sticking points, including sanctions targeting Iran's powerful Islamic Revolutionary Guard Corps (IRGC).

#### The plan kills Iranian support for JCPOA – private space capabilities are a key focus for Raisi

Larson and Lewis 21 [(Jim, Senior research associate at the James Martin Center for Nonproliferation Studies at the Middlebury Institute of International Studies at Monterrey)(Jeffery, Professor at the Middlebury Institute of International Studies at Monterey and a staff member at the James Martin Center for Nonproliferation Studies) “IRANIAN PRESIDENT RAISI’S RENEWED EMPHASIS ON SPACE IS LIKELY TO CREATE NEW TENSIONS”, War on the Rocks, 12/20/2021]  
Western press reporting on the first 100 days of Iran’s new hardline president, Ebrahim Raisi, has naturally focused on his impact on Iran’s nuclear and missile programs. But in Iran, officials refer to three, not two, “power-creating” (eghtedar-saz) industries: nuclear, missiles, and space. And it is space, more so than either nuclear or missiles, where Raisi has focused his early public efforts. And it is Iran’s moves in space that will probably present President Joe Biden with the first challenge of the post-nuclear deal era.

In his first 100 days, Raisi has moved to place his imprint by reinvigorating Iran’s space program, the results of which will be visible in the coming months and years. Raisi has now set in motion a process that will result in Iran launching more satellites in the coming year, unveiling new space launch vehicles, and breaking ground on a new space launch facility in southern Iran. These developments will understandably be interpreted by Western media in the context of Iran’s missile programs and the broader security situation. But it is important to understand that Iran is also deeply committed to the economic, military, and security uses of outer space.

The Biden administration will have to choose how to respond to Iran’s growing presence in space. Will the United States try to balance its legitimate concerns about proliferation with Iran’s right to access space? Or will it treat Iran as a pariah, hoping that vocal opposition to Iran’s space launches will somehow produce a different result than the same approach did with North Korea?

Raisi Moves to Revive Iran’s Space Programs

Raisi is very publicly attempting to reinvigorate an Iranian space program that has been struggling in recent years. His new communications minister has criticized the state of the space program left by his predecessor — he called it “sorrowful” and “backwards” and sacked the head of the Iranian Space Agency. Raisi chaired a meeting of the Supreme Space Council — the country’s highest-level space policymaking organization — which had not met for more than a decade. At that meeting, Raisi committed Iran to launching more satellites into low earth orbit and reaching geostationary orbit by 2026.

Iran has two space programs: a state space program and a parallel program run by the Islamic Revolutionary Guard Corps. The state space program is under Iran’s president, who chairs the Supreme Space Council. The council, in turn, oversees the Iranian Space Agency, which contracts with entities under the communications, defense, and science ministries — and increasingly, Iran’s private sector. We use the phrase “state” space program rather than “civilian” because Iran’s military is fully integrated into this program.

#### The JCPOA returns Iran to global oil markets – increased supply and perception solve market volatility

Shokri 3/3 [(Omid, visiting research scholar at the School of Policy and Government at George Mason University and is an analyst at Gulf State Analytics (GSA) who specializes in energy security, author of US Energy Diplomacy in the Caspian Sea Basin: Changing Trends Since 2001) “Can Iranian oil stabilize a volatile market?” Atlantic Council, 3/3/2022] JL

As fuel prices skyrocket following the Russian invasion of Ukraine, another major supplier of oil and natural gas is poised to play an important role.

Before Donald Trump‘s withdrawal from the 2015 nuclear deal and the imposition of sanctions on Iran’s oil exports, Iran produced 3.8 million barrels of oil per day. Afterwards, this dropped as low as 1.9 million barrels and currently it is about 2.4 million barrels. It will take time for the country’s production to return to pre-sanction levels due to this significant drop as well as low levels of investment in recent years. However, Iran’s oil and gas condensate reserves in tankers, as well as onshore oil storage facilities, will help Iran accelerate its exports which currently total more than 1 million barrels per day.  Some sources predict that with the lifting of the sanctions, Iran could ship an additional 500,000 barrels of oil per day to international markets from April to May, and by the end of this year this figure could reach an additional 1.3 million barrels per day.

All of this assumes that current talks in Vienna on reviving the Joint Comprehensive Plan of Action (JCPOA) are successful. Without sanctions relief, any new disruptions in US supplies could boost oil prices beyond $100 a barrel to as high as $150. As reported by GasBuddy**,** the United States is already struggling to cope with its highest level of inflation in four decades. The price of gasoline has risen about $4 a gallon in many parts of the country since the Ukraine crisis began.

Iran has said that it is ready to increase its oil exports significantly if sanctions imposed by the Trump administration are lifted, but it will take time to restore relationships with customers in Europe and Asia. In February, officials from the National Iranian Oil Company (NIOC) traveled to Seoul, the capital of South Korea, to hold talks with several refineries on the prospects for resuming oil deliveries.

The International Energy Agency (IEA) has increased its forecast for demand growth in 2022, stating that global demand for oil will increase by 3.2 million barrels per day this year to a record 100.6 million barrels per day. These forecasts show that there is a market for more oil and that this is an opportunity for producers to increase oil sales and export revenues.

Iran will clearly be a major beneficiary of this increase if it can resolve its problems with the United States over a return to the JCPOA.  Iran is asking the US government to remain committed to the deal in the event of a change of administration in Washington. But this is something that President Joe Biden, or any other US leader, cannot promise. Tehran must decide whether it is worthwhile to reach an agreement that could last only three years.

After the JCPOA went into implementation in 2016, Iran increased its oil production much faster than expected. Most analysts had predicted that Iran would increase its production by 500,000 barrels per day within a year after the lifting of sanctions, but in fact Iran reached this figure in less than four months, and by the end of the year had increased production by nearly one million barrels.

After sanctions were reimposed following the US withdrawal from the JCPOA in 2018, Iran stored oil in tankers. It is estimated that Iran has stored more than 85 million barrels of oil and gas condensate at sea. These supplies can be exported rapidly if sanctions are lifted.

The elimination of important oil exporting countries from the market has major ripple effects. Other producers often raise prices and pursue their own interests. Even if Iran returns to the market, not all problems of oil and gas will be solved, but an Iranian return can have a major psychological impact in helping the oil market move towards equilibrium. There is also the possibility that Iran can play a role in replacing Russian gas exports to Europe.

#### High oil prices and volatility cause nuclear war

King 8 [(Neil King, Global Economics Editor for the WSJ), Peak Oil: A Survey of Security Concerns, Center for a New American Security, September, http://www.cnas.org/files/documents/publications/CNAS\_Working%20Paper\_PeakOil\_King\_Sept2008.pdf] TDI

Many commentators in the United States and abroad have begun to wrestle with the question of whether soaring oil prices and market volatility could spark an outright oil war between major powers—possibly ignited not by China or Russia, but by the United States. In a particularly pointed speech on the topic in May, James Russell of the Naval Postgraduate School in California addressed what he called the increasing militarization of international energy security. “Energy security is now deemed so central to ‘national security’ that threats to the former are liable to be reflexively interpreted as threats to the latter,” he told a gathering at the James A. Baker Institute for Public Policy at Houston’s Rice University.6 The possibility that a large-scale war could break out over access to dwindling energy resources, he wrote, “is one of the most alarming prospects facing the current world system.”7 Mr. Russell figures among a growing pool of analysts who worry in particular about the psychological readiness of the United States to deal rationally with a sustained oil shock. Particularly troubling is the increasing perception within Congress that the financial side of the oil markets no longer functions rationally. It has either been taken over by speculators or is being manipulated, on the supply side, by producers who are holding back on pumping more oil in order to drive up the price. A breakdown in trust for the oil markets, these analysts fear, could spur calls for government action—even military intervention. “The perceptive chasm in the United States between new [oil] market realities and their impact on the global distribution of power will one day close,” Mr. Russell said. “And when it does, look out.”8 The World at Peak: Taking the Dim View For years, skeptics scoffed at predictions that the United States would hit its own domestic oil production peak by sometime in the late 1960s. With its oil fields pumping full out, the U.S. in 1969 was providing an astonishing 25 percent of the world’s oil supply—a role no other country has ever come close to matching. U.S. production then peaked in December 1970, and has fallen steadily ever since, a shift that has dramatically altered America’s own sense of vulnerability and reordered its military priorities. During World War II, when its allies found their own oil supplies cut off by the war, the United States stepped in and made up the difference. Today it is able to meet less than a third of its own needs. A similar peak in worldwide production would have far more sweeping consequences. It would, for one, spell the end of the world’s unparalleled economic boom over the last century. It would also dramatically reorder the wobbly balance of power between nations as energy-challenged industrialized countries turn their sights on the oil-rich nations of the Middle East and Africa. In a peak oil future, the small, flattened, globalized world that has awed recent commentators would become decidedly round an d very vast again. Oceans will reemerge as a hindrance to trade, instead of the conduit they have been for so long. An energy-born jolt to the world economy would leave no corner of the globe untouched. Unable to pay their own fuel bills, the tiny Marshall Islands this summer faced the possibility of going entirely without power. That is a reality that could sweep across many of the smallest and poorest countries in Africa, Asia, and Latin America, reversing many of the tentative gains in those regions and stirring deep social unrest. Large patches of the world rely almost entirely on diesel-powered generators for what skimpy electricity they now have. Those generators are the first to run empty as prices soar. A British parliamentary report released in June on “The Impact of Peak Oil on International Development” concluded that “the deepening energy crisis has the potential to make poverty a permanent state for a growing number of people, undoing the development efforts of a generation.”9 We are seeing some of the consequences already in Pakistan – a country of huge strategic importance, with its own stash of nuclear weapons – that is now in the grips of a severe energy crisis. By crippling the country’s economy, battering the stock market, and spurring mass protests, Pakistan’s power shortages could end up giving the country’s Islamic parties the leverage they have long needed to take power. It’s not hard to imagine similar scenarios playing out in dozens of other developing countries. Deepening economic unrest will put an enormous strain on the United Nations and other international aid agencies. Anyone who has ever visited a major UN relief hub knows that their fleets of Land Rovers, jumbo jets and prop planes have a military size thirst for fuel. Aid agency budgets will come under unprecedented pressure just as the need for international aid skyrockets and donor countries themselves feel pressed for cash. A peaking of oil supplies could also hasten the impact of global climate change by dramatically driving up the use of coal for power generation in much of the world. A weakened world economy would also put in jeopardy the massively expensive projects, such as carbon capture and storage, that many experts look to for a reduction in industrial emissions. So on top of the strains caused by scarce fossil fuels, the world may also have to grapple with the destabilizing effects of more rapid desertification, dwindling fisheries, and strained food supplies. An oil-constricted world will also stir perilous frictions between haves and have-nots. The vast majority of all the world’s known oil reserves is now in the hands of national oil companies, largely in countries with corrupt and autocratic governments. Many of these governments—Iran and Venezuela top the list—are now seen as antagonists of the United States. Tightened oil supplies will substantially boost these countries’ political leverage, but that enhanced power will carry its own peril. Playing the oil card when nations are scrambling for every barrel will be a far more serious matter that at any time in the past. The European continent could also undergo a profound shift as its needs—and sources of energy—diverge all the more from those of the United States. A conservation-oriented Europe (oil demand is on the decline in almost every EU country) will look all the more askance at what it sees as the gluttonous habits of the United States. At the same time, Europe’s governments may have little choice but to shy from any political confrontations with its principal energy supplier, Russia. An energy-restricted future will greatly enhance Russia’s clout within settings like the UN Security Council but also in its dealings with both Europe and China. Abundant oil and gas have fueled Russia’s return to power over the last decade, giving it renewed standing within the UN and increasing sway over European capitals. The peak oil threat is already sending shivers through the big developing countries of China and India, whose propulsive growth (and own internal stability) requires massive doses of energy. For Beijing, running low on fuel spells economic chaos and internal strife, which in turn spawns images of insurrection and a breaking up of the continent sized country. Slumping oil supplies will automatically pit the two largest energy consumers—the United States and China—against one another in competition over supplies in South America, West Africa, the Middle East, and Central Asia. China is already taking this competition very seriously. It doesn’t require much of a leap to imagine a Cold War-style scramble between Washington and Beijing—not for like-minded allies this time but simply for reliable and tested suppliers of oil. One region that offers promise and peril in almost equal measure is the Artic, which many in the oil industry consider the last big basin of untapped hydrocarbon riches. But the Artic remains an ungoverned ocean whose legal status couldn’t be less clear, especially so long as the United States continues to remain outside the international Law of the Sea Treaty. As the ices there recede, the risk increases that a scramble for assets in the Artic could turn nasty.

## 1NC – CP

#### **CP: States except the United States should adopt a binding international agreement that bans the appropriation of outer space by private entities by establishing outer space as a global commons subject to regulatory delimiting and global liability.** The United States should submit an environmental impact assessment of establishing outer space as a global commons subject to regulatory delimiting and global liability to the UN Office of Outer Space Affairs for public comment, modification, and approval. The United States federal government should implement the approved version of the submitted proposal.

**Counterplan competes and creates the least environmentally damaging version of the aff.**

William R. **Kramer**, PhD Polisci/Futures Studies @ U of H Manoa, Currently HDR Inc. Extraterrestrial Environmental Analyst, **’14**, “Extraterrestrial environmental impact assessments A foreseeable prerequisite for wise decisions regarding outer space exploration, research and development” Space Policy 30 (2014) 215-222

To be most effective, all spacefaring nations and enterprises would voluntarily participate in assessing their extraterrestrial environmental impacts prior to undertaking actions in space. A hypothetical chronology of such a process might include: (1) Impact assessments are prepared by the action proponent and submitted to an impartial international panel or board; (2) The panel determines the assessment's sufficiency; (3) The assessment is published in an electronic or other format accessible to the public followed by a comment period; (4) The action proponent addresses comments and submits responses to the panel; (5) The panel publishes its approval or concerns; (6) The action proceeds, is **modified or is abandoned**; and (7) should the action proceed, periodic reports of the action's progress and impacts are filed for future reference in a digital format to allow broad access. The process would support the spirit of both **NEPA** to “fulfill the responsibilities of each generation as trustee of the environment for succeeding generations” (42 USC x4331(b)(1)) and Article 4(1) of the Moon Agreement's directive that “due regard shall be paid to the interests of present and future generations.” Given the likelihood that all states would appreciate the need for maintaining extraterrestrial environments and landscapes for both future research and exploitation, pressure from peer states and space industries may be sufficient to **encourage a trend of compliance**.

Such a review and approval system (perhaps similar to NEPA's relationship with the Council on Environmental Quality and its oversight function) could be attempted within the structure of the UN, such as within the **UN Office of Outer Space Affairs**. The spirit of an extraterrestrial environmental assessment program would be likely to fit within the mandate of the organization. However, amending the Outer Space Treaty or otherwise developing an administrative UN capacity to achieve the goals proposed in this paper would require a level of international commitment and cooperation that may be both lengthy and difficult to achieve. Spacefaring nations and international organizations are already invited to submit annual reports on their space activities and research to the UN Committee on the Peaceful Uses of Space, **so a precedent for reporting exists.** **Presently, however, reports tend to document positive actions and research, not details of extraterrestrial environmental impacts**.

**Extinction. EIA is key to preserve space resources, stop resource wars, and extra-terrestrial environmental damage.**

William R. **Kramer**, Hawaii Research Center for Futures Studies @ University of Hawaii, **'17**, In dreams begin responsibilities – environmental impact assessment and outer space development, ENVIRONMENTAL PRACTICE, VOL. 19, NO. 3, 128–138

**Benefits of extraterrestrial environmental impact assessment** Most publications regarding outer space resources maintain that those resources are nearly limitless, and many business models for exploitation do not imagine that resources on Mars, for example, will ever be exhausted (Lewis, 1996; Zubrin, 1996; Renstrom, 2016). Ever is a long time. While the statement may be figuratively true for some mineral ores that may last through an individual company’s project timeline, it is not necessarily true for long-term planning. **There will likely be competition for the rarest (most valuable) minerals**. Without some form of planning and regulation, they may be extracted in an inefficient and environmentally damaging manner and be **quickly depleted** (as exemplified by hydraulic mining for gold on Earth, which wasted much of the resource and resulted in extensive environmental damage) (Merchant, 1998).

How might resources be put to their highest and best use unless regulated? Both the Moon and Mars have water ice which will be **crucial for human survival**, but water also has lucrative industrial uses; it is potentially the raw material for manufacturing both rocket fuel and oxygen. **Conflicts over resource allocation** may be better addressed during an **assessment process** that seeks to balance highest and best use with discovery and first use. Who gains access to specific areas for mining becomes more problematic in that the Outer Space Treaty does not allow “ownership” of extraterrestrial territory; there is no guarantee that companies such as those listed previously will gain access to the most productive sites. The China National Space Administration is planning to place a crew on the Moon by 2024, so **competition for the best sites will be intense** (Kramer, 2015b; China Digital Times, 2012).

Space industries generally are not considering that their proposed actions may preclude alternative uses such as scientific research and human settlement. There will be a stream of not yet imagined uses that could be adversely affected or foreclosed. Many of the same conflicts between land use and human habitation experienced on Earth may emerge on extraterrestrial sites. On the Moon, for example, there are preferable sites for collecting solar energy. These “peaks of eternal light” are areas nearly always or constantly exposed to sunlight at the poles. They are very limited in both distribution and size (Elvis, Milligan, and Krolikowski, 2016). If a mining operation were to determine such areas suitable for their operations, or if mining created a constant plume of dust that would diminish the effectiveness of solar panels, how might such a situation be resolved?

Should potentially dangerous industries such as fuel manufacturing or storage be located near living areas? Would hydraulic fluid pipelines be closely monitored for leaks that may affect subsurface ice deposits mined for drinking water? How might vibrations from detonations affect unrelated structures or scientific instrumentation, such as telescopes? And how might a search for life, whether extinct or still living, be affected by human presence and our trail of bacteria and organic wastes? Humans’ biological pollution of Mars, for example, may greatly affect the results of any search for extraterrestrial life there (Kramer, 2009; McKay, 2009). Peter Doran of the Planetary Protection Subcommittee of the NASA Advisory Council offered, “The big issue with all missions to Mars is we don’t want to create a situation where we are impacting future life-detection science. Picture humans … walking around shedding microbes everywhere we go. Space suits as we know them do not take care of this problem (Mack, 2016).”

#### Ought means should

Merriam Webster, No Date – Merriam Webster’s Learner’s Dictionary, “ought”, <http://www.learnersdictionary.com/definition/ought>  
ought /ˈɑːt/ verb  
Learner's definition of OUGHT [modal verb] 1 ◊ Ought is almost always followed by to and the infinitive form of a verb. The phrase ought to has the same meaning as should and is used in the same ways, but it is less common and somewhat more formal. The negative forms ought not and oughtn't are often used without a following to. — used to indicate what is expected They ought to be here by now. You ought to be able to read this book. There ought to be a gas station on the way. 2 — used to say or suggest what should be done You ought to get some rest. That leak ought to be fixed. You ought to do your homework.

#### Should is immediate

Summers 94 (Justice – Oklahoma Supreme Court, “Kelsey v. Dollarsaver Food Warehouse of Durant”, 1994 OK 123, 11-8, http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn13)

¶4 The legal question to be resolved by the court is whether the word "should"[13](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn13) in the May 18 order connotes futurity or may be deemed a ruling in praesenti.[14](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn14) The answer to this query is not to be divined from rules of grammar;[15](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn15) it must be governed by the age-old practice culture of legal professionals and its immemorial language usage. To determine if the omission (from the critical May 18 entry) of the turgid phrase, "and the same hereby is", (1) makes it an in futuro ruling - i.e., an expression of what the judge will or would do at a later stage - or (2) constitutes an in in praesenti resolution of a disputed law issue, the trial judge's intent must be garnered from the four corners of the entire record.[16](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn16) [CONTINUES – TO FOOTNOTE] [13](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker2fn13) "*Should*" not only is used as a "present indicative" synonymous with *ought* but also is the past tense of "shall" with various shades of meaning not always easy to analyze. See 57 C.J. Shall § 9, Judgments § 121 (1932). O. JESPERSEN, GROWTH AND STRUCTURE OF THE ENGLISH LANGUAGE (1984); St. Louis & S.F.R. Co. v. Brown, 45 Okl. 143, 144 P. 1075, 1080-81 (1914). For a more detailed explanation, see the Partridge quotation infra note 15. Certain contexts mandate a construction of the term "should" as more than merely indicating preference or desirability. Brown, supra at 1080-81 (jury instructions stating that jurors "should" reduce the amount of damages in proportion to the amount of contributory negligence of the plaintiff was held to imply an *obligation* *and to be more than advisory*); Carrigan v. California Horse Racing Board, 60 Wash. App. 79, [802 P.2d 813](http://www.oscn.net/applications/oscn/deliverdocument.asp?box1=802&box2=P.2D&box3=813) (1990) (one of the Rules of Appellate Procedure requiring that a party "should devote a section of the brief to the request for the fee or expenses" was interpreted to mean that a party is under an *obligation* to include the requested segment); State v. Rack, 318 S.W.2d 211, 215 (Mo. 1958) ("should" would mean the same as "shall" or "must" when used in an instruction to the jury which tells the triers they "should disregard false testimony"). [14](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker2fn14) In praesenti means literally "at the present time." BLACK'S LAW DICTIONARY 792 (6th Ed. 1990). In legal parlance the phrase denotes that which in law is presently or immediately effective, as opposed to something that will or would become effective in the future *[in futurol*]. See Van Wyck v. Knevals, [106 U.S. 360](http://www.oscn.net/applications/oscn/deliverdocument.asp?box1=106&box2=U.S.&box3=360), 365, 1 S.Ct. 336, 337, 27 L.Ed. 201 (1882).

## 1NC – Case

### 1NC – Solvency

#### There’s zero legal basis or enforcement mechanism for space as a “commons” – circumvention is inevitable

Herzfeld et al 15 [(Dr. Henry, Research Professor of Space Policy and International Affairs at George Washington University) “How Simple Terms Mislead Us: The Pitfalls of Thinking about Outer Space as a Commons,” Secure World Foundation, 2015] JL

Furthermore, there is a logical contradiction in this discussion about outer space being treated as a commons. If a commons needs a sovereign government to grant the open territory to the use of all people, it is that government that has to oversee, regulate, and enforce that charter. Art. II of the OST prohibits national sovereignty in outer space. Thus, it is an area without a government. Even if all nations regard outer space as a “commons,” it is a very different concept from any commons that has been established in the past. There is no real legal precedent, no true means of oversight or enforcement, and therefore should not be confused with any of the many ways that concept has been applied to the territory or oceans of the Earth. Thinking about space as a global commons may be a laudatory ideal, and one that perhaps can be regarded as a very long-term goal for society. But, it is hardly a practical solution or goal for the problems we face today, witnessed by at least a thousand years of precedent in law and practice coupled with radically different technologies, exponential world population growth from 500 million people (at most) in Roman times and the Middle Ages to over 7 billion people today,38 and other radical political and social changes.

### 1NC – Debris

#### Debris creates existential deterrence by raising the bar for conflict – international norms fail

Miller 7/31 [(Gregory, Chair of the Department of Space Power at the Air Command and Staff College, Ph.D. in Political Science from The Ohio State University) “Deterrence by Debris: The Downside to Cleaning up Space,” Space Policy, 7/31/2021] JL

The danger of kinetic strikes increasing orbital debris is a common theme in the literature, but the positive deterrent effects of some debris are often overlooked. The debris resulting from destroyed satellites, or other space objects, creates a deterrent effect on actors who might otherwise violate international norms and strike at objects in space, either to test their capabilities or as an act of hostilities. This is not deterrence in the traditional sense, of one actor publicly threatening punishment in response to another actor’s unwanted actions. It is not deterrence by denial since the attacker is not damaged and may even achieve its objective. Nor is it deterrence by punishment because the debris itself does not threaten to punish the attacker’s country. But debris can increase the future costs to the aggressor, even if their initial attack succeeds, and thus it has a similar restraining effect on certain behavior. Like the automated response of the U.S. tripwire in West Germany, the threat that debris can pose to state interests acts as a form of deterrence, at least to prevent some actors from taking certain types of actions. Removing the danger of debris will weaken that restraint and thus weaken deterrence, making ASAT tests and hostile actions in space more likely.

Several factors may deter a state from launching kinetic tests or striking against an adversary’s interests in space. For one thing, if a state’s adversary has similar capabilities to destroy objects in space, deterrence would be a function of not wanting to escalate tensions. Although international law only explicitly prohibits states from placing weapons of mass destruction in orbit, international space law, like the Outer Space Treaty [30], does provide a framework for addressing the activities of one state that lead to the damage of another state’s property. Likewise, there are international norms (informal but expected rules of behavior) against the weaponization of space. But these norms seem to be in decline [31], and such norms only deter a state from engaging in certain types of behavior if the state cares about following norms, if it cares about how states perceive its behavior, or if it believes other states are willing to enforce the norms. The beauty of debris as a deterrent is that it does not rely on the enforcement of norms or the credibility of states to succeed.

#### No impact to debris – it hits stations all the time.

Cain ’15 (Fraser; 12/23/15; writer for Universe Today; “How Do Astronauts Avoid Debris”; http://www.universetoday.com/121067/how-do-astronauts-avoid-debris)

So, just how do we keep our space stations, ships and astronauts from being riddled with holes from all of the space junk in orbit around Earth? We revel in the terror grab bag of all the magical ways to get snuffed in space. Almost as much as we celebrate the giant brass backbones of the people who travel there. We’ve already talked about all the scary ways that astronauts can die in space. My personal recurring “Hail Mary full of grace, please don’t let me die in space” nightmare is orbital debris. We’re talking about a vast collection of spent rockets, dead satellites, flotsam, jetsam, lagan and derelict. It’s not a short list. NASA figures there are **21,000 bits of junk** bigger than 10 cm, **500,000 particles** between 1 and 10 cm, and more than **100 million** smaller than 1 cm. Sound familiar, humans? This is our high tech, sci fi great Pacific garbage patch. Sure, a tiny rivet or piece of scrap foil doesn’t sound very dangerous, but consider the fact that astronauts are orbiting the Earth at a velocity of about 28,000 km/h. And the Tang packets, uneaten dehydrated ice cream, and astronaut poops are also traveling at 28,000 km/h. Then think about what happens when they collide. Yikes… or yuck. Here’s the International Space Station’s solar array. See that tiny hole? Embiggen and clarinosticate! That’s a tiny puncture hole made in the array by a piece of orbital crap. The whole station is **pummeled by tiny pieces of space program junk drawer contents**. Back when the Space Shuttle was flying, NASA had to **constantly replace their windows because of the damage they were experiencing** from the orbital equivalent of Dennis the Menace hurling paint chips, fingernail clippings, and frozen scabs.

#### Either the global commons includes removal of existing debris – that’s extra-topical – it justifies infinite planks that go beyond “appropriation is unjust,” like demilitarizing or nationalizing space, which explodes limits and circumvents neg ground – OR status quo debris thumps

Orwig 16 [(Jessica, MS in science and tech journalism from Texas A&M, BS in astronomy and physics from Ohio State) “Russia says a growing problem in space could be enough to spark a war,” Insider,’ January 26, 2016, https://www.businessinsider.com/russia-says-space-junk-could-spark-war-2016-1] TDI

NASA has already warned that the large amount of space junk around our planet is growing beyond our control, but now a team of Russian scientists has cited another potentially unforeseen consequence of that debris: War.

Scientists estimate that anywhere from 500,000 to 600,000 pieces of human-made space debris between 0.4 and 4 inches in size are currently orbiting the Earth and traveling at speeds over 17,000 miles per hour.

If one of those pieces smashed into a military satellite it "may provoke political or even armed conflict between space-faring nations," Vitaly Adushkin, a researcher for the Institute of Geosphere Dynamics at the Russian Academy of Sciences, reported in a paper set to be published in the peer-reviewed journal Acta Astronautica, which is sponsored by the International Academy of Astronautics.

#### No Kessler syndrome, but even a worst case is confined to low LEO with no impact

Daniel Von Fange 17, Web Application Engineer, Founder and Owner of LeanCoder, Full Stack, Polyglot Web Developer, “Kessler Syndrome is Over Hyped”, 5/21/2017, http://braino.org/essays/kessler\_syndrome\_is\_over\_hyped/

Kessler Syndrome is overhyped. A chorus of online commenters great any news of upcoming low earth orbit satellites with worry that humanity will to lose access to space. I now think they are wrong.

What is Kessler Syndrome?

Here’s the popular view on Kessler Syndrome. Every once in a while, a piece of junk in space hits a satellite. This single impact destroys the satellite, and breaks off several thousand additional pieces. These new pieces now fly around space looking for other satellites to hit, and so exponentially multiply themselves over time, like a nuclear reaction, until a sphere of man-made debris surrounds the earth, and humanity no longer has access to space nor the benefits of satellites.

It is a dark picture.

Is Kessler Syndrome likely to happen?

I had to stop everything and spend an afternoon doing back-of-the-napkin math to know how big the threat is. To estimate, we need to know where the stuff in space is, how much mass is there, and how long it would take to deorbit.

The orbital area around earth can be broken down into four regions.

Low LEO - Up to about 400km. Things that orbit here burn up in the earth’s atmosphere quickly - between a few months to two years. The space station operates at the high end of this range. It loses about a kilometer of altitude a month and if not pushed higher every few months, would soon burn up. For all practical purposes, Low LEO doesn’t matter for Kessler Syndrome. If Low LEO was ever full of space junk, we’d just wait a year and a half, and the problem would be over.

High LEO - 400km to 2000km. This where most heavy satellites and most space junk orbits. The air is thin enough here that satellites only go down slowly, and they have a much farther distance to fall. It can take 50 years for stuff here to get down. This is where Kessler Syndrome could be an issue.

Mid Orbit - GPS satellites and other navigation satellites travel here in lonely, long lives. The volume of space is so huge, and the number of satellites so few, that we don’t need to worry about Kessler here.

GEO - If you put a satellite far enough out from earth, the speed that the satellite travels around the earth will match the speed of the surface of the earth rotating under it. From the ground, the satellite will appear to hang motionless. Usually the geostationary orbit is used by big weather satellites and big TV broadcasting satellites. (This apparent motionlessness is why satellite TV dishes can be mounted pointing in a fixed direction. You can find approximate south just by looking around at the dishes in your northern hemisphere neighborhood.) For Kessler purposes, GEO orbit is roughly a ring 384,400 km around. However, all the satellites here are moving the same direction at the same speed - debris doesn’t get free velocity from the speed of the satellites. Also, it’s quite expensive to get a satellite here, and so there aren’t many, only about one satellite per 1000km of the ring. Kessler is not a problem here.

How bad could Kessler Syndrome in High LEO be?

Let’s imagine a worst case scenario.

An evil alien intelligence chops up everything in High LEO, turning it into 1cm cubes of death orbiting at 1000km, spread as evenly across the surface of this sphere as orbital mechanics would allow. Is humanity cut off from space?

I’m guessing the world has launched about 10,000 tons of satellites total. For guessing purposes, I’ll assume 2,500 tons of satellites and junk currently in High LEO. If satellites are made of aluminum, with a density of 2.70 g/cm3, then that’s 839,985,870 1cm cubes. A sphere for an orbit of 1,000km has a surface area of 682,752,000 square KM. So there would be one cube of junk per .81 square KM. If a rocket traveled through that, its odds of hitting that cube are tiny - less than 1 in 10,000.

So even in the worst case, we don’t lose access to space.

Now though you can travel through the debris, you couldn’t keep a satellite alive for long in this orbit of death. Kessler Syndrome at its worst just prevents us from putting satellites in certain orbits.

In real life, there’s a lot of factors that make Kessler syndrome even less of a problem than our worst case though experiment.

* Debris would be spread over a volume of space, not a single orbital surface, making collisions orders of magnitudes less likely.
* Most impact debris will have a slower orbital velocity than either of its original pieces - this makes it deorbit much sooner.
* Any collision will create large and small objects. Small objects are much more affected by atmospheric drag and deorbit faster, even in a few months from high LEO. Larger objects can be tracked by earth based radar and avoided.
* The planned big new constellations are not in High LEO, but in Low LEO for faster communications with the earth. They aren’t an issue for Kessler.
* Most importantly, all new satellite launches since the 1990’s are required to include a plan to get rid of the satellite at the end of its useful life (usually by deorbiting)

So the realistic worst case is that insurance premiums on satellites go up a bit. Given the current trend toward much smaller, cheaper micro satellites, this wouldn’t even have a huge effect.

I’m removing Kessler Syndrome from my list of things to worry about.

1. **Time frame – Kessler effect 200 years away**

**Stubbe 17** [(Peter, PhD in law @ Johann Wolfgang Goethe University Frankfurt) “State Accountability for Space Debris: A Legal Study of Responsibility for Polluting the Space Environment and Liability for Damage Caused by Space Debris,” Koninklijke Brill Publishing, ISBN 978-90-04-31407-8, p. 27-31] TDI

The prediction of possible scenarios of the future evolution of the debris p o p ulation involves many uncertainties. Long-term forecasting means the prediction of the evolution of the future debris environment in time periods of decades or even centuries. Predictions are based on models84 that work with certain assumptions, and altering these parameters significantly influences the outcomes of the predictions. Assumptions on the future space traffic and on the initial object environment are particularly critical to the results of modeling efforts.85 A well-known pattern for the evolution of the debris population is the so-called Kessler effect’, which assumes that there is a certain collision probability among space objects because many satellites operate in similar orbital regions. These collisions create fragments, and thus additional objects in the respective orbits, which in turn enhances the risk of further collisions. Consequently, the num ber of objects and collisions increases exponentially and eventually results in the formation of a self-sustaining debris belt aroundthe Earth. While it has long been assumed that such a process of collisional cascading is likely to occur only in a very long-term perspective (meaning a time 1 n of several hundred years),87 a consensus has evolved in recent years that an uncontrolled growth of the debris population in certain altitudes could become reality much sooner.88 In fact, a recent cooperative study undertaken by various space agencies in the scope of i a d c shows that the current l e o debris population is unstable, even if current mitigation measures are applied. The study concludes:

Even with a 90% implementation of the commonly-adopted mitigation measures [...] the l e o debris population is expected to increase by an average of 30% in the next 200 years. The population growth is primarily driven by catastrophic collisions between 700 and 1000 km altitudes and such collisions are likely to occur every 5 to 9 years.89

#### Orbit alteration and autonomous avoidance solve collisions – independently, Russian ASAT tests thump debris

Kan 12/1 [(Michael, PCMag reporter since October 2017, covers a wide variety of news topics, including consumer devices, the PC industry, cybersecurity, online communities, and gaming) “Starlink Satellite Orbits Changed to Avoid Debris After Russia's Missile Test,” PC Magazine, 12/1/2021] JL

SpaceX has altered the orbits for its [Starlink](https://www.pcmag.com/how-to/what-is-starlink-spacex-satellite-internet-service-explained) satellites, likely to prevent them from colliding with debris from Russia’s anti-satellite missile test.

On Tuesday, SpaceX CEO Elon Musk mentioned the issue after NASA abruptly delayed a spacewalk on the International Space Station due to the threat of space debris. In his [tweet](https://twitter.com/elonmusk/status/1465761470147346435?s=20), Musk said: “We had to shift some Starlink satellite orbits to reduce probability of collision. Not great, but not terrible either.”

Musk didn’t explicitly blame the space debris on Russia’s anti-satellite missile test. Nevertheless, the “Not great, but not terrible” quote may be a subtle jab at the Russian government. The [same line](https://www.youtube.com/watch?v=Mg5HOnq7zD0) is used in the HBO series *Chernobyl*, which dramatizes the 1986 nuclear plant disaster in the Soviet Union. (In the show, a nuclear plant worker utters the line “Not great, but not terrible,” when in reality the conditions at the facility are catastrophic.)

Last month, the US was quick to [condemn](https://www.pcmag.com/news/report-russian-anti-satellite-weapons-test-causes-dangerous-space-debris) Russia’s anti-satellite missile test, which involved the Kremlin sending up a missile to destroy one of its own defunct satellites. The ensuing impact caused hundreds of thousands of pieces of debris to spill out into orbit, according to the US.

Because space debris can travel up to 17,500 miles per hour, even a small artifact can cause serious damage if strikes a spacecraft or an astronaut. "Russia's dangerous and irresponsible behavior jeopardizes the long-term sustainability of outer space,” the US State Department said at the time.

However, Russia [claims](https://tass.com/science/1362125) the resulting debris poses no danger to any space activity. The Kremlin also points out other countries have embarked on their own anti-satellite missile tests too.

To avoid space debris, SpaceX has equipped each Starlink satellite with an “autonomous collision avoidance” system. The same satellites will eventually descend and burn up in Earth’s atmosphere within one to five years if the propulsion system on board ever fails.

#### Use or lose is wrong – It’d be irrational AND never be contemplated by any state.

Kroenig 18 Matthew Kroenig, Associate Professor in the Department of Government and the Edmund A. Walsh School of Foreign Service at Georgetown, The Logic of American Nuclear Strategy: Why Strategic Superiority Matters, Oxford UPress, pp. 137-142

The second, and more common, argument as to why nuclear superiority might be destabilizing is because the state in the position of nuclear inferiority (in this case, America’s adversaries) may feel “use ’em or lose ’em” (UELE) pressures, but this argument also withers under interrogation.26

According to strategic stability theorists, a US nuclear advantage increases the danger of nuclear war because the inferior opponent may fear that its nuclear arsenal is vulnerable to a first strike. Rather, than wait for the adversary (in this case the United States) to move first and wipe out, or seriously blunt, its strategic forces, the argument goes, the inferior state may decide to intentionally launch a nuclear war early in a crisis in order to avoid suffering a disarming first strike. This is the logic most often invoked by strategic stability theorists when they claim that US nuclear advantages are destabilizing. This is also the precise problem identified and inspired by Wohlstetter’s basing studies.

Use ’em or lose ’em enjoys a certain superficial plausibility, but, upon closer inspection, there are two fundamental reasons why the logic simply does not hold up. First, it ignores the fact that the superior state retains a healthy ability to retaliate. So, even if the inferior state is worried about having its nuclear weapons eliminated in a first strike, the decision to launch its nuclear weapons first as a coping mechanism would be a decision to intentionally launch a nuclear war against a state with at least a secure, second-strike capability. This means that even if the inferior state launches its nuclear weapons first, it will be virtually guaranteed to suffer devastating nuclear retaliation. Moreover, given that it is in a situation of extreme inferiority (so extreme that it might even be vulnerable to a preemptive nuclear strike), this would mean intentionally launching a devastating nuclear war that will likely turn out much worse for itself then for its opponent. It would simply be irrational for a state to intentionally launch a nuclear war against a state with an assured retaliatory capability.

Let us consider a concrete example. The United States maintains nuclear superiority over China, as we have seen in previous chapters. Strategic stability theorists want us to believe that if the United States takes additional steps to further enhance its superiority, then China would face even greater temptations to launch a nuclear first strike against the US homeland in the event of a serious crisis. In other words, strategic stability theorists hold that China would be so worried about losing a devastating nuclear war against United States that it would intentionally choose to start a devastating nuclear war against the United States. The argument does not make sense.

1. **No space war – insurmountable barriers and everyone has an interest in keeping space peaceful**

**Dobos 19** [(Bohumil Doboš, scholar at the Institute of Political Studies, Faculty of Social Sciences, Charles University in Prague, Czech Republic, and a coordinator of the Geopolitical Studies Research Centre) “Geopolitics of the Outer Space, Chapter 3: Outer Space as a Military-Diplomatic Field,” Pgs. 48-49] TDI

Despite the theorized potential for the achievement of the terrestrial dominance throughout the utilization of the ultimate high ground and the ease of destruction of space-based assets by the potential space weaponry, the utilization of space weapons is with current technology and no effective means to protect them far from fulfilling this potential (Steinberg 2012, p. 255). In current global international political and technological setting, the utility of space weapons is very limited, even if we accept that the ultimate high ground presents the potential to get a decisive tangible military advantage (which is unclear). This stands among the reasons for the lack of their utilization so far. Last but not the least, it must be pointed out that the states also develop passive defense systems designed to protect the satellites on orbit or critical capabilities they provide. These further decrease the utility of space weapons. These systems include larger maneuvering capacities, launching of decoys, preparation of spare satellites that are ready for launch in case of ASAT attack on its twin on orbit, or attempts to decrease the visibility of satellites using paint or materials less visible from radars (Moltz 2014, p. 31). Finally, we must look at the main obstacles of connection of the outer space and warfare. The first set of barriers is comprised of physical obstructions. As has been presented in the previous chapter, the outer space is very challenging domain to operate in. Environmental factors still present the largest threat to any space military capabilities if compared to any man-made threats (Rendleman 2013, p. 79). A following issue that hinders military operations in the outer space is the predictability of orbital movement. If the reconnaissance satellite's orbit is known, the terrestrial actor might attempt to hide some critical capabilities-an option that is countered by new surveillance techniques (spectrometers, etc.) (Norris 2010, p. 196)-but the hide-and-seek game is on. This same principle is, however, in place for any other space asset-any nation with basic tracking capabilities may quickly detect whether the military asset or weapon is located above its territory or on the other side of the planet and thus mitigate the possible strategic impact of space weapons not aiming at mass destruction. Another possibility is to attempt to destroy the weapon in orbit. Given the level of development for the ASAT technology, it seems that they will prevail over any possible weapon system for the time to come. Next issue, directly connected to the first one, is the utilization of weak physical protection of space objects that need to be as light as possible to reach the orbit and to be able to withstand harsh conditions of the domain. This means that their protection against ASAT weapons is very limited, and, whereas some avoidance techniques are being discussed, they are of limited use in case of ASAT attack. We can thus add to the issue of predictability also the issue of easy destructibility

of space weapons and other military hardware (Dolman 2005, p. 40; Anantatmula 2013, p. 137; Steinberg 2012, p. 255). Even if the high ground was effectively achieved and other nations could not attack the space assets directly, there is still a need for communication with those assets from Earth. There are also ground facilities that support and control such weapons located on the surface. Electromagnetic communication with satellites might be jammed or hacked and the ground facilities infiltrated or destroyed thus rendering the possible space weapons useless (Klein 2006, p. 105; Rendleman 2013, p. 81). This issue might be overcome by the establishment of a base controlling these assets outside the Earth-on Moon or lunar orbit, at lunar L-points, etc.-but this perspective remains, for now, unrealistic. Furthermore, no contemporary actor will risk full space weaponization in the face of possible competition and the possibility of rendering the outer space useless. No actor is dominant enough to prevent others to challenge any possible attempts to dominate the domain by military means. To quote 2016 Stratfor analysis, "(a) war in space would be devastating to all, and preventing it, rather than finding ways to fight it, will likely remain the goal" (Larnrani 20 16). This stands true unless some space actor finds a utility in disrupting the arena for others.

### 1NC – Corporations

#### They don’t solve – 1AC Wehlrhof is about terrestrial capitalist exploitation, which still exists, and they haven’t made a sustainability argument – value to life is repugnant – they’re not the arbiters of whether infinite people’s lives are worth living

#### Growth is sustainable and improves life – flips their ethics argument

Hausfather 4/6 [(Zeke, climate scientist and energy systems analyst whose research focuses on observational temperature records, climate models, and mitigation technologies, PhD in climate science from the University of California, Berkeley, former research scientist with Berkeley Earth, senior climate analyst at Project Drawdown, and US analyst for Carbon Brief) “Absolute Decoupling of Economic Growth and Emissions in 32 Countries,” Breakthrough Institute, 4/6/2021] JL

The past 30 years have seen immense progress in improving the quality of life for much of humanity. Extreme poverty — the number of people living on less than $1.90 per day — has fallen by nearly two-thirds, from 1.9 billion to around 650 million. Life expectancy has risen in most of the world, along with literacy and access to education, while infant mortality has fallen. Despite perceptions to the contrary, the average person born today is likely to have access to more opportunities and have a better quality of life than at any other point in human history. Much of this increase in human wellbeing has been propelled by rapid economic growth driven largely by state-led industrial policy, particularly in poor-to-middle income countries.

However, this growth has come at a cost: between 1990 and 2019, global emissions of CO2 increased by 56%. Historically, economic growth has been closely linked to increased energy consumption — and increased CO2 emissions in particular — leading some to argue that a more prosperous world is one that necessarily has more impacts on our natural environment and climate. There is a lively academic debate about our ability to “absolutely decouple” emissions and growth — that is, the extent to which the adoption of clean energy technology can allow emissions to decline while economic growth continues.

Over the past 15 years, however, something has begun to change. Rather than a 21st century dominated by coal that energy modelers foresaw, global coal use peaked in 2013 and is now in structural decline. We have succeeded in making clean energy cheap, with solar power and battery storage costs falling 10-fold since 2009. The world produced more electricity from clean energy — solar, wind, hydro, and nuclear — than from coal over the past two years. And, according to some major oil companies, peak oil is upon us — not because we have run out of cheap oil to produce, but because demand is falling and companies expect further decline as consumers increasingly shift to electric vehicles.

The world has long been experiencing a relative decoupling between economic growth and CO2 emissions, with the emissions per unit of GDP falling for the past 60 years. This is the case even in countries like India and China that have been undergoing rapid economic growth. But relative decoupling alone is inadequate in a world where global CO2emissions need to peak and decline in the next decade to give us any chance at limiting warming to well below 2℃, in line with Paris Agreement targets.

Thankfully, there is increasing evidence that the world is on track to absolutely decouple CO2 emissions and economic growth — with global CO2 emissions potentially having peaked in 2019 and unlikely to increase substantially in the coming decade. While an emissions peak is just the first and easiest step towards eventually reaching the net-zero emissions required to stop the world from continuing to warm, it demonstrates that linkages between emissions and economic activity are not an immutable law, but rather simply a result of our current means of energy production.

In recent years we have seen more and more examples of absolute decoupling — economic growth accompanied by falling CO2 emissions. Since 2005, 32 countries with a population of at least one million people have absolutely decoupled emissions from economic growth, both for terrestrial emissions (those within national borders) and consumption emissions (emissions embodied in the goods consumed in a country). This includes the United States, Japan, Mexico, Germany, United Kingdom, France, Spain, Poland, Romania, Netherlands, Belgium, Portugal, Sweden, Hungary, Belarus, Austria, Bulgaria, El Salvador, Singapore, Denmark, Finland, Slovakia, Norway, Ireland, New Zealand, Croatia, Jamaica, Lithuania, Slovenia, Latvia, Estonia, and Cyprus. Figure 1, below, shows the declines in territorial emissions (blue) and increases in GDP (red).  
To qualify as having experienced absolute decoupling, we require countries included in this analysis to pass four separate filters: a population of at least one million (to focus the analysis on more representative cases), declining territorial emissions over the 2005-2019 period (based on a linear regression), declining consumption emissions, and increasing real GDP (on a purchasing power parity basis, using constant 2017 international $USD). We chose not to include 2020 in this analysis because it is not particularly representative of longer-term trends, and consumption and territorial emissions estimates are not yet available for many countries.

There is a wide range of rates of economic growth between 2005-2019 among countries experiencing absolute decoupling. Somewhat counterintuitively, there is no significant relationship between the rate of economic growth and the magnitude of emissions reductions within the group. While it is unlikely that there is not at least some linkage between the two factors, there are plenty of examples of countries (e.g., Singapore, Romania, and Ireland) experiencing both extremely rapid economic growth and large reductions in CO2 emissions.

One of the primary criticisms of some prior analyses of absolute decoupling is that they ignore leakage. Specifically, the offshoring of manufacturing from high-income countries over the past three decades to countries like China has led to “illusory” drops in emissions, where the emissions associated with high-income country consumption are simply shipped overseas and no longer show up in territorial emissions accounting. There is some truth in this critique, as there was a large increase in emissions embodied in imports from developing countries between 1990 and 2005. After 2005, however, structural changes in China and a growing domestic market led to a reversal of these trends; the amount of emissions “exported” from developed countries to developing countries has actually declined over the past 15 years.

This means that, for many countries, both territorial emissions and consumption emissions (which include any emissions “exported” to other countries) have jointly declined. In fact, on average, consumption emissions have been declining slightly faster than territorial emissions since 2005 in the 32 countries we identify as experiencing absolute decoupling. Figure 2, below, shows the change in consumption emissions (teal) and GDP (red) between 2005 and 2019.  
There is a pretty wide variation in the extent to which these countries have reduced their territorial and consumption emissions since 2005. Some countries — such as the UK, Denmark, Finland, and Singapore – have seen territorial emissions fall faster than consumption emissions, while the US, Japan, Germany, and Spain (among others) have seen consumption emissions fall faster. Figure 3 shows reductions in consumption and territorial emissions for each country, with the size of the dot representing the size of the population in 2019.  
Absolute decoupling is possible. There is no physical law requiring economic growth — and broader increases in human wellbeing — to necessarily be linked to CO2 emissions. All of the services that we rely on today that emit fossil fuels — electricity, transportation, heating, food — can in principle be replaced by near-zero carbon alternatives, though these are more mature in some sectors (electricity, transportation, buildings) than in others (industrial processes, agriculture).

This is not to say that infinite economic growth is desirable (or even possible), particularly given that the global population is expected to start to shrink by the end of the 21st century (and well before that in most currently wealthy countries). There will be some tradeoffs between economic growth and climate mitigation — particularly if the world is to meet ambitious mitigation targets. But it is possible to envision a world that is prosperous, equal, and at net-zero emissions; indeed, all of the future emissions scenarios used by the Intergovernmental Panel on Climate Change (IPCC) do just that.

#### No authoritarianism – Mars is subject to US laws, needs government support, and Musk is just blustering

Salmeri 20 [(Antonino, doctoral researcher in space law at the University of Luxembourg and co-lead of the Space Exploration Project Group) “No, Mars is not a free planet, no matter what SpaceX says,” Space News, 12/5/2020] JL

As an American company, SpaceX is obliged under U.S. law to respect these rules in order to get licenses from the U.S. government to conduct commercial launches and provide satellite services. This is mandated by Article VI of the treaty, according to which nongovernmental activities in space require the “authorization and continuing supervision of the appropriate State,” which is internationally responsible for assuring that these activities “are carried out in conformity with the provisions set forth in the present Treaty.”

As such, any attempt to declare “Mars as a free planet” and reject the authority of “Earth-based government” over Martian activities is in violation of international space law and would consequently bear no legal effect on third parties.

SpaceX’s declaration on the legal status of Mars is not without political implications. Interestingly enough, a thorough look at the first part of Starlink’s terms of service Clause 9 shows that SpaceX doesn’t seem to have problems with “Earth-based authority” regulating lunar activities:

*“For Services provided to, on or in orbit around the planet Earth or the Moon, these Terms and any disputes […] will be governed by and construed in accordance with the laws of the State of California in the United States.”*

Nevertheless, under international space law there are no grounds to distinguish between the moon and Mars; the same rules apply to “the Moon and other celestial bodies.” Assuming SpaceX knows this, it appears that the company is sending a political message to subvert the status quo and establish a separate regime for Mars.

Now, if SpaceX was merely an internet service provider, the issue would be purely theoretical with no reason for any further concern. However, SpaceX fully intends to send the first humans to Mars. As such, the company’s refusal to respect international law once its en route could put SpaceX’s passengers in real peril. These early passengers would fully depend on SpaceX for their survival en route to Mars and while on the surface, not to mention their prospects for returning to Earth. One the one hand, you have a company that controls the means to survival; on the other hand, you have a group of fragile individuals potentially stranded in an incredibly hostile environment a long, long way from home.

How could SpaceX seriously refer to principles established in “good faith” given such a massive imbalance of power? Politically speaking, declaring Mars a “free planet” would condemn its first inhabitants to the indisputable will of a private corporation — a dangerous situation threatening the fundamental rights of any human traveling with SpaceX.

Truth to be told, any attempt to escape international law on Mars may actually turn out to be strategically counterproductive. First, as any international lawyer knows, the only support for declaring Mars a “free planet” can only come from the applicability of international law, not its denial.

Under Article I (2) of the UN Charter, any independent community of humans enjoys the right to self-determination. If and when SpaceX’s vision of a million people living on Mars becomes a reality, there is no doubt that this community would be entitled to political independence and self-regulation. However, this outcome can neither be imposed in advance nor accomplished against international law. Rather, it can only develop from the natural evolution of the circumstances, under the safeguards of the rule of law.

In the early stages, any Martian settlement will have to rely on Earth’s supplies, technologies, personnel and overall logistical support. Conversely, this dependence will also imply the legitimate exercise of Earth-based authority in order to protect the settlement from degenerating into violence and Wild West types of behaviors.

Later, when the settlement has developed an autonomous structure and a balanced division of powers, then independence and self-regulation would naturally follow — but not a minute before the conditions for protecting fundamental rights are established.

Finally, another reason why SpaceX’s declaration may become counterproductive can be identified by looking at the company’s core business: launching spacecraft for a government-heavy customer base. Openly refusing governmental authority while still depending on governmental contracts is not exactly a smart move; it undermines the credibility of SpaceX as a reliable partner and advantages its competitors.

If a government had to choose between an expensive service from a company pledging allegiance to the rule of law and a cheap one from an enterprise trying to impose “self-governing principles established in good faith,” there is little doubt which one will be awarded a contract. Actually, with such terms of service, SpaceX would not even be authorized to launch its Starships toward Mars in the first place.

#### Colonization is impossible – can’t terraform.

Sutter, 21

[Paul, astrophysicist @ SUNY Stony Brook and the Flatiron Institute: "Could we really terraform Mars?," Published by Space, 7-6-21. https://www.space.com/can-we-really-terraform-mars]//AD

Almost every sci-fi story begins (and sometimes ends) with the terraforming of Mars to turn it into a more hospitable world.

But with its frigid temperatures, remoteness from the sun and general dustiness, changing Mars to be more Earth-like is more challenging than it seems (and it already seems pretty tough).

A dead world

The thing is, Mars used to be cool. And by cool, I mean warm. Billions of years ago, Mars had a thick, carbon-rich atmosphere, lakes and oceans of liquid water, and probably even white fluffy clouds. And this was at a time when our sun was smaller and weaker, but occasionally much more violent than it is today — in other words, our solar system is a much more favorable place for life now than it was 3 billion years ago, and yet Mars is red and dead.

Sadly, Mars was doomed from the start. It's smaller than Earth, which means it cooled off much faster. The core of our planet is still molten, and that spinning blob of iron-rich goo in the center of Earth powers our strong magnetic field. The magnetic field is a literal force field, capable of stopping and deflecting the solar wind, which is a never-ending stream of high-energy particles blasting out of the sun.

When Mars cooled off, its core solidified and its magnetic force field shut off, exposing its atmosphere to the ravages of the solar wind. Over the course of 100 million years or so, the solar wind stripped away the Martian atmosphere. When the air pressure dropped to near-vacuum, the oceans on the surface boiled away and the planet dried up.

It's so tantalizing: Mars was once Earth-like, and so is there any way to bring it back to its former glory?

Polar opposites

Thankfully (or unfortunately, depending on your point of view), we humans have plenty of experience in warming up planets. Inadvertently, through our centuries of carbon emissions, we've raised the surface temperature of Earth through a simple greenhouse mechanism. We pump out a lot of carbon dioxide, which is really good at letting sunlight in and preventing thermal radiation from escaping, so it acts like a giant invisible blanket over Earth.

The increased heat encourages moisture to leave the oceans and play around as a vapor in the atmosphere, which adds its own blanketing layer, adding to the increase in temperature, which evaporates more water, which warms the planet more, and before you know if prime beachfront property is now better suited as an underwater submarine base.

But if it works on Earth, maybe it could work on Mars. We can't access the OG Martian atmosphere, because it's completely lost to space, but Mars does have enormous deposits of water ice and frozen carbon dioxide in its polar caps, and some more laced just underneath the surface across the planet.

If we could somehow warm the caps, that might release enough carbon into the atmosphere to kick-start a greenhouse warming trend. All we would need to do is kick back, watch and wait for a few centuries for physics to do its thing and turn Mars into a much less nasty place.

Unfortunately, that simple idea probably isn't going to work.

Radical ideas

The first issue is developing the technology to warm the caps. Proposals have ranged from sprinkling dust all across the poles (to make them reflect less light and warm them up) to building a giant space mirror to put some high-beam action on the poles. But any ideas require radical leaps in technology, and a manufacturing presence in space far beyond what we are currently capable of (in the case of the space mirror, we would need to mine about 200,000 tons of aluminum in space, whereas we are currently capable of mining … well, zero tons of aluminum in space).

And then there's the unfortunate realization that there isn't nearly enough CO2 locked up in Mars to trigger a decent warming trend. Currently Mars has less than 1% of the air pressure on Earth at sea level. If you could evaporate every molecule of CO2 and H2O on Mars and get it into the atmosphere, the Red Planet would have … 2% of the air pressure on Earth. You would need twice as much atmosphere to prevent the sweat and oils on your skin from boiling, and 10 times that much to not need a pressure suit.

Let's not even talk about the lack of oxygen.

To counter this lack of easily accessible greenhouse gases, there are some radical proposals. Maybe we could have factories devoted to pumping out chlorofluorocarbons, which are a really nasty greenhouse gas. Or maybe we could shove in some ammonia-rich comets from the outer solar system. Ammonia itself is a great greenhouse blanket, and it eventually dissociates into harmless nitrogen, which makes up the bulk of our own atmosphere.

Assuming we could overcome the technological challenges associated with those proposals, there's still one major hurdle: the lack of a magnetic field. Unless we protect Mars, every molecule that we pump (or crash) into the atmosphere is vulnerable to getting blasted away by the solar wind. Like trying to build a pyramid from desert sand, it's not going to be easy.