## 1NC

#### Interpretation – the aff must specify what type of Private Actor Appropriation they affect.

#### Appropriation is extremely vague – no legal precedent means no normal means

Pershing 19, Abigail D. "Interpreting the Outer Space Treaty's Non-Appropriation Principle: Customary International Law from 1967 to Today." Yale J. Int'l L. 44 (2019): 149. (Robina Fellow at European Court of Human Rights. European Court of Human Rights Yale Law School)//Elmer

Though the Outer Space Treaty flatly prohibits national appropriation of space,150 it leaves unanswered many questions as to what actually counts as appropriation. As far back as 1969, scholars wondered about the implications of this article.151 While it is clear that a nation may not claim ownership of the moon, other questions are not so clear. Does the prohibition extend to collecting scientific samples?152 Does creating space debris count as appropriation by occupation? While the answers to these questions are most likely no, simply because of the difficulties that would be caused otherwise, there are some questions that are more difficult to answer, and more pressing. As commercial space flight becomes more and more prevalent,153 the question of whether private entities can appropriate property in space becomes very important. Whereas once it took a nation to get into space, it will soon take only a corporation, and scholars have pondered whether these entities will be able to claim property in space.154 Though this seems allowable, since the treaty only prohibits “national appropriation,”155 allowing such appropriation would lead to an absurd result. This is because the only value that lies in recognition of a claim is the ability to have that claim enforced.156 If a nation recognized and enforced such a claim, this enforcement would constitute state action.157 It would serve to exclude members of other nations and would thus serve as a form of national appropriation, even though the nation never attempted to directly appropriate the property.158 Furthermore, the Outer Space Treaty also requires that non-governmental entities must be authorized and monitored by the entities’ home countries to operate in space.159 Since a nation cannot authorize its citizens to act in contradiction to international law, a nation would not be allowed to license a private entity to appropriate property in space.160 While this nonappropriation principle is great for allowing free access to space, thereby encouraging research and development in the field, it makes it difficult to create or police a solution to the space debris problem. A viable solution will have to work without becoming an appropriation. There is, however, very little substantive law on what actually counts as appropriation in the context of space.161 So, the best way to see what is and is not allowed is to look both at the general international law regarding appropriations and to look at the past actions of space actors to see what has been allowed (or at least tolerated) and what has been prohibited or rejected.

#### Violation: they don’t

#### The net benefit is shiftiness – vague plan wording wrecks Neg Ground since it’s impossible to know which arguments link given different types of appropriation like mining, space col, satellites, and tourism – the 1AR dodges links by saying they don’t affect particular types of appropriation, or they don’t reduce private appropriation enough to trigger the link

## 1NC

#### US wins space race now due to private competition – its key to space dominance and militarization is good – the plan nukes the US’s silver bullet against Chinese aggression

Weichert 21 – former Congressional staff member who holds a Master of Arts in Statecraft & National Security Affairs from the Institute of World Politics in Washington, D.C. He is the founder of The Weichert Report: An Online Journal of Geopolitics [Brandon, “The Future of Space Exploration Depends on the Private Sector,” 7/5/2021, https://www.nationalreview.com/2021/07/the-future-of-space-exploration-depends-on-the-private-sector/#slide-1]

As Jeff Bezos, the wealthiest man on the planet, readies to launch himself into space aboard one of his own rockets, the world is watching the birth of a new dawn in space. Previously, America relied on its government agency, NASA, to propel it to the cosmos during the last space race with the Soviet Union. Today, America’s greatest hopes are with its private sector.

Jeff Bezos is not engaging in such risky behavior simply because he’s an adrenaline junky. No, he’s launching himself into orbit because his Blue Origins is in a titanic struggle with Elon Musk’s SpaceX — and Bezos’s firm is losing.

Whatever happens, the American people will benefit from the competition that is shaping up between America’s space entrepreneurs. This has always been how innovation occurs: through the dynamic, often cutthroat competition between actors in the private sector. While money is their ultimate prize, fame and fortune are also alluring temptations to make men like Musk and Bezos risk much of their wealth to change the world.

The private space race among these entrepreneurs is part of a far more important marathon between Red China and the United States. Whichever nation wins the new space race will determine the future of the earth below.

Consider this: Since winning its initial contracts to launch sensitive U.S. military satellites into orbit, SpaceX has lowered the cost of military satellite launches on taxpayers by “over a million dollars less” than what bigger defense contractors can do. Elon Musk is convinced that he can bring these costs down even more, thanks to his reusable Falcon 9 rocket.

The competition between the private space start-ups is fierce — just as the competition between Edison and Westinghouse was — but the upshot is ultimately greater innovation and lower costs for you and me. In fact, Elon Musk insists that if NASA gives SpaceX the contract for building the Human Landing System for the Artemis mission, NASA would return astronauts to the lunar surface by 2024 — four years before NASA believes it will do so. (Incidentally, 2024 is also when China anticipates having a functional base on the moon’s southern pole.)

Whereas China has an all-of-society approach to its space race with the United States, Washington has yet to fully galvanize the country in the way that John F. Kennedy rallied America to wage — and win — the space race in the Cold War. America’s private sector, therefore, is the silver bullet against China’s quest for total space dominance. If left unrestricted by meddlesome Washington bureaucrats, these companies will ensure that the United States retains its overall competitive advantage over China — and all other challengers, for that matter.

Indeed, the next four years could prove decisive in who will be victorious.

Enter the newly minted NASA director, Bill Nelson, whose station at the agency has effectively poured cold water on the private sector’s ambitious space plans. “Space is not going to be the Wild West for billionaires or anyone else looking to blast off,” Nelson admonished an inquiring reporter.

Why not?

America’s actions during its western expansion created a dynamic and advanced nation that was well-positioned to dominate the world for the next century. Should we not attempt to emulate this in order to remain dominant in the next century?

More important, this is precisely how China treats space: as a new Wild West . . . but one in which Beijing’s forces will dominate. China takes a leap-without-looking approach to space development — everything that can be done to further its grand ambition of becoming the world’s most dominant power by 2049 will be done. Meanwhile, the Biden administration wants to prevent America’s greatest strength, the free market, from helping to beat its foremost geopolitical competitor.

Nelson’s comments are fundamentally at odds with America’s spirit and animating principles. Whatever one’s opinion about Bezos or Musk, the fact is that their private space companies are inspiring greater innovation today in the space sector after years of its being left in the sclerotic hands of the U.S. government.

Sensing that the federal government’s dominance of U.S. space policy is waning, the Biden administration would rather cede the strategic high ground of space to China than let wildcatting innovators do the hard work. Today, the Federal Aviation Authority (FAA) and NASA are contriving new ways for strangling the budding private space sector, just as it is taking flight.

Risk aversion is not how one innovates. Risk is what led Americans to the moon just 66 years after the Wright brothers flew their first airplane. A willingness for risk doesn’t exist today in the federal government — which is why the feds shouldn’t be running space policy.

The U.S. government should be partnering with the new space start-ups, not shunning them. The FAA should be automatically approving SpaceX launches, not stymying them. The federal government will not win space any more than it could win the West or build the locomotive. It takes strong-willed, brilliant individuals of a rare caliber to do that. All government can do is to give the resources and support to private-sector innovators and let them make history for us.

The next decade will decide who wins space. Let it be America — and let America’s dynamic start-ups win that race, not China’s state capitalism.

#### Basing ensures win

Erwin 20 – writes about military space programs, policy, technology and the industry that supports this sector. She has covered the military, the Pentagon, Congress and the defense industry for nearly two decades as editor of NDIA’s National Defense Magazine and Pentagon correspondent for Real Clear Defense. [Sandra, Space News, “Report proposes actions to strengthen U.S. space industry and military capabilities,” 7/28/2020, https://spacenews.com/report-proposes-actions-to-strengthen-u-s-space-industry-and-military-capabilities/]

WASHINGTON — A group of more than 120 experts from the U.S. military, government space agencies and the private sector issued a report July 28 calling for investments in technology and education to ensure the United States remains the dominant space power.

The 86-page report, “State of the Space Industrial Base 2020: A Time for Action to Sustain U.S. Economic & Military Leadership in Space,” summarizes the results of a May conference led by the Defense Innovation Unit, the Air Force Research Laboratory, the U.S. Space Force and NewSpace New Mexico.

One of the narratives in the report is that the United States is at risk of being displaced by China as the world’s leader in space exploration and use of space for economic development. It suggests the U.S. could meet that challenge by increasing its support of the commercial space industry and giving the military a bigger role in protecting civilian and private sector space assets.

“China is committed and credible in its pledge to become the leading, global superpower, to include space, by 2049 marking the 100 th anniversary of the People’s Republic,” the report says. “A key component of China’s strategy is to displace the U.S. as the leading power in space and lure U.S. allies and partners away from US-led space initiatives.”

A central recommendation in the report is for the U.S. to develop a “guiding national vision for space industrialization and national space development.”

Other recommendations:

Expand role of U.S. Space Force — The report recommends a broader role for the U.S. Space Force protecting U.S. commercial and civil space capabilities, commerce and civil infrastructure in the space domain, similarly to how the U.S. Navy protects the global maritime commerce. “Clarity on this issue will drive commercial confidence for a more rapid expansion of U.S. space entrepreneurial activity,” says the report.

The Space Force also could help support America’s return to the moon by providing safety of navigation services in cislunar space. The Space Force should “articulate its role in planetary defense,” the report says. “Such a role could accelerate America’s edge in asteroid mining and in-space transportation.” In this context, the Space Force would be like the Army Corps of Engineers, helping accelerate the development of critical infrastructure.

Support domestic space industry — The industry has been financially damaged by the COVID-19 pandemic and the full extent of the crisis is still unclear. The U.S. government could encourage investments in the space industry in the form of bonds, a space commodities exchange and a government commitment to procure products and services through such an exchange.

#### Space privatization key to heg

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The global order is currently disordered. New states with completely different values from the United States are rising to prominence. Many of those states possess strategic cultures opposed to the American hegemony that has defined the post-Cold War order.

Yet, the United States still maintains greater power, wealth, and capabilities than the other states seeking to displace her. For the United States to maintain its hegemonic position, it must also maintain a dominant position in space. As has been noted before, space is the ultimate high ground from which a state can dominate all of the other strategic domains (land, air, sea, and cyberspace). The United States has enjoyed the benefits from dominating this region. Yet, states like China and Russia are moving forward with their own plans not only to deny America access to space, but also to dominate this realm. These states would then benefit from commanding the high ground of space at America’s expense.

Since at least the Nixon Administration, space has come to be viewed in a militarized light. By the end of the Cold War, space had not only been militarized, but many were searching for a way to weaponize it. Just as the drift toward militarization of space was inexorable, so too is the desire for weaponization. As rival states begin to hone their space skills, the United States should seek to obtain the first move advantage by capitalizing on its already sizable lead in space by weaponizing it first. The placing of weapons in orbit would not only increase the costs of attacking existing U.S. space architecture, but it would also lend itself to increasing global stability by raising the costs of aggressive behavior on belligerents. Whatever negatives the weaponization of space may have, nothing is more negative for America than to find itself losing its dominance of space to a state that has placed weapons in orbit first.

To be passive and allow temporary budgetary constraints to dictate longterm space strategy will damage irrevocably the U.S. position in orbit. Our enemies are aware of our shortsighted preference for space superiority over dominance and are moving toward degrading the American advantage in space.23 Space dominance will not only rebuff rising states from challenging the United States, but it will also lend stability to the world order. This proactive stance was the goal of Ronald Reagan’s Strategic Defense Initiative. It must be the goal of U.S. policymakers today.24

#### Heg is sustainable but not impervious to collapse

Hal Brands, 5-1-2021, Henry A. Kissinger Distinguished Professor At The Johns Hopkins School Of Advanced International Studies, China’s Creative Challenge—and the Threat to America, Commentary Magazine, https://www.commentarymagazine.com/articles/hal-brands/chinas-geopolitical-challenge-threat-to-america//Khan

FINALLY, CHINA is testing the patterns of history simply by taking on the United States. America is the most lethal competitor of the modern era, and it now has its sights set squarely on Beijing. Consider the historical record. In an environment populated mostly by hostile autocracies, America became a continental behemoth and the world’s strongest economy within a century. It then achieved something no other modern great power has managed—lasting, if periodically contested, hegemony in its home region. During the 20th century, America or the coalitions it supported decisively defeated a series of illiberal powers—Germany (twice), Japan, the Soviet Union—that challenged its vital interests. Along the way, Washington peacefully wrested global leadership from the United Kingdom. For over a century, the surest path to destruction has been inviting the focused hostility of the United States. America’s formidable record is the product of many factors. Vast resource endowments and uniquely advantageous geography have allowed America to project power globally without facing severe geopolitical threats near home. Similarly, the fact that America is powerful and far away leads countries all around the Eurasian periphery to ally with the United States against nearby predators that threaten their independence. The country’s relatively open economy has created great dynamism and innovation; its democratic institutions have allowed it, more often than not, to use its other advantages effectively. And the slowness with which America sometimes mobilizes to confront threats contributes to the single-mindedness with which it eventually combats them. The type of superpower America is also matters. Because America is a liberal nation, it has taken a liberal approach to global power. Since 1945, it has delivered freedom of the seas, a global reserve currency, and a massive market for foreign goods, in addition to providing security and stability in key regions. Those attributes have made other countries support the American cause, which makes American hegemony even harder to overturn. Neither China nor any other country can compete on these dimensions: Beijing lacks the ability to act as a global security provider and the willingness (as a neo-mercantilist actor) to anchor a truly open global economy. It cannot fully open its market without exposing key industries to competition and wrecking plans to reduce strategic dependence on the West. Even if China’s raw power exceeded America’s, its ability to act as a comparatively benign and popular hegemon would not. Having helped the United States defeat the Soviet Union, Chinese leaders understood the peril of provoking American hostility: This was the crux of Deng Xiaoping’s famous dictum about “hiding” capabilities and “biding” time. Chinese statecraft in the post-Tiananmen era was meant to increase Beijing’s power while delaying an American response. The building of deep commercial and financial ties with the United States not only fueled Chinese growth; it also made it more painful for America to turn toward competition. The cultivation of American elites in academia, business, and politics strengthened supporters of continued engagement. Even as Chinese statecraft become more assertive after 2008, Beijing moved incrementally—in the South China Sea and elsewhere—to avoid giving America an eye-opening “Sputnik moment.” And even as the relationship deteriorated during the Obama years, the Chinese leadership used the lure of cooperation on climate change and talk of a “new type of great-power relations” to discourage a sharper pivot in American policy. Historians will one day marvel at how well this strategy—combined with America’s post-9/11 distraction—worked. It took two decades, from the time serious observers began warning about the Chinese challenge, for the United States to adjust its statecraft decisively. During that time, China gained access to technology, capital, and markets that powered its ascent; there emerged an incredibly complex interdependence that continues to retard multilateral mobilization against Beijing. If the United States loses the competition with China, it will be—in no small part—because Beijing successfully anesthetized Washington to a growing peril. The bad news, from Xi’s vantage point, is that the game is up. Predatory economic behavior that America once tolerated has become more threatening as Beijing worked its way up global value chains. Small nibbles at the status quo eventually added up to larger, more alarming shifts. The Chinese government prematurely let the mask slip after the 2008–09 financial crisis, with more assertive diplomacy that gradually made the thesis of America’s engagement policy—that Beijing would mellow over time—impossible to defend. And by the Trump era, China had simply gotten tired of waiting and disguising its ambitions. COVID then did more than any Committee on the Present Danger could ever have done to reveal both the utterly cynical nature of the CCP regime—which sought to stymie the virus’s spread within China even as it allowed continued travel from Wuhan to the world—and the fact that this behavior could mortally imperil Americans’ well-being. China is no longer the “stealth superpower”—there is now a bipartisan consensus that America must thwart its global designs. From here onward, Beijing must forcefully wrest influence from a dangerous hegemon that is alert to a new authoritarian challenge. STRUCTURAL CONSTRAINTS don’t determine everything: History wouldn’t be very interesting if they did. The United States always had profound advantages over the Soviet Union, but it wouldn’t have won the Cold War had it not worked feverishly to shore up Western Europe in the late 1940s and maintain a military balance that made Soviet aggression seem suicidal. Strategic urgency and commitment were what ultimately allowed America to make the most of its strengths. That’s worth keeping in mind today. The fact that Chinese power and influence have grown so markedly in recent decades and that the resulting challenge has become so stark show the impact that determined, innovative strategy can have. The dilemmas that the United States confronts, in areas from 5G technology to the military balance in the Taiwan Strait, illustrate the costs of strategic lethargy. Indeed, America is fully capable of squandering its advantages if it degrades or destroys its own democracy, declines to make domestic reforms and investments to maintain its competitive edge, fails to rally the overlapping coalitions needed to resist Chinese ambitions, or delays in driving the military innovation required to shore up a sagging balance in the Western Pacific. The list of hard policy problems America must urgently solve to prevail against China is itself long and formidable. And even if Washington does prevail in that rivalry, America may absorb significant setbacks—and the international order may absorb significant damage—in the process. Yet as rough as the road ahead looks from Washington, it ought to look even rougher from Beijing. The Chinese Communist Party runs a profoundly illiberal regime that is trying to overcome centuries of liberal dominance. China is straining against a strategic geography and international system that surely seem more constraining than inviting. Chinese strategists must find a way of breaking America’s position in the Western Pacific while avoiding the potential cataclysm of major war. And Beijing is taking on a superpower that has thrashed all previous comers. Smart strategies have permitted Beijing to do remarkably well, so far, in managing these problems. But many of those strategies face an uncertain future, in part because the international complacency that allowed them to flourish has been replaced—gradually, but increasingly—with international concern. This isn’t to say that China’s ambitions are hopeless illusions. In the coming years, there will be an intense interaction between an America that is adapting its strategies to deal with a pressing threat and a China that will have to adjust its own approaches in light of that response. Even American success in this interaction could bring new dangers: If Chinese leaders perceive that their window to achieve grand geopolitical goals is closing, then the regime could become even more aggressive in seeking to revise the global order while it still can. Much thus hinges on the quality of decisions made in Washington and other capitals around the world. But the fact that so many characteristics of modern great-power politics seem to favor the United States probably gives the reigning superpower better options and more room for error than its autocratic challenger. Nothing is predetermined: Beijing may still succeed in displacing the United States as the primary power in Asia and, eventually, the world. Yet if it does, that outcome will represent a catastrophic failure of American statecraft—or an awesome triumph of Chinese strategy in overcoming the great obstacles that litter Beijing’s path to hegemony.

#### Biden will inev try to regain it – proves try or die

Tepperman 21 – a former editor in chief of Foreign Policy and the author of The Fix: How Countries Use Crises to Solve the World’s Worst Problems. (Jonathan, "Biden Was Right: America Is Back," Foreign Policy, 2-23-2021, https://foreignpolicy.com/2021/02/23/biden-was-right-america-is-back/, Accessed 11-17-2021, LASA-SC)

President Joe Biden’s declaration to the Munich Security Conference last Friday that “America is back”—lest anyone miss it, he repeated the line three times—hasn’t gone down very well in the days since. While I suspect many in the Zoom audience were quietly relieved to hear it, public responses have ranged from skeptical to hostile. At the same conference, for example, French President Emmanuel Macron insisted that France stake out greater “strategic autonomy” from the United States. His German counterpart, Angela Merkel, reminded the audience that U.S. and German interests “will not always converge.” And back in the United States, former Secretary of State Mike Pompeo said: “I don’t think the American people can afford to go back to eight more years of Barack Obama’s foreign policy.” While Pompeo’s sneering is easy to dismiss (why waste time worrying about the opinions of the worst secretary of state in U.S. history), the other comments deserve more attention. Yet they and the critiques of various pundits who have argued that the president’s pledge was both premature and hubristic also miss the key point. Biden surely didn’t mean to suggest that the United States has returned to the level of power, prestige, and importance it enjoyed in 2016. Or that it has recaptured its moral standing. He wasn’t arguing that he’d already repaired all the damage done by his predecessor; of course not. What Biden likely meant to convey—and what allies and adversaries should pay attention to—is the fact that Washington is trying again: trying to mend ties and restore cooperation with its friends. Trying to push back against authoritarian regimes and defend universal values. Trying to protect public goods like the environment. And, like it or not, trying to lead. If you have any doubt that America is back in this sense, just compare any of the five weeks Biden has been in office to any one of Donald Trump’s 208. Since taking charge, the new president has sought to wrap the country’s traditional allies in one of his trademark bear hugs: by returning to the G-7 (which Trump spurned), for example, or by reversing Trump’s withdrawal of U.S. troops from Germany. Washington has rejoined the Paris Agreement on climate change and the World Health Organization (both of which Trump dumped). Biden has extended the New START nuclear arms treaty with Russia (which Trump was about to abandon) and broadcast his intent to reenter the Iran nuclear deal, known as the Joint Comprehensive Plan of Action. He has stood up for democracy and human rights by imposing sanctions on the junta in Myanmar and preparing new measures to punish President Vladimir Putin and his cronies in Russia, as well as by ending U.S. support for the disastrous Saudi-led war in Yemen. And he has pledged up to $4 billion to COVAX, the global initiative to help vaccinate the developing world against COVID-19. That would be an impressive list of accomplishments for any monthlong period. When you remember that the Biden administration has pulled all this off while seriously understaffed (most of its key appointments have yet to be confirmed) and while the country is still suffering the aftershocks of last month’s violent insurrection (tremors that included Trump’s second impeachment), it looks even more remarkable—and makes recent criticisms of Biden’s foreign-policy record seem a little unfair. That’s especially so when you also factor in the administration’s overwhelming domestic to-do list, which includes small matters like passing a $1.9 trillion recovery package and speeding up the country’s COVID-19 vaccination Indeed, the fact that the administration is spending any time at all on foreign policy right now—let alone looking beyond immediate crises to longer-term priorities like restoring the country’s international standing—is yet more evidence for Biden’s claim that America is back. Such moves also firmly align the administration with a long-standing national tradition. One of the most unusual and distinguishing features of the country’s domestic and foreign-policy record isn’t the absence of mistakes—the United States makes as many or more of these than other countries. It’s the United States’ record of acting to repair the damage once it has been done and the moment has passed. The country has developed a remarkable mechanism for self-correction, a history of ensuring that, after every one of its disastrous bouts of inattention (think the interwar period) or destructive Jacksonian rage (think the aftermath of 9/11), the national pendulum swings back to the middle. Every Richard Nixon gets followed by a Gerald Ford or Jimmy Carter, every George W. Bush by a Barack Obama. Some mistakes take a lot longer to address than others. But the country often gets there in the end. American exceptionalism has become a dirty word in recent years, but this is that exceptionalism in its best form. Of course, the United States still has an enormous way to go before it can claim to be “back” to the kind of prominence it enjoyed before Trump’s election. But the fact that it’s trying so hard to get there shows it is already back in a critical sense. And that’s something we should all be grateful for.

#### China long-term can’t become a hegemon because of slow growth and international constraints- BUT short-term lunges for power trigger immediate war . ONLY deterrence solves

Beckley and Brands 12-17 -- Associate Professor of Political Science at Tufts University and Jeane Kirkpatrick Visiting Scholar at the American Enterprise Institute

[Michael, and Hal Brands, Henry A. Kissinger Distinguished Professor of Global Affairs at the Johns Hopkins University School of Advanced International Studies and a Resident Scholar at the American Enterprise Institute, "Competition With China Could Be Short and Sharp," Foreign Affairs, 12-17-20, https://www.foreignaffairs.com/articles/united-states/2020-12-17/competition-china-could-be-short-and-sharp, accessed 12-20-20]

In foreign policy circles, it has become conventional wisdom that the United States and China are running a “superpower marathon” that may last a century. But the sharpest phase of that competition will be a decadelong sprint. The Sino-American contest for supremacy won’t be settled anytime soon. Yet history and China’s recent trajectory suggest that the moment of maximum danger is just a few years away. China has entered a particularly perilous period as a rising power: it has gained the capability to disrupt the existing order, but its window to act may be narrowing. The balance of power has been shifting in Beijing’s favor in important areas of U.S.-Chinese competition, such as the Taiwan Strait and the struggle over global telecommunications networks. Yet China is also facing a pronounced economic slowdown and a growing international backlash. The good news for the United States is that over the long term, competition with China may prove more manageable than many pessimists believe. Americans may one day look back on China the way they now view the Soviet Union—as a dangerous rival whose evident strengths concealed stagnation and vulnerability. The bad news is that over the next five to ten years, the pace of Sino-American rivalry will be torrid, and the prospect of war frighteningly real, as Beijing becomes tempted to lunge for geopolitical gain. The United States still needs a long-term strategy for protracted competition. But first it needs a near-term strategy for navigating the danger zone. RED FLAGS Much debate on Washington’s China policy focuses on the dangers China will pose as a peer competitor later this century. Yet the United States actually faces a more pressing and volatile threat: an already powerful but insecure China beset by slowing growth and intensifying hostility abroad. China has the money and muscle to challenge the United States in key areas. Thanks to decades of rapid growth, China boasts the world’s largest economy (measured by purchasing power parity), trade surplus, financial reserves, navy by number of ships, and conventional missile force. Chinese investments span the globe, and Beijing is pushing for primacy in such strategic technologies as 5G telecommunications and artificial intelligence (AI). Add in four years of disarray in the U.S.-led world order under President Donald Trump, and it is hardly surprising that Beijing is testing the status quo from the South China Sea to the border with India. Yet China’s window of opportunity may be closing fast. Since 2007, China’s annual economic growth rate has dropped by more than half, and productivity has declined by ten percent. Meanwhile, debt has ballooned eightfold and is on pace to total 335 percent of GDP by the end of 2020. China has little hope of reversing these trends, because it will lose 200 million working-age adults and gain 300 million senior citizens over the next 30 years. And as economic growth falls, the dangers of social and political unrest rise. Chinese leaders know this: President Xi Jinping has given multiple speeches warning about the possibility of a Soviet-style collapse, and Chinese elites are moving their money and children abroad. Meanwhile, global anti-China sentiment has soared to levels not seen since the 1989 Tiananmen Square massacre. Nearly a dozen countries have suspended or canceled participation in Belt and Road Initiative (BRI) projects. Another 16 countries, including eight of the world’s ten largest economies, have banned or severely restricted use of Huawei products in their 5G networks. India has been turning hard against China since a clash on their shared border killed 20 soldiers in June. Japan has ramped up military spending, turned amphibious ships into aircraft carriers, and strung missile launchers along the Ryukyu Islands near Taiwan. The European Union has labeled China a “systemic rival”; and the United Kingdom, France, and Germany are sending naval patrols to counter Beijing’s expansion in the South China Sea and Indian Ocean. On multiple fronts, China is facing the blowback created by its own behavior. HISTORY RHYMES Many people assume that rising revisionists pose the greatest danger to international security. But historically, the most desperate dashes have come from powers that had been on the ascent but grew worried that their time was running short. World War I is a classic example. Germany’s rising power formed the strategic backdrop to that conflict, but German fears of decline triggered the ultimate decision for war. Russia’s growing military power and mobility menaced Germany’s eastern flank; new French conscription laws were changing the balance in the West; and a tightening Franco-Russian-British entente was leaving Germany surrounded. German leaders ran such catastrophic risks in the July crisis for fear that geopolitical greatness would elude them if they did not act quickly. The same logic explains imperial Japan’s fatal gamble in 1941, after the U.S. oil embargo and naval rearmament presented Tokyo with a closing window of opportunity to dominate the Asia-Pacific. In the 1970s, Soviet global expansion peaked as Moscow’s military buildup matured and the slowing of the Soviet economy created an impetus to lock in geopolitical gains. Given that China is currently facing both a grim economic forecast and a tightening strategic encirclement, the next few years may prove particularly turbulent. The United States obviously needs a long-term strategy to compete with China. But it also needs to blunt a potential surge of Chinese aggression and expansion this decade.

#### Prefer our analytic- it’s based in actual CCP ideology NOT motivated reasoning

O’Brien, 20 -- United States National Security Adviser

[Robert C., "How China Threatens American Democracy," Foreign Affairs, 10-21-20, https://www.foreignaffairs.com/articles/china/2020-10-21/how-china-threatens-american-democracy, accessed 10-26-20]

For decades, conventional wisdom in the United States held that it was only a matter of time before China would become more liberal, first economically and then politically. We could not have been more wrong—a miscalculation that stands as the greatest failure of U.S. foreign policy since the 1930s. How did we make such a mistake? Primarily by ignoring the ideology of the Chinese Communist Party. Instead of listening to the CCP’s leaders and reading its key documents, we believed what we wanted to believe: that the Chinese ruling party is communist in name only.

Today, it would be a similarly grave mistake to assume that this ideology matters only within China. In fact, the CCP’s ideological agenda extends far beyond the country’s borders and represents a threat to the idea of democracy itself, including in the United States. Chinese President Xi Jinping’s ambitions for control are not limited to the people of China. Across the globe, the CCP aims to spread propaganda, restrict speech, and exploit personal data to malign ends. The United States, accordingly, cannot simply ignore the CCP’s ideological objectives. Washington must understand that the fight against Chinese aggression first requires recognizing it and defending ourselves against it here at home, before it is too late.

WORDS ARE BULLETS

The CCP is a self-proclaimed Marxist-Leninist organization, and Xi, as the party’s top general, sees himself as Stalin’s successor. Marxism-Leninism is a totalitarian worldview that maintains that all important aspects of life should be controlled by the state, and the CCP’s intent to dominate political thought is stated openly and pursued aggressively. For many years, the CCP’s leaders have emphasized the importance of “ideological security.” A 2013 Chinese policy on the “current state of ideology” held that there should be “absolutely no opportunity or outlets for incorrect thinking or viewpoints to spread.”

#### Weak American deterrence in Asia causes expansion that escalates to nuclear war – our theory of revisionism is true

Mira Rapp-Hooper 20. PhD in Political Science from Columbia. Senior fellow for Asia Security at the Council on Foreign Relations (CFR) and senior fellow at Yale Law School’s Paul Tsai China Center. “From Primacy to Openness: U.S. Strategic Objectives in Asia.” The Struggle for Power U.S.-China Relations in the 21st Century. https://assets.aspeninstitute.org/content/uploads/2020/01/TheStruggleForPower.pdf

Washington should seek to prevent China from establishing a closed sphere of influence—a bloc that would allow it to dominate part or all of Asia in a manner that displaces U.S. political, economic, or military power. An exclusive zone could leave the United States unable to access vital markets and strip it of its forward defensive position, thereby threatening U.S. prosperity and national security and, by extension, domestic freedom. This grave condition would occur if China co-opted the political, economic, or military independence of other states, preventing them from making free choices through coercion. Closure of the global commons could have similarly grievous effects.

The positive objective of U.S. strategy should therefore be an open Asia.23Openness characterizes both American strategic priorities in the region as well as the types of interactions the United States should seek to facilitate in their service. An open Asia is one in which regional states have political and economic freedom of action and are able to make independent strategic decisions without being forced into blocs or camps that could result in their hierarchical dominance. Under this concept, Asia’s commons must also remain open, essential as they are to international commerce. Openness favors sustained interstate cooperation, beneficial trade, and the free flow of information across borders. It also calls for transparent international governance, even among those states that are not themselves full-fledged democracies.

An openness-based strategy seeks to prevent shuttered economic, political, and security spheres in Asia by helping regional states preserve their flexibility and independence and doing the same in the skies and sea lanes. It rejects the notion that regional states should “choose” between the United States and China and instead incentivizes them to eschew great power dominance in favor of agency. At a time when the CCP seeks a more closed Chinese society, commons, and domestic and international information space, the United States should strive to preserve the region’s dynamism and fluidity. An openness-based strategy acknowledges that the United States will not retain strategic primacy in Asia. It also recognizes that Washington does not require unequivocal regional dominance to prevent China from establishing a hierarchy of its own.

Securing Openness

Openness in Asia will not be easily obtained. It will require the United States to focus consistently on Asia as its primary foreign policy theater, allocate substantial military resources to the region, develop a viable island chain defense strategy, improve its coordination against sub-conventional threats within U.S. agencies and with foreign partners, and invest in regional openness economically, technologically, and domestically. Despite a relatively more constrained position in Asia, the United States can secure openness, but its objective is far from guaranteed.

Regional openness requires a stron

g American military presence but does not demand military primacy. The United States and its allies must retain sufficient strength to deter China from making a bid that could result in its hierarchical dominance of any part of the region, to defend against it if it were to mount one, and to keep the global commons open.24 These defensive requirements, in turn, mean that the United States absolutely must maintain its treaty alliances and forward position in Asia. Since the early Cold War, Washington has understood the First Island Chain archipelago to be its defensive front line, but China’s anti-access/area denial (A2/AD) approach makes the direct defense of allies increasingly tenuous.25 If it lacks the ability to defend and deter on behalf of its treaty allies, the United States will struggle to maintain the regional position that will allow it to meet its minimum deterrence requirements. Washington currently lacks a strategy for First Island Chain defense. A counter-A2/AD strategy that relies on land- and sea-based missiles may be the most feasible approach but will be politically taxing to enact.26 Beyond an ally-focused defense strategy, military openness will be far easier to obtain if the United States can continue to strengthen its strategic position in Southeast Asia. It should buttress capacity-building efforts with Vietnam, Indonesia, and the Philippines; prioritize defense cooperation with India; and synchronize similar disparate efforts with Japan and Australia. Despite modest improvements, it must also increase significantly its Foreign Military Financing to the region.27

#### solves unstable nuclear alliances that cause war

Hayes 18 [Peter Hayes, Nautilus Institute, Berkeley, California, USA; Center for International Security Studies, Sydney University. Trump and the Interregnum of American Nuclear Hegemony. November 8, 2018. <https://www.tandfonline.com/doi/full/10.1080/25751654.2018.1532525>]

During a **post-hegemonic era**, **long-standing** nuclear **alliances** are likely to be **replaced** by **ad hoc nuclear coalitions**, aligning and realigning around different congeries of threat and even actual **nuclear wars**, with **much higher levels** of **uncertainty** and unpredictability **than** was the case in the **nuclear hegemonic system**.

There are a number of ways that this dynamic could play out during the interregnum, and these dynamics are likely to be inconsistent and contradictory. In some instances, the sheer **momentum** of past policy combined with bureaucratic inertia and the potency of political, military service and corporate interests, may ensure that **residual aspects** of the formerly **hegemonic postures** are adhered to even as formal nuclear alliances rupture. Even as they **reach for** the **old anchors**, these states may be forced to adjust and retrench strategically, or start to **take** their own **nuclear risks** by making **increasingly explicit nuclear threats** and deployments against nuclear-armed adversaries – as **Japan** has begun to do with reference to its “technological deterrent” since about 2012.9 This period could last for many years **until and when** **nuclear war breaks out** and leads to a post-nuclear war disorder; or a new, post-hegemonic strategic framework is established to manage and/or abolish nuclear threat.

**Under** full-blown **American nuclear hegemony**, **fewer states** had **nuclear weapons**, the **major nuclear** weapons **states** entered into **legally binding restraints** on force levels and they learned from nuclear near-misses to **promulgate rules** of the road and tacit understandings. The lines drawn during full-blown collisions involving nuclear weapons were stark and concentrated the minds of leaders greatly. In a nuclear duel, it was clear that only one of two sides could fire first; the only question was which one. Now, with nine nuclear weapons states, and conflicts conceivably involving three, four or more of them, no matter how much leaders concentrate, it will not be evident who is aiming at who, who may fire first, and during a volley, who fired first and even who hit whom.

In a highly proliferated world, nuclear-armed states may feel driven to obtain larger nuclear forces able to deter multiple adversaries at the same time, sufficient to conduct not only a few nuclear attacks but configured to fight **more than one** protracted **nuclear war** **at a time**, especially in nuclear states torn apart by civil war and post-nuclear attack reconstruction. The first time nuclear weapons are used since 1945 will be shocking, the second time, less so, the third time, the **new normal**.

#### And, space dominance key to global peace – nuclear and conventional deterrence is collapsing, which will provoke civilization-ending revisionist aggression from Russia and China

Dr. Robert Zubrin 19, Masters in Aeronautics and Astronautics and Ph.D. in Nuclear Engineering from the University of Washington, President of Pioneer Energy, Founder and President of the Mars Society, Senior Fellow with the Center for Security Policy, The Case for Space: How the Revolution in Spaceflight Opens Up a Future of Limitless Possibility, p. Google Books

The United States needs a new national security policy. For the first time in more than 60 years, we face the real possibility of a large-scale conventional war, and we are woefully unprepared.

Eastern and Central Europe is now so weakly defended as to virtually invite invasion. The United States is not about to go to nuclear war to defend any foreign country. So deterrence is dead, and, with the German army cut from 12 divisions to three, the British gone from the continent, and American forces down to a 30,000-troop tankless remnant, the only serious and committed ground force that stands between Russia and the Rhine is the Polish army. It’s not enough. Meanwhile, in Asia, the powerful growth of the Chinese economy promises that nation eventual overwhelming numerical force superiority in the region.

How can we restore the balance, creating a sufficiently powerful conventional force to deter aggression? It won’t be by matching potential adversaries tank for tank, division for division, replacement for replacement. Rather, the United States must seek to totally outgun them by obtaining a radical technological advantage. This can be done by achieving space supremacy.

To grasp the importance of space power, some historical perspective is required. Wars are fought for control of territory. Yet for thousands of years, victory on land has frequently been determined by dominance at sea. In the 20th century, victory on both land and sea almost invariably went to the power that controlled the air. In the 21st century, victory on land, sea or in the air will go to the power that controls space.

The critical military importance of space has been obscured by the fact that in the period since the United States has had space assets, all of our wars have been fought against minor powers that we could have defeated without them. Desert Storm has been called the first space war, because the allied forces made extensive use of GPS navigation satellites. However, if they had no such technology at their disposal, the end result would have been just the same. This has given some the impression that space forces are just a frill to real military power — a useful and convenient frill perhaps, but a frill nevertheless.

But consider how history might have changed had the Axis of World War II possessed reconnaissance satellites — merely one of many of today’s space-based assets — without the Allies having a matching capability. In that case, the Battle of the Atlantic would have gone to the U-boats, as they would have had infallible intelligence on the location of every convoy. Cut off from oil and other supplies, Britain would have fallen. On the Eastern front, every Soviet tank concentration would have been spotted in advance and wiped out by German air power, as would any surviving British ships or tanks in the Mediterranean and North Africa. In the Pacific, the battle of Midway would have gone very much the other way, as the Japanese would not have wasted their first deadly airstrike on the unsinkable island, but sunk the American carriers instead. With these gone, the remaining cruisers and destroyers in Adm. Frank Jack Fletcher’s fleet would have lacked air cover, and every one of them would have been hunted down and sunk by unopposed and omniscient Japanese air power. With the same certain fate awaiting any American ships that dared venture forth from the West Coast, Hawaii, Australia and New Zealand would then have fallen, and eventually China and India as well. With a monopoly of just one element of space power, the Axis would have won the war.

But modern space power involves far more than just reconnaissance satellites. The use of space-based GPS can endow munitions with 100 times greater accuracy, while space-based communications provide an unmatched capability of command and control of forces. Knock out the enemy’s reconnaissance satellites and he is effectively blind. Knock out his comsats and he is deaf. Knock out his navsats and he loses his aim. In any serious future conventional conflict, even between opponents as mismatched as Japan was against the United States — or Poland (with 1,000 tanks) is currently against Russia (with 12,000) — it is space power that will prove decisive.

Not only Europe, but the defense of the entire free world hangs upon this matter. For the past 70 years, U.S. Navy carrier task forces have controlled the world’s oceans, first making and then keeping the Pax Americana, which has done so much to secure and advance the human condition over the postwar period. But should there ever be another major conflict, an adversary possessing the ability to locate and target those carriers from space would be able to wipe them out with the push of a button. For this reason, it is imperative that the United States possess space capabilities that are so robust as to not only assure our own ability to operate in and through space, but also be able to comprehensively deny it to others.

*Space superiority* means having better space assets than an opponent. Space supremacy means being able to assert a complete monopoly of such capabilities. The latter is what we must have. If the United States can gain space supremacy, then the capability of any American ally can be multiplied by orders of magnitude, and with the support of the similarly multiplied striking power of our own land- and sea-based air and missile forces be made so formidable as to render any conventional attack unthinkable. On the other hand, should we fail to do so, we will remain so vulnerable as to increasingly invite aggression by ever-more-emboldened revanchist powers.

For this reason, both Russia and China have been developing and actively testing antisatellite (ASAT) systems. Up till now, the systems they have been testing have been ground launched, designed to orbit a few times and then collide with and destroy targets below one thousand kilometers altitude. This is sufficient to take out our reconnaissance satellites but not our GPS and communications satellites, which fly at twenty thousand and thirty-six thousand kilometers respectively. However, the means to reach these are straightforward, and, given their critical importance to us, there is every reason to believe that such development is well underway.11

The Obama administration sought to dissuade adversaries from developing ASATs by setting a good example and not working on them ourselves. This approach has failed. As a consequence, many defense policy makers are now advocating that we move aggressively to develop ASATs of our own. While more hardheaded than the previous policy, such an approach remains entirely inadequate to the situation.

The United States armed forces are far more dependent upon space assets than any potential opponent. Were both sides in a conflict able to destroy the space assets of the other, we would be the overwhelming loser by the exchange.

## 1NC – Cap

#### 1] Can’t solve all of capitalism -- None of their ev is reverse causal - industrial agriculture, the defense industrial base, Amazon, Koch Industries are all examples of capitalism and colonialism - plus capitalism predates space exploration, which proves they don't control the root cause

#### 2] Financial stability is improving. Ignore fear mongering.

Tobias ADRIAN 17. Financial Counsellor and Director, Monetary and Capital Markets Department, IMF; previous Senior Vice President, Federal Reserve Bank of New York and Associate Director of the Research and Statistics Group; PhD, Economics, MIT. “Assessing Global Financial Stability.” Presentation at the London School of Economics. October 27. <http://www.imf.org/en/News/Articles/2017/10/27/sp-102717-assessing-global-financial-stability>.

There are good news: near-term financial stability risks are lower, driven by a decline in macroeconomic and emerging market risks.

As outlined in the IMF’s most recent World Economic Outlook, the upswing in global activity has gained further steam, with global growth projected to rise to 3.6 percent in 2017 and 3.7 percent in 2018—in both cases 0.1 percentage point above our previous forecasts, and well above the global growth rate of 3.2 percent in 2016. This is laying hopes for a sustained recovery and should allow for the eventual normalization of monetary policies.

The core of the global financial system is stronger. Systemically important banks and insurers continue to enhance their resilience by raising capital and liquidity, addressing legacy issues, and adapting their business models to the evolving regulatory and market environment.

In emerging markets, capital flows are rebounding, driven in part by stronger fundamentals. Portfolio inflows to emerging market economies are on track to reach $285 billion in 2017, more than twice the total over the past two years. The cost of financing is low, and their currencies and equity prices have strongly appreciated this year.

Globally, supportive monetary and financial conditions and buoyant financial markets have helped foster growth and repair balance sheets.

#### 3] Here's the math that cap’s sustainable

Hausfather 21 – a climate scientist and energy systems analyst whose research focuses on observational temperature records, climate models, and mitigation technologies. He spent 10 years working as a data scientist and entrepreneur in the cleantech sector, where he was the lead data scientist at Essess, the chief scientist at C3.ai, and the cofounder and chief scientist of Efficiency 2.0. He also worked as a research scientist with Berkeley Earth, was the senior climate analyst at Project Drawdown, and the US analyst for Carbon Brief. He has masters degrees in environmental science from Yale University and Vrije Universiteit Amsterdam and a PhD in climate science from the University of California, Berkeley. (Zeke, "Absolute Decoupling of Economic Growth and Emissions in 32 Countries," Breakthrough Institute, 4-6-2021, https://thebreakthrough.org/issues/energy/absolute-decoupling-of-economic-growth-and-emissions-in-32-countries, Accessed 4-11-2021, LASA-SC)

Chart, line chart

Description automatically generated

Emissions reductions in the US have been a result of a wide variety of factors; this includes the switch from coal generation to lower-carbon natural gas, the rapid expansion of wind and solar generation, reduced industrial energy consumption, reduced electricity use in buildings, and reductions in transportation emissions — particularly as a result of increased vehicle fuel economy and reduced miles driven per-capita. Since 2005, US territorial emissions have fallen around 15%, with consumption emissions falling around 18% (much larger reductions were seen in 2020, and some of this is expected to persist). At the same time, GDP has increased by around 29%.

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In the UK, territorial emissions have fallen by nearly 40% and consumption emissions have fallen by around 30%, while GDP has increased by 22%. Similar to the US, there are a wide variety of drivers of UK emissions reductions, though renewable energy generation, reductions in electricity use, and reductions in industrial and residential energy use are the largest contributors.

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In Germany, territorial emissions have fallen around 15%, and consumption emissions have fallen by around 20%, while GDP has increased by 24%

Chart, line chart

Description automatically generated

In France, territorial emissions have fallen by around 25%, and consumption emissions have fallen by a similar amount, while GDP has increased by 16%. It is a bit notable that France has seen larger emission reductions — as a percentage of total emissions — than Germany over this period, likely due in part to Germany’s choice to prioritize shutting down nuclear power plants over coal ones.

#### Growth is sustainable because of the shift to a knowledge economy---AND making it faster is key to outrun entropy---extinction

Gennady **Shkliarevsky 18**, professor of history at Bard College where he has taught since 1985, 1-5-2018, "Tax Cuts and the Problem of Economic Growth," International Policy Digest, https://intpolicydigest.org/2018/01/05/tax-cuts-and-the-problem-of-economic-growth/

Does this problem have a solution? Is it possible for humanity to break out of the current vicious circle and achieve a constant, stable, sustained, or even exponentially increasing economic progress? Production and consumption are the two most important categories in our economy and economic thinking. They constrain each other and this mutual constraint acts as a limitation on the rate of our economic growth. The typical effect of the expansion of production is the increase in supply. Supply growth results in declining prices. The decline in prices signals that the market is saturated and production must slow down. When production slows down, supply diminishes and prices begin to grow, which triggers a new expansion of production. When production expands, our wealth grows and economy appreciates. Consumption generally depreciates products and thus our wealth declines and our economy depreciates. Thus, production and consumption constrain each other and this constraint limits the rate of our economic growth. In order to solve this problem and achieve constant growth, we need to constantly rejuvenate our economy, we need to ensure a sustained supply of new products to the market and, moreover, we need to make sure that these products are needed. The main economic problem we face today is precisely in bringing novelties to the marketplace. Many business people, economists, pundits and politicians have stressed that we will have to innovate our way out of the current economic predicament. Therefore, creativity and creation are the key to solving the problem of growth. However, creativity, or what we call entrepreneurship when we talk about economy, is not a science. We cannot use it in any predictable way. It is a very uncertain and contingent factor that is fraught with many unknowns and surprises. Therefore, the problem of economic growth is reformulated into the problem of how to make innovation constant, predictable, and steady, rather than sporadic and contingent. In other words, how can we control our creativity? As has already been pointed out, consumption acts as a constraint on production. Production appreciates and consumption depreciates. The tendency of consumption to depreciate our economy is the reason for the existence of limits to rates of economic growth. As one can see, production and consumption are two most essential economic functions. They are mutually dependent, complementary and cannot exist without each other. The problem for achieving constant and sustained growth is that their vectors point in different directions: one toward appreciation and the other toward depreciation. However, do they have to be opposed to each other? There are two kinds of consumption that we know. One kind of consumption is consumption of final products. Indeed, this kind of consumption always depreciates products. You drive your new car out of the parking lot and it immediately loses value. But this form of consumption is not the only one we know. There is also a form of consumption that appreciates products, for example, consumption of raw materials or semi-finished products. Another interesting case of consumption that appreciates is the consumption of technological devices and machines. Indeed, physical use of such devices and machines depreciates them. However, they also represent certain technological knowledge. Knowledge consumption involves our mind. Mental consumption inevitably involves mediation and, therefore, construction that takes place in our mind. In other words, in order to consume something our mind has to create forms of mediation that allow us to consume this something, or, in other words, we have to produce it in our mind. Our sense organs transmit to our brain electrical signals that the brain interprets. We produce reality and production necessarily involves appreciation. Thus mental consumption involves necessarily the creation of new knowledge and hence appreciation. The above argument bears one important conclusion that consumption does not necessarily involve depreciation. Consumption can also, like production, be associated with appreciation, particularly consumption that involves mental activity that is associated with production of knowledge, or creation. We live in the era of knowledge society when knowledge is the main means of production and the principal product. The share of knowledge production by comparison with the production of consumer goods is constantly growing and already begins to outstrip the latter. Since consumption of knowledge, just like its production, is associated with appreciation, the transition to knowledge society suggests that in the modern economy both consumption and production will lead to appreciation and increase in wealth. They do not stand opposed to each other and their balance does not slow down the economy but is the source of its appreciation and constant growth. Balance in this case means that when production grows, so does consumption and both contribute to appreciation of the economy and economic growth. The constraint on the rates of growth disappears and the pace of economic growth can accelerate. The combined effect of growth that comes from production and consumption is double from what it is in our current economy. In other words, economic growth becomes exponential and limitless: as production increases, so does consumption, and more consumption leads to greater appreciation and greater wealth. This infinite and exponential economic growth is not only possible, but is, in fact, essential. Without such growth our civilization simply cannot exist. Our civilization is essentially a dissipative system that constantly generates entropy. As soon as this system ceases to create new levels and forms of organization, it begins to deplete available resources. The only way it can sustain itself indefinitely is by constantly redefining itself in ways that allow us to capture new flows of energy and resources; and where there are new flows of energy and resources, work can be performed. It is our destiny to play this catch-up game, and the only way we can play it indefinitely is by constantly creating new levels and forms of organization of reality so as to maintain the overall entropy level at zero. There is no way for our civilization to go back to less powerful levels of organization of social production, as advocated by the adepts of de-growth, or even to maintain the same level of production organization (steady-state economy). Limits to growth or de-growth are not ultimately realistic possibilities. Our civilization can only move forward. If we decide to terminate the progress of our civilization, we will embark on the path that leads only to its eventual disintegration and disappearance—an option that even supporters of limits to growth or de-growth do not want to entertain.

## 1NC – Environment

#### 1] Extinction from warming requires 12 degrees, far greater than their internal link, and intervening actors will solve before then

Sebastian Farquhar 17, master’s degree in Physics from the University of Oxford, leads the Global Priorities Project (GPP) at the Centre for Effective Altruism, et al., 2017, “Existential Risk: Diplomacy and Governance,” https://www.fhi.ox.ac.uk/wp-content/uploads/Existential-Risks-2017-01-23.pdf

The most likely levels of global warming are very unlikely to cause human extinction.15 The existential risks of climate change instead stem from tail risk climate change – the low probability of extreme levels of warming – and interaction with other sources of risk. It is impossible to say with confidence at what point global warming would become severe enough to pose an existential threat. Research has suggested that warming of 11-12°C would render most of the planet uninhabitable,16 and would completely devastate agriculture.17 This would pose an extreme threat to human civilisation as we know it.18 Warming of around 7°C or more could potentially produce conflict and instability on such a scale that the indirect effects could be an existential risk, although it is extremely uncertain how likely such scenarios are.19 Moreover, the timescales over which such changes might happen could mean that humanity is able to adapt enough to avoid extinction in even very extreme scenarios. The probability of these levels of warming depends on eventual greenhouse gas concentrations. According to some experts, unless strong action is taken soon by major emitters, it is likely that we will pursue a medium-high emissions pathway.20 If we do, the chance of extreme warming is highly uncertain but appears non-negligible. Current concentrations of greenhouse gases are higher than they have been for hundreds of thousands of years,21 which means that there are significant unknown unknowns about how the climate system will respond. Particularly concerning is the risk of positive feedback loops, such as the release of vast amounts of methane from melting of the arctic permafrost, which would cause rapid and disastrous warming.22 The economists Gernot Wagner and Martin Weitzman have used IPCC figures (which do not include modelling of feedback loops such as those from melting permafrost) to estimate that if we continue to pursue a medium-high emissions pathway, the probability of eventual warming of 6°C is around 10%,23 and of 10°C is around 3%.24 These estimates are of course highly uncertain. It is likely that the world will take action against climate change once it begins to impose large costs on human society, long before there is warming of 10°C. Unfortunately, there is significant inertia in the climate system: there is a 25 to 50 year lag between CO2 emissions and eventual warming,25 and it is expected that 40% of the peak concentration of CO2 will remain in the atmosphere 1,000 years after the peak is reached.26 Consequently, it is impossible to reduce temperatures quickly by reducing CO2 emissions. If the world does start to face costly warming, the international community will therefore face strong incentives to find other ways to reduce global temperatures.

#### 3] Islands and mountains mean no extinction from warming

Alexey Turchin 19, Researcher at the Foundation Science for Life Extension in Moscow, Brian P. Green, director of technology ethics at the Markkula Center for Applied Ethics at Santa Clara University, 3/11/19, “Islands as refuges for surviving global catastrophes,” https://www.emerald.com/insight/content/doi/10.1108/FS-04-2018-0031/full/html

Different types of possible catastrophes suggest different scenarios for how survival could happen on an island. What is important is that the island should have properties which protect against the specific dangers of particular global catastrophic risks. Specifically different islands will provide protection against different risks, and their natural diversity will contribute to a higher total level of protection:

- Quarantined island survives pandemic. An island could impose effective quarantine if it is sufficiently remote and simultaneously able to protect itself, possibly using military ships and air defense.

- Far northern aboriginal people survive an ice age. Many far northern people have adapted to survive in extremely cold and dangerous environments, and under the right circumstances could potentially survive the return of an ice age. However, their cultures are endangered by globalization. If these people become dependent on the products of modern civilization, such as rifles and motor boats, and lose their native survival skills, then their likelihood of surviving the collapse of the outside world would decrease. Therefore, preservation of their survival skills may be important as a defense against the risks connected with extreme cooling.

- Remote polar island with high mountains survives brief global warming of median surface temperatures, up to 50˚C. There is a theory that the climates of planets similar to the Earth could have several semi-stable temperature levels (Popp et al., 2016). If so, because of climate change, the Earth could transition to a second semi-stable state with a median global temperature of around 330 K, about 60˚C, or about 45˚C above current global mean temperatures. But even in this climate, some regions of Earth could still be survivable for humans, such as the Himalayan plateau at elevations above 4,000 m, but below 6,000 (where oxygen deficiency becomes a problem), or on polar islands with mountains (however, global warming affects polar regions more than equatorial regions, and northern island will experience more effects of climate change, including thawing permafrost and possible landslides because of wetter weather). In the tropics, the combination of increased humidity and temperature may increase the wet bulb temperature above 36˚C, especially on islands, where sea moisture is readily available. In such conditions, proper human perspiration becomes impossible (Sherwood and Huber, 2010), and there will likely be increased mortality and morbidity because of tropical diseases. If temperatures later returned to normal – either naturally or through climate engineering – the rest of the Earth could be repopulated.

#### Nuke war causes extinction though

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. How nuclear war would affect Earth’s climate. September 8, 2017. earthsky.org/human-world/how-nuclear-war-would-affect-earths-climate, accessed 10-15-17] **Note, we are only reading parts of the interview that are directly from Paul Edwards -- MMG**

In the nuclear conversation, what are we not talking about that we should be?

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.

#### 6] Exploration solves degradation better

Pelton 17—(Director Emeritus of the Space and Advanced Communications Research Institute at George Washington University, PHD in IR from Georgetown).. Pelton, Joseph N. 2017. The New Gold Rush: The Riches of Space Beckon! Springer. Accessed 8/30/19.

Are We Humans Doomed to Extinction? What will we do when Earth’s resources are used up by humanity? The world is now hugely over populated, with billions and billions crammed into our overcrowded cities. By 2050, we may be 9 billion strong, and by 2100 well over 11 billion people on Planet Earth. Some at the United Nations say we might even be an amazing 12 billion crawling around this small globe. And over 80 % of us will be living in congested cities. These cities will be ever more vulnerable to terrorist attack, natural disaster, and other plights that come with overcrowding and a dearth of jobs that will be fueled by rapid automation and the rise of artifi cial intelligence across the global economy. We are already rapidly running out of water and minerals. Climate change is threatening our very existence. Political leaders and even the Pope have cautioned us against inaction. Perhaps the naysayers are right. All humanity is at tremendous risk. Is there no hope for the future? This book is about hope. We think that there is literally heavenly hope for humanity. But we are not talking here about divine intervention. We are envisioning a new space economy that recognizes that there is more water in the skies that all our oceans. Th ere is a new wealth of natural resources and clean energy in the reaches of outer space—more than most of us could ever dream possible. There are those that say why waste money on outer space when we have severe problems here at home? Going into space is not a waste of money. It is our future. It is our hope for new jobs and resources. The great challenge of our times is to reverse public thinking to see space not as a resource drain but as the doorway to opportunity. The new space frontier can literally open up a “gold rush in the skies.” In brief, we think there is new hope for humanity. We see a new a pathway to the future via new ventures in space. For too long, space programs have been seen as a money pit. In the process, we have overlooked the great abundance available to us in the skies above. It is important to recognize there is already the beginning of a new gold rush in space—a pathway to astral abundance. “New Space” is a term increasingly used to describe radical new commercial space initiatives—many of which have come from Silicon Valley and often with backing from the group of entrepreneurs known popularly as the “space billionaires.” New space is revolutionizing the space industry with lower cost space transportation and space systems that represent significant cost savings and new technological breakthroughs. “New Commercial Space” and the “New Space Economy” represent more than a new way of looking at outer space. These new pathways to the stars could prove vital to human survival. If one does not believe in spending money to probe the mysteries of the universe then perhaps we can try what might be called “calibrated greed” on for size. One only needs to go to a cubesat workshop, or to Silicon Valley or one of many conferences like the “Disrupt Space” event in Bremen, Germany, held in April 2016 to recognize that entrepreneurial New Space initiatives are changing everything [ 1 ]. In fact, the very nature and dimensions of what outer space activities are today have changed forever. It is no longer your grandfather’s concept of outer space that was once dominated by the big national space agencies. The entrepreneurs are taking over. The hopeful statements in this book and the hard economic and technical data that backs them up are more than a minority opinion. It is a topic of growing interest at the World Economic Forum, where business and political heavyweights meet in Davos, Switzerland, to discuss how to stimulate new patterns of global economic growth. It is even the growing view of a group that call themselves “space ethicists.” Here is how Christopher J. Newman, at the University of Sunderland in the United Kingdom has put it: Space ethicists have offered the view that space exploration is not only desirable; it is a duty that we, as a species, must undertake in order to secure the survival of humanity over the longer term. Expanding both the resource base and, eventually, the habitats available for humanity means that any expenditure on space exploration, far from being viewed as frivolous, can legitimately be rationalized as an ethical investment choice. (Newman) On the other hand there are space ethicists and space exobiologists who argue that humans have created ecological ruin on the planet—and now space debris is starting to pollute space. Th ese countervailing thoughts by the “no growth” camp of space ethicists say we have no right to colonize other planets or to mine the Moon and asteroids—or at least no right to do so until we can prove we can sustain life here on Earth for the longer term. However, for most who are planning for the new space economy the opinion of space philosophers doesn’t really fl oat their boat. Legislators, bankers, and aspiring space entrepreneurs are far more interested in the views of the super-rich capitalists called the space billionaires. A number of these billionaires and space executives have already put some very serious money into enterprises intent on creating a new pathway to the stars. No less than five billionaires with established space ventures—Elon Musk, Paul Allen, Jeff Bezos, Sir Richard Branson, and Robert Bigelow—have invested millions if not billions of dollars into commercializing space. They are developing new technologies and establishing space enterprises that can bring the wealth of outer space down to Earth. This is not a pipe dream, but will increasingly be the economic reality of the 2020s. These wealthy space entrepreneurs see major new economic opportunities. To them space represents the last great frontier for enterprising pioneers. Th us they see an ever-expanding space frontier that offers opportunities in low-cost space transportation, satellite solar power satellites to produce clean energy 24h a day, space mining, space manufacturing and production, and eventually space habitats and colonies as a trajectory to a better human future. Some even more visionary thinkers envision the possibility of terraforming Mars, or creating new structures in space to protect our planet from cosmic hazards and even raising Earth’s orbit to escape the rising heat levels of the Sun in millennia to come. Some, of course, will say this is sci-fi hogwash. It can’t be done. We say that this is what people would have said in 1900 about airplanes, rocket ships, cell phones and nuclear devices. The skeptics laughed at Columbus and his plan to sail across the oceans to discover new worlds. When Thomas Jefferson bought the Louisiana Purchase from France or Seward bought Alaska, there were plenty of naysayers that said such investment in the unknown was an extravagant waste of money. A healthy skepticism is useful and can play a role in economic and business success. Before one dismisses the idea of an impending major new space economy and a new gold rush, it might useful to see what has already transpired in space development in just the past five decades. The world’s first geosynchronous communications satellite had a throughput capability of about 500 kb / s. In contrast, today’s state of the art Viasat 2 —a half century later— has an impressive throughput of some 140 Gb/s. Th is means that the relative throughput is nearly 300,000 greater, while its lifetime is some ten times longer (Figs. 1.1 and 1.2 ). Each new generation of communications satellite has had more power, better antenna systems, improved pointing and stabilization, and an extended lifetime. And the capabilities represented by remote sensing satellites , meteorological satellites , and navigation and timing satellites have also expanded their capabilities and performance in an impressive manner. When satellite applications first started, the market was measured in millions of dollars. Today commercial satellite services exceed a quarter of a billion dollars. Vital services such as the Internet, aircraft traffi c control and management, international banking, search and rescue and much, much more depend on application satellites. Th ose that would doubt the importance of satellites to the global economy might wish to view on You Tube the video “If Th ere Were a Day Without Satellites?” [ 2 ]. Let’s check in on what some of those very rich and smart guys think about the new space economy and its potential. (We are sorry to say that so far there are no female space billionaires, but surely this, too, will come someday soon.) Of course this twenty-fi rst century breakthrough that we call the New Space economy will not come just from new space commerce. It will also come from the amazing new technologies here on Earth. Vital new terrestrial technologies will accompany this cosmic journey into tomorrow. Information technology, robotics, artificial intelligence and commercial space travel systems have now set us on a course to allow us humans to harvest the amazing riches in the skies—new natural resources, new energy, and even totally new ways of looking at the purpose of human existence. If we pursue this course steadfastly, it can be the beginning of a New Space renaissance. But if we don’t seek to realize our ultimate destiny in space, Homo sapiens can end up in the dustbin of history—just like literally millions of already failed species. In each and every one of the five mass extinction events that have occurred over the last 1.5 billion years on Earth, some 50–80 % of all species have gone the way of the T. Rex, the woolly mammoth, and the Dodo bird along with extinct ferns, grasses and cacti. On the other hand, the best days of the human race could be just beginning. If we are smart about how we go about discovering and using these riches in the skies and applying the best of our new technologies, it could be the start of a new beginning for humanity. Konstantin Tsiokovsky, the Russian astronautics pioneer, who fi rst conceived of practical designs for spaceships, famously said: “A planet is the cradle of mankind, but one cannot live in a cradle forever.” Well before Tsiokovsky another genius, Leonardo da Vinci, said, quite poetically: “Once you have tasted flight, you will forever walk the earth with your eyes turned skyward, for there you have been, and there you will always long to return.” The founder of the X-Prize and of Planetary Resources, Inc., Dr. Peter Diamandis, has much more brashly said much the same thing in quite diff erent words when he said: “The meek shall inherit the Earth. The rest of us will go to Mars.” The New Space Billionaires Peter Diamandis is not alone in his thinking. From the list of “visionaries” quoted earlier, Elon Musk, the founder of SpaceX; Sir Richard Branson, the founder of Virgin Galactic; and Paul Allen, the co-founder of Microsoft and the man who financed SpaceShipOne, the world’s first successful spaceplane have all said the future will include a vibrant new space economy. Th ey, and others, have said that we can, we should and we soon shall go into space and realize the bounty that it can offer to us. Th e New Space enterprise is today indeed being led by those so-called space billionaires , who have an exciting vision of the future. They and others in the commercial space economy believe that the exploitation of outer space may open up a new golden age of astral abundance. They see outer space as a new frontier that can be a great source of new materials, energy and various forms of new wealth that might even save us from excesses of the past. Th is gold rush in the skies represents a new beginning. We are not talking about expensive new space ventures funded by NASA or other space agencies in Europe, Japan, China or India. No, these eff orts which we and others call New Space are today being forged by imaginative and resourceful commercial entrepreneurs. Th ese twenty-fi rst century visionaries have the fortitude and zeal to look to the abundance above. New breakthroughs in technology and New Space enterprises may be able to create an “astral life raft” for humanity. Just as Columbus and the Vikings had the imaginative drive that led them to discover the riches of a new world, we now have a cadre of space billionaires that are now leading us into this New Space era of tomorrow. These bold leaders, such as Paul Allen and Sir Richard Branson, plus other space entrepreneurs including Jeff Bezos of Amazon and Blue Origin, and Robert Bigelow, Chairman of Budget Suites and Bigelow Aerospace, not only dream of their future in the space industry but also have billions of dollars in assets. These are the bright stars of an entirely new industry that are leading us into the age of New Space commerce. These space billionaires, each in their own way, are proponents of a new age of astral abundance. Each of them is launching new commercial space industries. They are literally transforming our vision of tomorrow. These new types of entrepreneurial aerospace companies—the New Space enterprises—give new hope and new promise of transforming our world as we know it today. The New Space Frontier What happens in space in the next few decades, plus corresponding new information technologies and advanced robotics, will change our world forever. These changes will redefi ne wealth, change our views of work and employment and upend almost everything we think we know about economics, wealth, jobs, and politics. Th ese changes are about truly disruptive technologies of the most fundamental kinds. If you thought the Internet, smart phones, and spandex were disruptive technologies, just hang on. You have not seen anything yet. In short, if you want to understand a transition more fundamental than the changes brought to the twentieth century world by computers, communications and the Internet, then read this book. There are truly riches in the skies. Near-Earth asteroids largely composed of platinum and rare earth metals have an incredible value. Helium-3 isotopes accessible in outer space could provide clean and abundant energy. There is far more water in outer space than is in our oceans. In the pages that follow we will explain the potential for a cosmic shift in our global economy, our ecology, and our commercial and legal systems. These can take place by the end of this century. And if these changes do not take place we will be in trouble. Our conventional petro-chemical energy systems will fail us economically and eventually blanket us with a hydrocarbon haze of smog that will threaten our health and our very survival. Our rare precious metals that we need for modern electronic appliances will skyrocket in price, and the struggle between “haves” and “have nots” will grow increasingly ugly. A lack of affordable and readily available water, natural resources, food, health care and medical supplies, plus systematic threats to urban security and systemic warfare are the alternatives to astral abundance. The choices between astral abundance and a downward spiral in global standards of living are stark. Within the next few decades these problems will be increasingly real. By then the world may almost be begging for new, out of- the-box thinking. International peace and security will be an indispensable prerequisite for exploitation of astral abundance, as will good government for all. No one nation can be rich and secure when everyone else is poor and insecure. In short, global space security and strategic space defense, mediated by global space agreements, are part of this new pathway to the future.

#### 7] Launches inevitable

Helsinki Times 21 – “Global orbital rocket launches surge by 44% in H1 2021, U.S. leads,” 7/15/2021, https://www.helsinkitimes.fi/business/19596-global-orbital-rocket-launches-surge-by-44-in-h1-2021-u-s-leads.html

Space missions are increasingly becoming popular, with companies moving towards enabling private citizens to have a glimpse of the orbit away from the professional astronauts. The interest in space travel is increasing the number of orbital launches.

Data acquired by Finbold indicates that the global number of orbital rockets launched in 2021 H1 surged 43.9% compared to the first half of 2020.

As of 2021, the orbital rocket launches stood at 59, while last year, the figure was at 41.

In 2021, the United States showed dominance, accounting for about 49% of the launches at 29. China recorded 18 launches, followed by Russia at seven. French space company Arianespace accounts for four orbital launches. The numbers are based on RocketLaunch.live data, which tracks orbital rocket launches worldwide.

Space tourism driving increase in orbital launches

The increase in orbital launches during the period highlights the increasing focus to make space travel a routine. The sector has witnessed the entry of private companies working towards making space travel available for private citizens and not just the professional astronauts of space agencies like NASA.

Worth mentioning is that despite 2020 being a challenging year due to the coronavirus pandemic, several space missions were initiated, with some arriving at their destination in 2021.

The increase in orbital launches also correlates with the entry of private companies into the sector that are jostling to make a name for themselves in space. For instance, Jeff Bezos’ Blue Origin company is expected to have the inaugural space flight with the founder on board on July 20, 2021.

Notably, Virgin Galactic (SPCE) offered a glimpse of space tourism after the company’s aircraft successfully conducted a space mission with founder Sir Richard Branson on board.

Virgin Galactic may begin flying the first paying passengers next year after two more test flights. However, with tickets running into hundreds of thousands of dollars, the space experience remains viable for financially able individuals. But when the companies begin commercial operations, Blue Origin and Virgin Galactic will be direct competitors.

Elsewhere, Elon Musk’s SpaceX is also an active player in the space industry with a reputation for conducting multiple short test flights over the past year. The company’s next step is to reach orbit. Furthermore, competition between private companies is also heating up.

For instance, Arianespace, the world’s first commercial launch company that dominated the market for sending big communications satellites into orbit, is now shifting its focus to smaller satellites. This shift is likely to give companies like SpaceX a run for their money.

#### 8] No ozone impact

**Ridley 14** -- Matthew White Ridley, 5th Viscount Ridley DL FRSL FMedSci, known commonly as Matt Ridley, is a British journalist, businessman and author of popular science books. Since 2013 Ridley has been a Conservative hereditary peer in the House of Lords. “THE OZONE HOLE WAS EXAGGERATED AS A PROBLEM” http://www.rationaloptimist.com/blog/the-ozone-hole-was-exaggerated-as-a-problem.aspx

Serial hyperbole does the environmental movement no favours My recent [Times column](http://www.thetimes.co.uk/tto/opinion/columnists/article4206440.ece) argued that the alleged healing of the ozone layer is exaggerated, but so was the impact of the ozone hole over Antarctica: The ozone layer is healing. Or so said the news last week. Thanks to a treaty signed in Montreal in 1989 to get rid of refrigerant chemicals called chlorofluorocarbons (CFCs), the planet’s stratospheric sunscreen has at last begun thickening again. Planetary disaster has been averted by politics. For reasons I will explain, this news deserves to be taken with a large pinch of salt. You do not have to dig far to find evidence that the ozone hole was never nearly as dangerous as some people said, that it is not necessarily healing yet and that it might not have been caused mainly by CFCs anyway. The timing of the announcement was plainly political: it came on the 25th anniversary of the treaty, and just before a big United Nations climate conference in New York, the aim of which is to push for a climate treaty modelled on the ozone one. Here’s what was actually announced last week, in the words of a Nasa scientist, Paul Newman: “From 2000 to 2013, ozone levels climbed 4 per cent in the key mid-northern latitudes.” That’s a pretty small change and it is in the wrong place. The ozone thinning that worried everybody in the 1980s was over Antarctica. Over northern latitudes, ozone concentration has been falling by about 4 per cent each March before recovering. Over Antarctica, since 1980, the ozone concentration has fallen by [40 or 50 per cent each September](http://bigstory.ap.org/article/scientists-say-ozone-layer-recovering) before the sun rebuilds it. So what’s happening to the Antarctic ozone hole? Thanks to a diligent blogger named Anthony Watts, I came across a press release also from Nasa about nine months ago, which said: “ Two new studies show that signs of recovery are not yet present, and that temperature and winds are still driving any annual changes in ozone hole size.” As recently as 2006, Nasa announced, quoting Paul Newman again, that the Antarctic ozone hole that year was “the largest ever recorded”. The following year a paper in Nature magazine from Markus Rex, a German scientist, presented new evidence that suggested CFCs may be responsible for less than 40 per cent of ozone destruction anyway. Besides, nobody knows for sure how big the ozone hole was each spring before CFCs were invented. All we know is that it varies from year to year. How much damage did the ozone hole ever threaten to do anyway? It is fascinating to go back and read what the usual hyperventilating eco-exaggerators said about ozone thinning in the 1980s. As a result of the extra ultraviolet light coming through the Antarctic ozone hole, southernmost parts of Patagonia and New Zealand see about 12 per cent more UV light than expected. This means that the weak September sunshine, though it feels much the same, has the power to cause sunburn more like that of latitudes a few hundred miles north. Hardly Armageddon. The New York Times reported “an increase in Twilight Zone-type reports of sheep and rabbits with cataracts” in southern Chile. Not to be outdone, Al Gore wrote that “hunters now report finding blind rabbits; fisherman catch blind salmon”. Zoologists briefly blamed the near extinction of many amphibian species on thin ozone. Melanoma in people was also said to be on the rise as a result. This was nonsense. Frogs were dying out because of a fungal disease spread from Africa — nothing to do with ozone. Rabbits and fish blinded by a little extra sunlight proved to be as mythical as unicorns. An eye disease in Chilean sheep was happening outside the ozone-depleted zone and was caused by an infection called pinkeye — nothing to do with UV light. And melanoma incidence in people actually levelled out during the period when the ozone got thinner. Then remember that the ozone hole appears when the sky is dark all day, and over an uninhabited continent. Even if it persists into the Antarctic spring and spills north briefly, the hole allows 50 times less ultraviolet light through than would hit your skin at the equator at sea level (let alone at a high altitude) in the tropics. So it would be bonkers to worry about UV as you sailed round Cape Horn in spring, say, but not when you stopped at the Galapagos: the skin cancer risk is 50 times higher in the latter place. This kind of eco-exaggeration has been going on for 50 years. In the 1960s Rachel Carson said there was an epidemic of childhood cancer caused by DDT; it was not true — DDT had environmental effects but did not cause human cancers. In the 1970s the Sahara desert was said be advancing a mile a year; it was not true — the region south of the Sahara has grown markedly greener and more thickly vegetated in recent decades. In the 1980s acid rain was said to be devastating European forests; not true — any local declines in woodland were caused by pests or local pollution, not by the sulphates and nitrates in rain, which may have contributed to an actual increase in the overall growth rate of European forests during the decade. In the 1990s sperm counts were said to be plummeting thanks to pollution with man-made “endocrine disruptor” chemicals; not true — there was no fall in sperm counts. In the 2000s the Gulf Stream was said to be failing and hurricanes were said to be getting more numerous and worse, thanks to global warming; neither was true, except in a Hollywood studio. The motive for last week’s announcement was to nudge world leaders towards a treaty on climate change by reminding them of how well the ozone treaty worked. But getting the world to agree to cease production of one rare class of chemical, for which substitutes existed, and which only a few companies mainly in rich countries manufactured, was a very different proposition from setting out to decarbonise the whole economy, when each of us depends on burning carbon (and hydrogen) for almost every product, service, meal, comfort and journey in our lives. The true lesson of the ozone story is that taking precautionary action on the basis of dubious evidence and exaggerated claims might be all right if the action does relatively little economic harm. However, loading the entire world economy with costly energy, and new environmental risks based on exaggerated claims about what might in future happen to the climate makes less sense.

#### 9] Timeframe – ozone depletion is super slow and incoherent there’s no brink argument or falsifiable data that explains the brink, 50 years of launches proves resilience

#### 10] Rockets contribute 0.0000059 percent to global emissions

Brown 21 — (Mike Brown, Mike Brown is a London-based journalist who covers innovation at Inverse. He is the author of Musk Reads, a regular newsletter that focuses on electric cars, space exploration, clean energy, and everything in-between. Mike holds a BA in English from Queen Mary, University of London, and an MS in journalism from Columbia Journalism School. His work has featured in CityMetric, International Business Times, Neowin.net, Building Magazine, and more. He has also made guest appearances on CBC Radio, Cheddar, Good Day New York, Trailblazers, and more. , “Are space rockets bad for the Earth? Why the question ignores an important truth“, Inverse, 11-23-2021, Available Online at https://www.inverse.com/innovation/are-rockets-environmentally-friendly, accessed 1-15-2022, HKR-AR)

Current rocket launches have a negligible effect on total carbon emissions — Everyday Astronaut found they accounted for 0.0000059 percent of global carbon emissions in 2018, while the airline industry produced 2.4 percent the same year.

But the long-term effect is less clear, especially as companies like SpaceX move from hosting 26 launches in a year to 1,000 launches per rocket in a year.

“I think we can guess that rockets won't be a huge impact on the environment, and they probably won't stand out as a sole source of new problems,” Darin Toohey, professor at the University of Colorado Boulder’s Atmospheric and Ocean Sciences, tells Inverse. “But they will add to the growing list of activities that have negative impacts on the environment.”

#### 10] NASA Rockets are worse and their studies are flawed

Brown 21 — (Mike Brown, Mike Brown is a London-based journalist who covers innovation at Inverse. He is the author of Musk Reads, a regular newsletter that focuses on electric cars, space exploration, clean energy, and everything in-between. Mike holds a BA in English from Queen Mary, University of London, and an MS in journalism from Columbia Journalism School. His work has featured in CityMetric, International Business Times, Neowin.net, Building Magazine, and more. He has also made guest appearances on CBC Radio, Cheddar, Good Day New York, Trailblazers, and more. , “Are space rockets bad for the Earth? Why the question ignores an important truth“, Inverse, 11-23-2021, Available Online at https://www.inverse.com/innovation/are-rockets-environmentally-friendly, accessed 1-15-2022, HKR-AR)

In January 2020, a new article in the Journal of Cleaner Production warned that rocket launches moving through the ozone layer is a key concern. It explained that rockets do cause ozone loss, but solid rocket motors like those on the NASA space shuttle cause far greater loss.

Newer rockets that use liquid propellant, like SpaceX’s Falcon 9, cause less ozone loss. These rockets have increased in popularity since the 2009 study. The problem is that most studies have focused on solid rocket motors, so more research is needed to understand how they differ.

11] **No impact to ocean acidification.**

**Duarte et al. 15**—Carlos Duarte a Professor at the University of Western Australia’s Ocean Institute and School of Plant Biology; Robinson W. Fulweiler a Professor of Earth and Environment at Boston University; Catherine E. Lovelock, School of Biological Sciences at the University of Queensland; John M. Pandolfi, School of Biological Sciences at the University of Queensland and Australian Research Council Centre of Excellence for Coral Reef Studies [“Reconsidering Ocean Calamities,” BioScience, Vol. 65, No. 2, p. 130-139, Emory Libraries]

The realized decline in pH attributable to ocean acidification is about 0.1 unit, compared with the 0.3 to 0.4 units expected by the end of this century, when experimental assessments indicate that ocean acidification is likely to reach levels sufficient to significantly affect marine calcifiers (Doney et al. 2009). Moreover, there are significant uncertainties in the severity of the decline of marine calcifiers due to ocean acidification even at the end of the century, as ocean-acidification experiments are considered to provide worst-case scenarios, because a range of mechanisms, including **adaptation**, **evolution**, facilitative interactions in the ecosystem (Hendriks et al. 2010), and physiological mechanisms to up-regulate pH (McCulloch et al. 2012) may **buffer the impacts** and cause differential responses among species (Pandolfi et al. 2011).

However, there have been a few claims for already realized impacts of ocean acidification on calcifiers, such as a decline in the number of oysters on the West Coast of North America (Barton et al. 2012) and in Chesapeake Bay (Waldbusser et al. 2011). However, the link between these declines and ocean acidification through anthropogenic CO2 is unclear. Corrosive waters affecting oysters in hatcheries along the Oregon coast were associated with upwelling (Barton et al. 2012), not anthropogenic CO2. The decline in pH affecting oysters in Chesapeake Bay (Waldbusser et al. 2011) was not attributable to anthropogenic CO2 but was likely attributable to excess respiration associated with eutrophication. Therefore, there is, as yet, **no** **robust** **evidence** for realized severe disruptions of marine socioecological links from ocean acidification to anthropogenic CO2, and there are **significant uncertainties** regarding the level of pH change that would prompt such impacts.

#### 12] We’re past tipping points---only tech solves---the Aff causes dictatorship.

Eric Levitz 21. Senior Writer at New York Magazine. MA Johns Hopkins. "We’ll Innovate Our Way Out of the Climate Crisis or Die Trying". Intelligencer. 5-17-2021. https://nymag.com/intelligencer/2021/05/climate-biden-green-tech-innovation.html

Today’s best-case ecological scenario was a horror story just three decades ago. In 1993, Bill Clinton declared that global warming presented such a profound threat to civilization that the U.S. would have to bring its “emissions of greenhouse gases to their 1990 levels by the year 2000.” Instead, we waited until 2020 to do so; in the interim, humanity burned more carbon than it had since the advent of agriculture. Now, it will take a historically unprecedented, worldwide economic transformation to freeze warming at “only” 2 degrees — a level of temperature rise that will turn “once in a century” storms into annual events, drown entire island nations, and render major cities in the Middle East uninhabitable in summertime (at least for those whose lifestyles involve “walking outdoors without dying of heatstroke”). This is what passes for a utopian vision in 2021. If we confine ourselves to mere optimism — and assume that every Paris Agreement signatory meets its current pledged target for decarbonization — then warming will hit 2.4 degrees by century’s end.

The reality of our ecological predicament invites denial of our political one. Put simply, it is hard to reconcile the scale of the climate crisis with the limits of contemporary American politics. Delusions rush in to fill the gap. Among these is the fantasy of national autonomy; the notion that the United States can save the planet or destroy it, depending on the precise timeline of its domestic decarbonization. A rapid energy transition in the U.S. is a vital cause, not least for its potential to expedite similar transformations abroad. But the battle for a sustainable planet will be won or lost in the developing world. Although American consumption played a central role in the history of the climate crisis, it is peripheral to the planet’s future: Over the coming century, U.S. emissions are expected to account for only 5 percent of the global total.

There is also the delusion of “de-growth’s” viability. The fact that there is no plausible path for global economic expansion that won’t entail climate-induced death and displacement has led some environmentalists to insist on global stagnation. Yet there is neither a mass constituency for this project, nor any reason to believe that there will be any time soon. Freeze the status-quo economy in amber, and you’ll condemn nearly half of humanity to permanent poverty. Divide existing GDP into perfectly even slices, and every person on the planet will live on about $5,500 a year. American voters may express a generalized concern about the climate in surveys, but they don’t seem willing to accept even a modest rise in gas prices — let alone a total collapse in living standards — to address the issue. Meanwhile, any Chinese or Indian leader who attempted to stymy income growth in the name of sustainability would be ousted in short order. It’s conceivable that one could radically reorder advanced economies in a manner that enabled living standards to rise even as GDP fell; Americans might well find themselves happier and more secure in an ultra-low-carbon communal economy in which individual car ownership is heavily restricted, and housing, healthcare, and myriad low-carbon leisure activities are social rights. But nothing short of an absolute dictatorship could affect such a transformation at the necessary speed. And the specter of eco-Bolshevism does not haunt the Global North. Humanity is going to find a way to get rich sustainably, or die trying.

Thus, the chasm between the ecologically necessary and the politically possible can only be bridged by technological advance. And on that front, the U.S. actually has the resources to make a decisive contribution to global decarbonization — and some political will to leverage those resources. Unfortunately, due to some combination of fiscal superstitions and misplaced priorities, the Biden administration’s proposed investments in green innovation remain paltry. An American Jobs Plan with much higher funding for green R&D is both imminently winnable and environmentally imperative. U.S. climate hawks should make securing such legislation a top priority.

The choice before us is techno-optimism or barbarism.

If governments are forced to choose between increasing income growth in the present, and mitigating temperature rise in the future, they are going to pick the former. We’ll get cheap, lab-grown Kobe beef before we get a U.S. Senate willing to tax meat, and steel plants powered by “green hydrogen” before we get anarcho-primitivism with Chinese characteristics.

The question is whether we’ll get such breakthroughs before it’s too late.

Techno-optimism has its hazards, but the progress we’ve made toward decarbonization has come largely through technological innovation. When India canceled plans to construct 14 gigawatts of new coal-fired power stations in 2019, it did not do so in deference to international pressure or domestic environmental movements, but rather to the cost-competitiveness of solar energy. The same story holds across Asia’s developing countries: Thanks to a ninefold reduction in the cost of solar energy over the past decade, the number of new coal plants slated for construction in the region has fallen by 80 percent. Meanwhile, the road to an electric-car revolution was cleared by a collapse in the cost of lithium batteries, the challenge of powering cities with solar energy on cloudy days was eased by a 70 percent drop in the price of utility-scale batteries, and wind power grew 40 percent cheaper. Our species remains lackluster at solidarity and self-government, but we’ve got a real knack for building cool shit.

The technological progress of the past decade was not sufficient to compensate for tepid climate policy. But real techno-utopianism has never been tried: As of 2019, global spending on clean energy R&D totaled $22 billion a year, or 3 percent of the Pentagon’s annual budget. Increasing spending on such research — while expediting cost-reductions in existing technologies by deploying them en masse — should be twin priorities of American climate policy.

The preconditions for green industrialization can be mad

e in America.

The United States has more fiscal capacity and better-financed research universities than any nation on the planet. And, for all the pathologies of our politics, public investment in green tech inspires far weaker opposition than many less-indispensable climate policies. In fact, late last year, with Republicans controlling the Senate and Donald Trump in the White House, the U.S. increased funding for zero-emission technology R&D by $35 billion. America does not have sovereignty over enough humans to save the planet by slashing our domestic emissions. But we just might have the resources and political economy necessary to help the developing world save us all.

## 1NC – Disease

#### 2] No extinction from pandemics

* Death rates as high as 50% didn’t collapse civilization
* Fossil fuel record caps risk at .1% per century
* health, sanitation, medicine, science, public health bodies, solve
* viruses can’t survive in all locations
* refugee populations like tribes, remote researchers, submarine crews, solve

Ord 20 Ord, Toby. Toby David Godfrey Ord (born 18 July 1979) is an Australian philosopher. He founded Giving What We Can, an international society whose members pledge to donate at least 10% of their income to effective charities and is a key figure in the effective altruism movement, which promotes using reason and evidence to help the lives of others as much as possible.[3] He is a Senior Research Fellow at the University of Oxford's Future of Humanity Institute, where his work is focused on existential risk. BA in Phil and Comp Sci from Melbourne, BPhil in Phil from Oxford, PhD in Phil from Oxford. The precipice: existential risk and the future of humanity. Hachette Books, 2020.

Are we safe now from events like this? Or are we more vulnerable? Could a pandemic threaten humanity’s future?10 The Black Death was not the only biological disaster to scar human history. It was not even the only great bubonic plague. In 541 CE the Plague of Justinian struck the Byzantine Empire. Over three years it took the lives of roughly 3 percent of the world’s people.11 When Europeans reached the Americas in 1492, the two populations exposed each other to completely novel diseases. Over thousands of years each population had built up resistance to their own set of diseases, but were extremely susceptible to the others. The American peoples got by far the worse end of exchange, through diseases such as measles, influenza and especially smallpox. During the next hundred years a combination of invasion and disease took an immense toll—one whose scale may never be known, due to great uncertainty about the size of the pre-existing population. We can’t rule out the loss of more than 90 percent of the population of the Americas during that century, though the number could also be much lower.12 And it is very difficult to tease out how much of this should be attributed to war and occupation, rather than disease. As a rough upper bound, the Columbian exchange may have killed as many as 10 percent of the world’s people.13 Centuries later, the world had become so interconnected that a truly global pandemic was possible. Near the end of the First World War, a devastating strain of influenza (known as the 1918 flu or Spanish Flu) spread to six continents, and even remote Pacific islands. At least a third of the world’s population were infected and 3 to 6 percent were killed.14 This death toll outstripped that of the First World War, and possibly both World Wars combined. Yet even events like these fall short of being a threat to humanity’s longterm potential.15 In the great bubonic plagues we saw civilization in the affected areas falter, but recover. The regional 25 to 50 percent death rate was not enough to precipitate a continent-wide collapse of civilization. It changed the relative fortunes of empires, and may have altered the course of history substantially, but if anything, it gives us reason to believe that human civilization is likely to make it through future events with similar death rates, even if they were global in scale. The 1918 flu pandemic was remarkable in having very little apparent effect on the world’s development despite its global reach. It looks like it was lost in the wake of the First World War, which despite a smaller death toll, seems to have had a much larger effect on the course of history.16 It is less clear what lesson to draw from the Columbian exchange due to our lack of good records and its mix of causes. Pandemics were clearly a part of what led to a regional collapse of civilization, but we don’t know whether this would have occurred had it not been for the accompanying violence and imperial rule. The strongest case against existential risk from natural pandemics is the fossil record argument from Chapter 3. Extinction risk from natural causes above 0.1 percent per century is incompatible with the evidence of how long humanity and similar species have lasted. But this argument only works where the risk to humanity now is similar or lower than the longterm levels. For most risks this is clearly true, but not for pandemics. We have done many things to exacerbate the risk: some that could make pandemics more likely to occur, and some that could increase their damage. Thus even “natural” pandemics should be seen as a partly anthropogenic risk. Our population now is a thousand times greater than over most of human history, so there are vastly more opportunities for new human diseases to originate.17 And our farming practices have created vast numbers of animals living in unhealthy conditions within close proximity to humans. This increases the risk, as many major diseases originate in animals before crossing over to humans. Examples include HIV (chimpanzees), Ebola (bats), SARS (probably bats) and influenza (usually pigs or birds).18 Evidence suggests that diseases are crossing over into human populations from animals at an increasing rate.19 Modern civilization may also make it much easier for a pandemic to spread. The higher density of people living together in cities increases the number of people each of us may infect. Rapid long-distance transport greatly increases the distance pathogens can spread, reducing the degrees of separation between any two people. Moreover, we are no longer divided into isolated populations as we were for most of the last 10,000 years.20 Together these effects suggest that we might expect more new pandemics, for them to spread more quickly, and to reach a higher percentage of the world’s people. But we have also changed the world in ways that offer protection. We have a healthier population; improved sanitation and hygiene; preventative and curative medicine; and a scientific understanding of disease. Perhaps most importantly, we have public health bodies to facilitate global communication and coordination in the face of new outbreaks. We have seen the benefits of this protection through the dramatic decline of endemic infectious disease over the last century (though we can’t be sure pandemics will obey the same trend). Finally, we have spread to a range of locations and environments unprecedented for any mammalian species. This offers special protection from extinction events, because it requires the pathogen to be able to flourish in a vast range of environments and to reach exceptionally isolated populations such as uncontacted tribes, Antarctic researchers and nuclear submarine crews. 21 It is hard to know whether these combined effects have increased or decreased the existential risk from pandemics. This uncertainty is ultimately bad news: we were previously sitting on a powerful argument that the risk was tiny; now we are not. But note that we are not merely interested in the direction of the change, but also in the size of the change. If we take the fossil record as evidence that the risk was less than one in 2,000 per century, then to reach 1 percent per century the pandemic risk would need to be at least 20 times larger. This seems unlikely. In my view, the fossil record still provides a strong case against there being a high extinction risk from “natural” pandemics. So most of the remaining existential risk would come from the threat of permanent collapse: a pandemic severe enough to collapse civilization globally, combined with civilization turning out to be hard to re-establish or bad luck in our attempts to do so.

#### 3] Humans are too dispersed and disease trends against lethality

Sebastian Farquhar 17, director at Oxford's Global Priorities Project, Owen Cotton-Barratt, a Lecturer in Mathematics at St Hugh’s College, Oxford, John Halstead, Stefan Schubert, Haydn Belfield, Andrew Snyder-Beattie, "Existential Risk Diplomacy and Governance", GLOBAL PRIORITIES PROJECT 2017, 1/23/2017, https://www.fhi.ox.ac.uk/wp-content/uploads/Existential-Risks-2017-01-23.pdf

1.1.3 Engineered pandemics For most of human history, natural pandemics have posed the greatest risk of mass global fatalities.37 However, there are some reasons to believe that natural pandemics are very unlikely to cause human extinction. Analysis of the International Union for Conservation of Nature (IUCN) red list database has shown that of the 833 recorded plant and animal species extinctions known to have occurred since 1500, less than 4% (31 species) were ascribed to infectious disease.38 None of the mammals and amphibians on this list were globally dispersed, and other factors aside from infectious disease also contributed to their extinction. It therefore seems that our own species, which is very numerous, globally dispersed, and capable of a rational response to problems, is very unlikely to be killed off by a natural pandemic. One underlying explanation for this is that highly lethal pathogens can kill their hosts before they have a chance to spread, so there is a selective pressure for pathogens not to be highly lethal. Therefore, pathogens are likely to co-evolve with their hosts rather than kill all possible hosts.39