# 1

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

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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.

#### Space dominance solves hegemony – deterrence strategies, even rudimentary ones, are perceived as weakness and causes aggression

Weichert 17 (Brandon J. Weichert. Brandon J. Weichert is a 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, “The High Ground: The Case for U.S. Space Dominance,” Orbis, Vol 61, Issue 2, 2017, pp 227 – 237, <https://www.sciencedirect.com/science/article/pii/S0030438717300108>)

While space superiority and space dominance share a militarized view of space, there are fundamental differences in their stated end goals. Those who favor space superiority view space as a global commons, accessible to all in peacetime. They take a more defensive and reactive view of space and the actors who seek access to this domain. The space superiority model understands that U.S. dependence on space is vital for the basic functioning of American civilization (banking transactions, cell phone signals, GPS functions, television broadcasts, as well as essential military surveillance and support functions all across satellites in space). Yet, this model also accepts that current budgetary constraints mean that the United States is unlikely to invest significantly more into unwieldy and expensive space systems. A strategy of space superiority accepts the risk arising from reliance on space systems, while deterring attacks on space assets. As actors such as China or Russia become increasingly dependent on space systems themselves, space superiority advocates believe that U.S. willingness to retaliate in kind against any attack on its own space assets is sufficient.7 This is in keeping with the classic deterrence model of Mutual Assured Destruction (MAD). Unfortunately, however, U.S. dependence on space assets for its very survival is so much greater than any other state that such a threat is unrealistic. The reason that states like China or Russia are developing counter-space capabilities is because the cost to them is extremely low, whereas the benefit for them (in the event of war with the United States) is high. For the cost of a ground-based laser or an anti-satellite (ASAT) missile launcher, China could knock out the ability of all U.S. forces in the Pacific to coordinate and adequately defend themselves from a Chinese offensive. What could the United States do to the Chinese in return? The best option for U.S. retaliation in space would be to launch some blinding attacks on the handful of China's space assets. However, this ultimately would not deter China from escalating any future conflict since China's investment in space is so low compared to that of the United States. In addition, since Chinese forces are designed to operate in an environment without those assets, such retaliation grounded on deterrence-based models becomes highly problematic and ineffective. Rather than serving as a stabilizing force in space, then, the defensive and reactive space superiority model would be an inducement for conflict in the strategic high ground of space. Or, rather, the direction of attack would be unidirectional: from U.S. adversaries toward essential U.S. space systems. Thus, while space confers unequivocal advantages to the U.S. forces that depend on space assets for their vital functions, it also provides adversaries with an unprecedented weakness for them to exploit. The fact is that United States, China, or Russia's dependence on space is asymmetrical. Over the long run, a deterrent-based, space superiority model would eventually allow other states not only to gain and maintain access to space, but also effectively to gain strategic parity with the United States in space. Make no mistake, the more that states are able to access space, no matter how nascent or rudimentary their space programs may be, the more they will refine their capabilities and be able to develop space programs for their own strategic ends. While most defense analysts believe that deterrence during the Cold War led to bipolar stability, a deterrence-based model in space would create instability. If a near-peer competitor like China or Russia believed that it had acquired the capacity to achieve parity with the United States, what would stop that state from trying to gain strategic advantage over America in space? A Hegemonic Model The best solution to avoid this situation is a hegemonic model. The only way that the United States can ensure its continued strategic advantage in space is to embrace fully the space dominance model by weaponizing space. While space superiority advocates will denounce this policy as both cost-ineffective and destabilizing, a hegemonic approach to space is far more in keeping with U.S. traditions and values. Indeed, as John Lewis Gaddis asserts, the American response to foreign threat is traditionally to take “the offensive, by becoming more conspicuous, by confronting, neutralizing, and if possible overwhelming the sources of danger rather than fleeing from them. Expansion, we have assumed, is the path to security.”8 What of the claim that a deterrence-based space superiority model creates stability? The primary claim of deterrence efficacy is that during the Cold War, the more or less equal nuclear balance ensured that neither side had an incentive to launch a disarming first strike. This view was the basis of the mutual assured destruction theory. Since there was no conceivable advantage to either side from these weapons, both sides were forced into a more constructive diplomatic relationship. In all of the time that deterrence was employed, American policymakers assured the public that MAD was better than the alternatives—compellence,9 Rollback,10 and hegemony—because it restrained Soviet aggression. American policymakers assumed that the Soviet strategists in the Kremlin viewed nuclear arms in the same apocalyptic terms that they did. As such, U.S. policymakers were not only content to allow American nuclear dominance to erode, but also to degrade actively those capabilities through strategic arms agreements. In the meantime, until 1986, mainstream Soviet strategists and policymakers were convinced that they could prevail in a nuclear war. They were just biding their time.11 In this light then, deterrence was not built around the concept of enlightened self-interest, but more likely the result of U.S. policymakers’ inability to see through the fog of the Cold War. The Soviets were by definition a revolutionary power. Even after they had renounced the concept of spreading global communist revolution, however, the urge to transform fundamentally the world order to reflect their own image remained a high strategic priority for the USSR. The United States failed to discern this situation until the Reagan Administration. President Ronald Reagan, rather than accept the Cold War deterrence paradigm, planned to bring American technical and strategic dominance to bear in space in order to help defeat the Soviet Union. Reagan also recognized that the demilitarized sanctuary view of space was irrelevant, and he eschewed arms control agreements that sought to counteract the inherent American advantages in space. President Reagan not only embraced a militarized view of space, but in 1983, he also called for the weaponization of space with his Strategic Defense Initiative (SDI). By the 1980s, the United States was becoming increasingly dependent on space for military purposes (primarily in the area of satellites). These space systems formed the backbone of the modern military force that Reagan was assembling to counter the Soviet Union. What is more, Reagan's preferred strategy of Rollback meant that the United States would no longer sacrifice its own strategic advantages on the altar of diplomacy. After all, Reagan did not accept the Soviets as an equal and legitimate global power. He detested communism and viewed its proponents in the USSR as the great villains on the world stage. Furthermore, Reagan was staunchly opposed to nuclear weapons. Therefore, he sought to remove the notion of deterrence through MAD and replace it with the concept of hegemony through “Mutual Assured Survival.” These views coalesced into the Reagan Administration's commitment to placing missile defense systems in orbit. It also called for developing new technologies (i.e., directed-energy weapons) to be used in space. The United States would not only remove the threat of the Soviet nuclear arsenal by creating a working missile defense system in space, but it would also move beyond the Soviet threat by permanently dominating the high ground of space. This position was the basis of SDI.12 In fact, the Reagan Administration's shift in focus was a key factor in the collapse of the Soviet Union as the Soviet leadership then embarked on a tit-for-tat arms buildup that their economy simply could not sustain. 13 Even if deterrence did facilitate a significant reduction in hostility—thereby creating the bipolar stability—no such hope for stability exists in space today. As argued earlier, U.S. reliance on space assets for its most basic functions is far greater than that of other countries. Furthermore, there is no way that the United States can—or should—abandon its use of space as a strategic domain. Thus, a hegemonic model for space dominance is the only hope to create the stability that most planners seek, while at the same time defending the American position in space. Space dominance as a model for stability is nothing new. Indeed, Hegemonic Stability Theory (HST) asserts that the most stable global systems are those in which one actor dominates the system. In such a system, power is aggregated so greatly into a single, dominant actor that such a hegemonic power acts as a stabilizing force. Due to its relative strength, the hegemonic power can set the agenda and the rules that govern the system. The relative weakness of the other actors in the system is well understood, which then prompts these weak actors to abandon any hope of challenging the hegemonic power's rule. Eventually, they end up accommodating the hegemonic power. The lack of challenge creates peaceful stability.14 The fact that one actor is setting the rules means that the system is simple to operate in, as well. The same logic that buttresses the HST international relations theory arguably undergirds the military strategy of space dominance. If this claim is so, then American hegemony in space is essential for the continued survival of the United States. Whereas there are legitimate arguments to be made regarding the reliance on deterrence-based models for creating stability during the Cold War, the fact is that the world is more multipolar today than it was 25 years ago. Despite what writer Fareed Zakaria has dubbed “the rise of the rest,”15 the United States still retains greater relative power. Therefore, it is inevitable and logical that the United States should expand its hegemonic position in space, in order to secure its place there. Whereas deterrence-based models, such as space superiority, may have worked in a less chaotic international system, no such stability can be achieved today. Many of America's competitors are revanchist states intent on redefining the world order. They are not interested in preserving the American position in space. Also, they are not cowed by a U.S. deterrence strategy in space. Rather, they view such a policy as a concession that the United States is becoming weaker. Space dominance would create greater stability than space superiority. Missile defense systems, tungsten rods, and even directed-energy weapons potentially would all be placed in key orbits around the Earth. This, on top of the existing U.S. space infrastructure, would prove to the world that the United States is committed to preserving its position in space. In a world of rogue states, space-based weapons likely would prevent surprise nuclear attacks. Failing that, the fact that the United States possessed strategic, offensive weapons in orbit—that could be brought down against any hostile actor—undoubtedly, would make even the most intractable foe hesitant. It is arguable that overwhelming U.S. space power would trickle down from the strategic high ground to lower strategic domains. Rather than wasting time demonstrating resolve by “temporarily blinding Chinese satellites,”16 for example, the overwhelming American presence in space presumably would dissuade potential attackers.

#### US hegemony prevents great-power conflicts that escalates to nuclear war – China and Russia are revisionist expansionists

Brands and Edel 19 (Hal Brands and Charles Edel. Hal Brands is the Henry Kissinger Distinguished Professor of Global Affairs in the Johns Hopkins School of Advanced International Studies and a scholar at the American Enterprise Institute. Charles Edel is a senior fellow at the United States Studies Centre at the University of Sydney and previously served on the U.S. Secretary of State’s policy planning staff, “Rediscovering Tragedy. In The Lessons of Tragedy: Statecraft and World Order; Chapter 6: The Darkening Horizon,” Yale University Press, pp 128-131 <http://www.jstor.org/stable/j.ctvbnm3r9.11>)

Each of these geopolitical challenges is different, and each reflects the distinctive interests, ambitions, and history of the country undertaking it. Yet there is growing cooperation between the countries that are challenging the regional pillars of the U.S.-led order. Russia and China have collaborated on issues such as energy, sales and development of military technology, opposition to additional U.S. military deployments on the Korean peninsula, and military exercises from the South China Sea to the Baltic. In Syria, Iran provided the shock troops that helped keep Russia’s ally, Bashar al-Assad, in power, as Moscow provided the air power and the diplomatic cover. “Our cooperation can isolate America,” supreme leader Ali Khamenei told Putin in 2017. 34 More broadly, what links these challenges together is their opposition to the constellation of power, norms, and relationships that the U.S.-led order entails, and in their propensity to use violence, coercion, and intimidation as means of making that opposition effective. Taken collectively, these challenges constitute a geopolitical sea change from the post– Cold War era. The revival of great-power competition entails higher international tensions than the world has known for decades, and the revival of arms races, security dilemmas, and other artifacts of a more dangerous past. It entails sharper conflicts over the international rules of the road on issues ranging from freedom of navigation to the illegitimacy of altering borders by force, and intensifying competitions over states that reside at the intersection of rival powers’ areas of interest. It requires confronting the prospect that rival powers could overturn the favorable regional balances that have underpinned the U.S.-led order for decades, and that they might construct rival spheres of influence from which America and the liberal ideas it has long promoted would be excluded. Finally, it necessitates recognizing that great-power rivalry could lead to great-power war, a prospect that seemed to have followed the Soviet empire onto the ash heap of history. Both Beijing and Moscow are, after all, optimizing their forces and exercising aggressively in preparation for potential conflicts with the United States and its allies; Russian doctrine explicitly emphasizes the limited use of nuclear weapons to achieve escalation dominance in a war with Washington.35 In Syria, U.S. and Russian forces even came into deadly contact in early 2018. American airpower decimated a contingent of government-sponsored Russian mercenaries that was attacking a base at which U.S. troops were present, an incident demonstrating the increasing boldness of Russian operations and the corresponding potential for escalation.36 The world has not yet returned to the epic clashes for global dominance that characterized the twentieth century, but it has returned to the historical norm of great-power struggle, with all the associated dangers. Those dangers may be even greater than most observers appreciate, because if today’s great-power competitions are still most intense at the regional level, who is to say where these competitions will end? By all appearances, Russia does not simply want to be a “regional power” (as Obama cuttingly described it) that dominates South Ossetia and Crimea.37 It aspires to the deep European and extra-regional impact that previous incarnations of the Russian state enjoyed. Why else would Putin boast about how far his troops can drive into Eastern Europe? Why else would Moscow be deploying military power into the Middle East? Why else would it be continuing to cultivate intelligence and military relationships in regions as remote as Latin America? Likewise, China is today focused primarily on securing its own geopolitical neighborhood, but its ambitions for tomorrow are clearly much bolder. Beijing probably does not envision itself fully overthrowing the international order, simply because it has profi ted far too much from the U.S.-anchored global economy. Yet China has nonetheless positioned itself for a global challenge to U.S. influence. Chinese military forces are deploying ever farther from China’s immediate periphery; Beijing has projected power into the Arctic and established bases and logistical points in the Indian Ocean and Horn of Africa. Popular Chinese movies depict Beijing replacing Washington as the dominant actor in sub-Saharan Africa—a fi ctional representation of a real-life effort long under way. The Belt and Road Initiative bespeaks an aspiration to link China to countries throughout Central Asia, the Middle East, and Europe; BRI, AIIB, and RCEP look like the beginning of an alternative institutional architecture to rival Washington’s. In 2017, Xi Jinping told the Nineteenth National Congress of the Chinese Communist Party that Beijing could now “take center stage in the world” and act as an alternative to U.S. leadership.38 These ambitions may or may not be realistic. But they demonstrate just how signifi cantly the world’s leading authoritarian powers desire to shift the global environment over time. The revisionism we are seeing today may therefore be only the beginning. As China’s power continues to grow, or if it is successful in dominating the Western Pacifi c, it will surely move on to grander endeavors. If Russia reconsolidates control over the former Soviet space, it may seek to bring parts of the former Warsaw Pact to heel. Historically, this has been a recurring pattern of great-power behavior—interests expand with power, the appetite grows with the eating, risk-taking increases as early gambles are seen to pay off.39 This pattern is precisely why the revival of great-power competition is so concerning—because geopolitical revisionism by unsatisfied major powers has so often presaged intensifying international conflict, confrontation, and even war. The great-power behavior occurring today represents the warning light flashing on the dashboard. It tells us there may be still-greater traumas to come.

# 2

#### Build Back Better passes now – Biden remarks give it momentum

**Frazin 1/23** – Staff Writer for The Hill (Rachel, “ Biden comments add momentum to spending bill's climate measures,” *The Hill*, 1-23-22, <https://thehill.com/policy/healthcare/590871-biden-comments-add-momentum-to-spending-bills-climate-measures>)

President Biden’s remarks at a Wednesday press conference are giving momentum to the climate portions of his spending agenda as lawmakers call for Congress to pass the parts of the Build Back Better legislation that are achievable. Biden expressed confidence that lawmakers can pass **upward of $500 billion in energy and environmental spending** — a number close to the amount the White House proposed spending on climate and clean energy in October. And after months of negotiations, weary lawmakers are now pushing to get climate action across the finish line. “The climate and clean energy provisions in Build Back Better have been largely worked through and financed, so let’s start there and add any of the other important provisions to support working families that can meet the 50-vote threshold,” Sen. Ed Markey (D-Mass.) said in a statement. Markey is far from alone. Sen. Tina Smith (D-Minn.), who has been a vocal proponent of the legislation’s climate change measures, expressed a similar sentiment in an interview with The Hill. “We need to figure out what we have agreement on and we need to do that,” Smith said. “Based on where we have been and comments that Sen. Manchin has made about the climate provisions that we have been negotiating up until the end of last year, it seems like **those sections of the old Build Back Better bill should be in pretty good shape,**” she added. Manchin is the West Virginia Democrat who stopped the Build Back Better bill in its tracks when he announced his opposition in December. Democrats need all of their 50 caucus members to back the legislation for it to get to Biden’s desk. Manchin has **expressed support for the environmental provisions**, but moving ahead would mean cuts to other programs, including an expanded child tax credit, to win his vote. But Smith said it’s important to be practical and get as much as possible out of the negotiations. “I’m a progressive in the caucus but I’m also practical, and I think this is the practical, commonsense way of moving forward to accomplish the best that we can,” she said. Democrats in Congress have historically failed to move major climate change legislation forward and have suffered from high-profile failures like the Obama-era Waxman-Markey bill. Democrats have limited options for getting this type of spending across, give the budgetary rules that allow them to avoid a filibuster that would allow the GOP to block their measure. It’s unlikely that 10 Republicans would join Democrats on many of their climate provisions. The New York Times recently asked all 50 Republicans if they would support the climate provisions as a standalone and **none of them said that they would.** Senate Finance Committee Chairman Ron Wyden (D-Ore.) told reporters Thursday that he saw Biden’s latest remarks as **establishing a way forward** for some provisions like climate. “What the president did last night, and he and I talked about this a number of times, is he created a path for a handful of provisions where we've got a lot of strong support, and it starts with climate. It starts with health care,” he said. Biden, during his Wednesday press conference said, “I think we can break the package up,” “Get as much as we can now and fight for the rest later,” he added. The president also said that he believes Democrats can pass more than $500 billion in energy and environment spending, a figure close to the White House’s proposed $555 billion of climate and clean energy spending from October. Manchin earlier this month said that climate is an area “we probably can come to an agreement much easier than anything else” and **specifically touted clean energy tax credits.**

#### Large President-led national space policies incite immense partisan backlash that spills over to kill the entire political agenda

Dreier 16 [Casey Dreier, Chief Advocate & Senior Space Policy Adviser for The Planetary Society, April 13, 2016. “Does Presidential Intervention Undermine Consensus for NASA?” https://www.planetary.org/blogs/casey-dreier/2016/0413-does-a-strong-president-help-or-hurt-consensus-on-NASA.html]

To see how this happens, I recommend reading the book “[Beyond Ideology](http://smile.amazon.com/Beyond-Ideology-Politics-Principles-Partisanship/dp/0226470768/ref=smi_www_rco2_go_smi_g2243582042?_encoding=UTF8&*Version*=1&*entries*=0&ie=UTF8)” by Frances Lee. The author’s larger premise is that issues having no intrinsic relation to stated party ideology have become increasingly polarized in recent years. This is a function of the two party nature of our political system. If your party coalition wins, the other one loses. It’s [It is] zero-sum. Your party can win in one of two ways: you can make a better pitch to voters by demonstrating the superiority of your agenda; or you can undermine and stymie the agenda of the opposition party, making them unpopular with voters, and pick up the seats that they lose. Since you’re the only other political party, you gain in either scenario. I’m not sure if you’ve noticed, but the “undermine and stymie” approach has been popular for quite some time now in the U.S. Congress. Given this situation, the President and their policies naturally become the symbolic target of the opposition party. Anything promoted by the President effectively induces opposition by association. Lee demonstrates the magnitude of this induced polarization on various types of issues. For highly polarized issues like the role of government in the economy, or social issues, the impact is minimal—the opposition has already been clearly defined and generally falls into clearly defined ideologies of the Republican and Democratic parties. But for issues that do not fit readily into a predefined political ideology—like space—the induced polarization by the President can be significant. In fact, Lee showed that space, science, and technology issues incur the greatest increase in partisanship based on their inclusion in the Presidential agenda. One need only look to at the responses by political operatives of the opposing party to the strong human spaceflight proposals by [Barack Obama in 2010](http://www.shelby.senate.gov/public/index.cfm/mobile/newsreleases?ID=25F3AD2E-802A-23AD-4960-F512B9E205D2), [George W. Bush in 2004](http://www.nbcnews.com/id/3950099/ns/technology_and_science-space/t/bush-sets-new-course-moon-beyond/#.Vw3UMRMrKHo), and [George H.W. Bush in 1989](http://www.nytimes.com/1989/07/21/us/president-calls-for-mars-mission-and-a-moon-base.html) to see this reflected in recent history. This isn’t to say that Presidents can’t have a significant impact on the space program. Clearly they can. But the broad consensus needed for stability after their departure from office may be undermined by the very priority they gave it during their tenure. It what amounts to a mixed blessing for NASA, the U.S. space program does have an unusually strong bipartisan group of politicians who support the program due to NASA centers in a variety of states throughout the union. Berger notes this throughout his article, and it does, in a way, act as force that is resistant to change for good and bad. This mitigates somewhat the pure polarization seen on other science and technology issues. But for a Journey to Mars—a major effort that would, at best, require stability and significant funding over many Presidential administrations—that may not be enough. Perhaps the solution is for the next President to maintain a light touch on space. Maybe they should speak softly through the budget process, and avoid the Kennedyesque speeches and declarations to Congress that induce the types of partisanship we so dearly need to avoid.

#### BBB climate provisions k2 methane emissions and leak detection

**Casten 1/21** - a member of the House of Representatives, representing the Sixth District of Illinois (Sean, “To Fully Mitigate Climate Change, We Need to Curb Methane Emissions,” *Scientific American*, 1-21-22, <https://www.scientificamerican.com/article/to-fully-mitigate-climate-change-we-need-to-curb-methane-emissions/>)

To Fully Mitigate Climate Change, We Need to Curb Methane Emissions It’s been more than two months since the House of Representatives passed the Build Back Better Act—a bill that would make desperately needed and decades-overdue strides toward the U.S. meeting its moral responsibility to combat the climate crisis. But instead of moving into a new year on the hope that would come with the Senate passing and President Biden signing this historic legislation into law, I’m terrified—and furious—that **we’re tripping at the finish line.** Ahead of COP26, the United Nations climate change conference in November, President Joe Biden committed the U.S. to reducing our greenhouse gas emissions by half by 2030. Having run for Congress on a climate platform after spending two decades combating climate change in the private sector, I know that reducing our greenhouse gas emissions is what’s right for our environment—and for our wallets. If we want to have a shot at meeting that goal, we must find a way to implement the provisions in the House version of the Build Back Better Act that science tells us will reduce emissions quickly, cheaply and most dramatically. One of the most critical and expedient moves we can make is to reduce methane emissions. Methane is a rapidly accelerating part of the climate problem. It is the primary component of natural gas, and it warms the planet more than 80 times as quickly as a comparable volume of atmospheric CO2 over a comparable amount of time. On the one hand, while burning natural gas produces about half the CO2 emissions as burning coal, methane leaking into the atmosphere **more than eliminates those environmental benefits.** Moreover, methane pollution, which is a primary component of ground-level ozone and emitted alongside toxic chemicals such as benzene, has been linked to heart disease, birth defects, asthma and other adverse health impacts. These affect frontline and fenceline communities, the majority of whom are people of color, the hardest. Eliminating those leaks is perhaps the biggest “bang for the buck” action we can take, and the Build Back Better legislation has built within it a program that pairs grants to natural gas companies to help monitor and reduce methane pollution at oil and gas operations with fines on companies who instead break the rules. The program ties into the Global Methane Pledge that President Biden created at COP26. More than 100 countries signed on to a 30 percent reduction of methane levels by 2030. Reducing methane pollution could also reduce adverse health for those in the immediate vicinity of polluters. To meet this goal, we can use existing technology to monitor for and prevent leaks at oil and gas drilling, production, and transmission sites, and prohibit routine venting and flaring of methane gas. This one set of actions would get us most of the way to that goal and is exactly why the Build Back Better Act is so critical. President Biden understands we have a golden opportunity at a critical moment. His administration has already taken a number of important executive actions to eliminate methane emissions at the source: on the same day he and climate envoy John Kerry announced the Global Methane Pledge, the Environmental Protection Agency and the Departments of the Interior and Transportation rolled out new or strengthened rules to tackle methane emissions from oil and gas operations, landfills, pipelines and agriculture. But we can’t get there on executive action alone. While eliminating methane emissions is essential to our fight against climate change building the leak monitoring system that Build Back Better currently calls for would create tens of thousands of jobs in the manufacturing and service sectors and spur hundreds of billions in economic growth.

**Methane emissions lock in irreversible warming – turns their climate impact**

**Howarth 14** [Robert Howarth, PhD, Director, Agriculture, Energy & Environment Program, Chair, International SCOPE Biofuels Program, David R. Atkinson Professor of Ecology and Environmental Biology – Cornell, “A bridge to nowhere: methane emissions and the greenhouse gas footprint of natural gas,” Energy Science & Engineering, Volume 2, Issue 2, June, 2014]

The GWP of Methane While methane is far more **effective** as a greenhouse gas than carbon dioxide, methane has an atmospheric lifetime of only 12 years or so, while carbon dioxide has an effective influence on atmospheric chemistry for a century or longer [34]. The time frame over which we compare the two gases is therefore **critical**, with methane becoming relatively less important than carbon dioxide as the timescale increases. Of the major papers on methane and the GHG for conventional natural gas published before our analysis for shale gas, one modeled the relative radiative forcing by methane compared to carbon dioxide continuously over a 100-year time period following emission [2], and two used the global warming approach (GWP) which compares how much larger the integrated global warming from a given mass of methane is over a specified period of time compared to the same mass of carbon dioxide. Of the two that used the GWP approach, one showed both 20-year and 100-year GWP analyses [3] while another used only a 100-year GWP time frame [4]. Both used GWP values from the Intergovernmental Panel on Climate Change (IPCC) synthesis report from 1996 [35], the **most reliable estimates** at the time their papers were published. In subsequent reports from the IPCC in 2007 [36] and 2013 [34] and in a paper in Science by workers at the NASA Goddard Space Institute [37], these GWP values have been **substantially increased**, in part, to account for the **indirect effects** of methane on other **radiatively active substances** in the atmosphere such as ozone (Table 2). In Howarth et al. [8], we used the GWP approach and closely followed the work of Lelieveld and colleagues [3] in presenting both integrated 20 and 100 year periods, and in giving equal credence and interpretation to both timescales. We upgraded the approach by using the most recently published values for GWP at that time [37]. These more recent GWP values **increased** the relative warming of methane compared to carbon dioxide by 1.9-fold for the 20-year time period (GWP of 105 vs. 56) and by 1.6-fold for the 100-year time period (GWP of 33 vs. 21; Table 2). Our conclusion was that for the 20-year time period, **shale gas had a larger GHG than coal or oil** even at our low-end estimates for methane emission (Fig. 1); conventional gas also had a larger GHG than coal or oil at our mean or high-end methane emission estimates, but not at the very low-end range for methane emission (the best-case, low-emission scenario). At the 100-year timescale, the influence of methane was much diminished, yet at our high-end methane emissions, the GHG of both shale gas and conventional gas still exceeded that of coal and oil (Fig. 1). Of nine new reports on methane and natural gas published in 9 months after our April 2011 paper [8], six only considered the 100-year time frame for GWP, two used both a 20- and 100-year time frame, and one used a continuous modeling of radiative forcing over the 0–100 time period (Table 2). Of the six papers that only examined the 100-year time frame, all used the **lower GWP value of** 25 from the 2007 IPCC report rather than the higher value of 33 published by Shindell and colleagues in 2009 that we had used; this higher value better accounts for the indirect effects of methane on global warming. Many of these six papers implied that the IPCC dictated a focus on the 100-year time period, **which is simply not the case**: the IPCC report from 2007 [36] presented both 20- and 100-year GWP values for methane. And two of these six papers criticized our inclusion of the 20-year time period as inappropriate [14, 17]. I strongly disagree with this criticism. In the time since April 2011 I have come increasingly to believe that it is essential to consider the role of methane on timescales that are **much shorter than 100 years**, in part, due to **new science on methane** and global warming presented since then [34, 41, 42], briefly summarized below. The **most recent synthesis** report from the IPCC in 2013 on the physical science basis of global warming highlights the **role of methane** in global warming at **multiple timescales**, using GWP values for 10 years in addition to 20 and 100 years (GWP of 108, 86, and 34, respectively) in their analysis [34]. The report states that “there is no scientific argument for selecting 100 years compared with other choices,” and that “the choice of time horizon …. depends on the relative weight assigned to the effects at different times” [34]. The IPCC further concludes that at the 10-year timescale, the current global release of methane from all anthropogenic sources **exceeds** (slightly) **all anthropogenic carbon dioxide emissions** as agents of global warming; that is, **methane emissions are more important** (slightly) **than carbon dioxide** emissions for driving the **current rate** of global warming. At the 20-year timescale, total global emissions of methane are equivalent to over 80% of global carbon dioxide emissions. And at the 100-year timescale, current global methane emissions are equivalent to slightly less than 30% of carbon dioxide emissions [34] (Fig. 3). This difference in the time sensitivity of the climate system to methane and carbon dioxide **is critical**, and **not widely appreciated** by the policy community and even some climate scientists. While some note how the long-term momentum of the climate system is driven by carbon dioxide [15], the climate system is **far more immediately responsive** to changes in methane (and other short-lived radiatively active materials in the atmosphere, such as black carbon) [41]. The model published in 2012 by Shindell and colleagues [41] and adopted by the United Nations [42] predicts that unless emissions of methane and black carbon are reduced **immediately**, the Earth's average surface temperature will warm by 1.5°C by about 2030 and by 2.0°C by 2045 to 2050 **whether or not carbon dioxide emissions are reduced**. Reducing methane and black carbon emissions, even if carbon dioxide is not controlled, **would significantly slow the rate of global warming and postpone reaching the 1.5°C and 2.0°C marks by 15–20 years**. Controlling carbon dioxide as well as methane and black carbon emissions further slows the rate of global warming after 2045, through at least 2070 [41, 42] (Fig. 4). Why should we care about this warming over the next few decades? At temperatures of 1.5–2.0°C above the 1890–1910 baseline, the risk of a fundamental change in the Earth's climate system becomes **much greater** [41-43], possibly leading to **runaway feedbacks** and **even more global warming**. Such a result **would dwarf any possible benefit from reductions in carbon dioxide emissions** over the next few decades (e.g., switching from coal to natural gas, which does reduce carbon dioxide but also increases methane emissions). One of many mechanisms for such catastrophic change is the melting of methane clathrates in the oceans or melting of permafrost in the Arctic. Hansen and his colleagues [43, 44] have suggested that warming of the Earth by 1.8°C may trigger a large and rapid increase in the release of such methane. While there is a wide range in both the magnitude and timing of projected carbon release from thawing permafrost and melting clathrates in the literature [45], warming consistently leads to greater release. This release can in turn cause a feedback of accelerated global warming [46]. To state the converse of the argument: the influence of today's emissions on global warming 200 or 300 years into the future will largely reflect carbon dioxide, and not methane, unless the emissions of methane lead to tipping points and a fundamental change in the climate system. **And that could happen as early as within the next two to three decades.** An **increasing body of science** is developing **rapidly that emphasizes** the need to consider methane's influence over the decadal timescale, and the need to reduce methane emissions. Unfortunately, some recent guidance for life cycle assessments specify only the 100-year time frame [47, 48], and the EPA in 2014 still uses the GWP values from the IPCC 1996 assessment and only considers the 100-year time period when assessing methane emissions [49]. In doing so, they underestimate the global warming significance of methane by 1.6-fold compared to more recent values for the 100-year time frame and by four to fivefold compared to the 10- to 20-year time frames [34, 37].

# Case

## Cap

### Conflict

#### Continued growth solves conflict – empirics prove capitalist peace

Harrison 11 (Mark, Department of Economics, University of Warwick, Centre for Russian and East European Studies, University of Birmingham, Hoover Institution on War, Revolution, and Peace, Stanford University, “Capitalism at War”, Oct 19 http://www2.warwick.ac.uk/fac/soc/economics/staff/academic/harrison/papers/capitalism.pdf)

Capitalism’s Wars America is the world’s preeminent capitalist power. According to a poll of more than 21,000 citizens of 21 countries in the second half of 2008, people tend on average to evaluate U.S. foreign policy as inferior to that of their own country in the moral dimension. 4 While this survey does not disaggregate respondents by educational status, many apparently knowledgeable people also seem to believe that, in the modern world, most wars are caused by America; this impression is based on my experience of presenting work on the frequency of wars to academic seminars in several European countries. **According to the evidence, however, these beliefs are mistaken**. We are all aware of America’s wars, but they make only a small contribution to the total. Counting all bilateral conflicts involving at least the show of force from 1870 to 2001, it turns out that the countries that originated them come from all parts of the global income distribution (Harrison and Wolf 2011). Countries that are richer, measured by GDP per head, **such as America do not tend to start more conflicts**, although there is a tendency for countries with larger GDPs to do so. Ranking countries by the numbers of conflicts they initiated, the United States, with the largest economy, comes only in second place; third place belongs to China. In first place is Russia (the USSR between 1917 and 1991). What do capitalist institutions contribute to the empirical patterns in the data? Erik Gartzke (2007) has re-examined the hypothesis of the “democratic peace” based on the possibility that, **since capitalism and democracy are highly correlated across countries and time, both democracy and peace might be products of the same underlying cause, the spread of capitalist institutions**. It is a problem that our historical datasets have measured the spread of capitalist property rights and economic freedoms over shorter time spans or on fewer dimensions than political variables. For the period from 1950 to 1992, Gartzke uses a measure of external financial and trade liberalization as most likely to signal robust markets and a laissez faire policy. **Countries that share this attribute of capitalism above a certain level, he finds, do not fight each other, so there is capitalist peace as well as democratic peace**. Second, economic liberalization (of the less liberalized of the pair of countries) is a more powerful predictor of bilateral peace than democratization, controlling for the level of economic development and measures of political affinity.

#### Prefer – their ev is abstract theorizing, ours is strict empirical data

#### Cap solves Nuclear War – capitalist trade exchanges unite nuclear adversaries through economic interdependence

Bedell, ‘21 (Denise Bedell has an Honors BA in Psychology at the University of Windsor and wrote a thesis, Peace Through Profit: How Capitalism Helps Restore and Revive Former Warzones, This is Capitalism presented by Stephens Inc., <https://www.thisiscapitalism.com/peace-through-profit-how-capitalism-helps-restore-and-revive-former-warzones/>, 2021)

Meet and Greet Looking more closely at the experiences of recent war zones makes clear how capitalism can bring together former opponents. By improving citizens’ quality of life through economic development, and by creating interdependency through trade, this can reduce the incentive for nations to take up arms against their neighbors. Take the Balkans. The Balkan peninsula is made up of Croatia, Bosnia and Herzegovina, Slovenia, Serbia, Montenegro, Kosovo, Macedonia, Romania, Bulgaria, Albania, Greece and the European part of Turkey. This region was a hotbed of conflict when the former Yugoslavia broke up at the end of the cold war (and, in fact the region has a long history of armed conflict). The Kosovo War in 1998-1999, for example, was fought between the Serbian Yugoslav authority (by then, Yugoslavia was made up of Serbia and Macedonia) — which controlled Kosovo — and the rebel Kosovo Liberation Army (backed by NATO air support). The deadly conflict saw thousands massacred in what a U.N. court would later deem a “systematic campaign of terror.” Those dark days are far gone, however, and these neighbors now work together in a virtuous economic cycle. Early in 2018, Pristina, the capital of Kosovo, hosted a four-day trade fair — at which 70 of the 174 companies present were Serbian. “I hope we will send the signal that the cooperation is already there,” noted Marko Cadez of Serbia’s Chamber of Commerce and Industry. “The people are working, the people are employing, making products, making profits — and that is most important for our country.” Or consider relations between India and Pakistan — strategic and military rivals that have threatened nuclear war on numerous occasions. Despite these tensions, bilateral trade between the two countries was worth around $2.6 billion in 2016, according to Indian government figures. Unofficial estimates suggest that it is twice that amount — and that the potential for trade is many times greater yet. “Peace building and peacemaking will always be subject to the larger political issues between India and Pakistan,” according to a report in 2017 from the independent and non-partisan federally mandated United States Institute of Peace (USIP). But, according to USIP, economic and trade cooperation can offers a path toward greater stability and peace between the countries — and across South Asia as a whole. A research report titled “Pakistan-India Relations: Peace Through bilateral Trade” — by Muhammad Ali, Noreen Mujahid and Aziz ur Rehman of the University of Karachi — determined that by increasing bilateral trade, it can help resolve political issues between the two countries — and reduce poverty. The report, published in the European Scientific Journal, noted: “If Pakistan and India normalize their economic relations, it will enhance the formal trade — and as a result, both the countries will earn significant revenue, which is lost due to informal trade.” The authors stated that as formal trade volumes rise, “both governments will be compelled to normalize their political relations and resolve their border disputes in an amicable manner.” Hence — as trade increases, pressure mounts on the authorities to ensure nothing interferes with those economic ties. Internal Strength Capitalism not only facilitates peace between nations, but also within them. Rwanda experienced a horrific genocide in the 1990s. But since then, the country has undergone a dramatic transformation — in part, because of the hard work of companies that have partnered with the government and outside agencies to create sustainable businesses and industries that are building a stable and growing economy. One of the many companies that has helped engender peace and create stability since Rwanda’s darkest days is Westrock Coffee. CEO Scott Ford’s pioneering work has helped to build a sustainable, free-market system for independent coffee producers in the country. Ford espoused a direct trade model — paying local smallholder farmers a fair market value for their coffee beans. He also built an agricultural training institute for local farmers, many of whom are women. As Ford explained: “What we are trying to do in Rwanda is be the engine that helps them create their own [economic] ecosystem.” (read more of his story here). Another example in Rwanda is Africa Improved Foods, which specializes in fortified foods to combat malnutrition. At an event earlier this year to mark the genocide, AIF’s chief executive, Amar Ali, outlined how business can help prevent the divisions that lead to conflict. “At Africa Improved Foods, we want to be a flagship for Rwanda — not only in what we build and the products we produce, but also the way we treat each other,” he said. “Everybody is a human being first, and should be treated as such — irrespective of gender, race, religion, tribe, or any other categorization.” In September of 2018, AIF received an SDG award for sustainable consumption (based on the UN’s Sustainable Development Goals) from the Swiss Green Economy Symposium. The award recognized the company for its innovative joint venture in Rwanda, along with the government of Rwanda, a consortium of various banks, and the International Finance Corporation, for promoting local production by buying farmers’ maize and soy yields directly at competitive prices. AIF’s factory in Kigali, the Rwandan capital, provides work to some 300 people, and the local-sourcing program provides around 24,000 Rwandan farmers with stable, sustainable income. Capitalism not only creates an environment for peace but when capitalism stumbles, so do the prospects for international harmony. In 2016, more countries experienced violent conflict than at any time in nearly 30 years. Not coincidentally, trade growth has been in something of a rut for most of the period since the global financial crisis. In that calamitous year of 2016, trade growth fell below 3% for the fifth consecutive year.

### Warming

#### Only advanced capitalist economies can decouple emissions from growth, so only capitalist development is k2 solve warming

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The past 30 years have seen immense progress in improving the quality of life for much of humanity. Extreme poverty — the number of people living on less than $1.90 per day — has fallen by nearly two-thirds, from 1.9 billion to around 650 million. Life expectancy has risen in most of the world, along with literacy and access to education, while infant mortality has fallen. Despite perceptions to the contrary, the average person born today is likely to have access to more opportunities and have a better quality of life than at any other point in human history. Much of this increase in human wellbeing has been propelled by rapid economic growth driven largely by state-led industrial policy, particularly in poor-to-middle income countries. However, this growth has come at a cost: between 1990 and 2019, global emissions of CO2 increased by 56%. Historically, economic growth has been closely linked to increased energy consumption — and increased CO2 emissions in particular — leading some to argue that a more prosperous world is one that necessarily has more impacts on our natural environment and climate. There is a lively academic debate about our ability to “absolutely decouple” emissions and growth — that is, the extent to which the adoption of clean energy technology can allow emissions to decline while economic growth continues. Over the past 15 years, however, something has begun to change. Rather than a 21st century dominated by coal that energy modelers foresaw, global coal use peaked in 2013 and is now in structural decline. We have succeeded in making clean energy cheap, with solar power and battery storage costs falling 10-fold since 2009. The world produced more electricity from clean energy — solar, wind, hydro, and nuclear — than from coal over the past two years. And, according to some major oil companies, peak oil is upon us — not because we have run out of cheap oil to produce, but because demand is falling and companies expect further decline as consumers increasingly shift to electric vehicles. The world has long been experiencing a relative decoupling between economic growth and CO2 emissions, with the emissions per unit of GDP falling for the past 60 years. This is the case even in countries like India and China that have been undergoing rapid economic growth. But relative decoupling alone is inadequate in a world where global CO2 emissions need to peak and decline in the next decade to give us any chance at limiting warming to well below 2℃, in line with Paris Agreement targets. Thankfully, there is increasing evidence that the world is on track to absolutely decouple CO2 emissions and economic growth — with global CO2 emissions potentially having peaked in 2019 and unlikely to increase substantially in the coming decade. While an emissions peak is just the first and easiest step towards eventually reaching the net-zero emissions required to stop the world from continuing to warm, it demonstrates that linkages between emissions and economic activity are not an immutable law, but rather simply a result of our current means of energy production. In recent years we have seen more and more examples of absolute decoupling — economic growth accompanied by falling CO2 emissions. Since 2005, 32 countries with a population of at least one million people have absolutely decoupled emissions from economic growth, both for terrestrial emissions (those within national borders) and consumption emissions (emissions embodied in the goods consumed in a country). This includes the United States, Japan, Mexico, Germany, United Kingdom, France, Spain, Poland, Romania, Netherlands, Belgium, Portugal, Sweden, Hungary, Belarus, Austria, Bulgaria, El Salvador, Singapore, Denmark, Finland, Slovakia, Norway, Ireland, New Zealand, Croatia, Jamaica, Lithuania, Slovenia, Latvia, Estonia, and Cyprus. Figure 1, below, shows the declines in territorial emissions (blue) and increases in GDP (red). To qualify as having experienced absolute decoupling, we require countries included in this analysis to pass four separate filters: a population of at least one million (to focus the analysis on more representative cases), declining territorial emissions over the 2005-2019 period (based on a linear regression), declining consumption emissions, and increasing real GDP (on a purchasing power parity basis, using constant 2017 international $USD). We chose not to include 2020 in this analysis because it is not particularly representative of longer-term trends, and consumption and territorial emissions estimates are not yet available for many countries. There is a wide range of rates of economic growth between 2005-2019 among countries experiencing absolute decoupling. Somewhat counterintuitively, there is no significant relationship between the rate of economic growth and the magnitude of emissions reductions within the group. While it is unlikely that there is not at least some linkage between the two factors, there are plenty of examples of countries (e.g., Singapore, Romania, and Ireland) experiencing both extremely rapid economic growth and large reductions in CO2 emissions. One of the primary criticisms of some prior analyses of absolute decoupling is that they ignore leakage. Specifically, the offshoring of manufacturing from high-income countries over the past three decades to countries like China has led to “illusory” drops in emissions, where the emissions associated with high-income country consumption are simply shipped overseas and no longer show up in territorial emissions accounting. There is some truth in this critique, as there was a large increase in emissions embodied in imports from developing countries between 1990 and 2005. After 2005, however, structural changes in China and a growing domestic market led to a reversal of these trends; the amount of emissions “exported” from developed countries to developing countries has actually declined over the past 15 years. This means that, for many countries, both territorial emissions and consumption emissions (which include any emissions “exported” to other countries) have jointly declined. In fact, on average, consumption emissions have been declining slightly faster than territorial emissions since 2005 in the 32 countries we identify as experiencing absolute decoupling. Figure 2, below, shows the change in consumption emissions (teal) and GDP (red) between 2005 and 2019. There is a pretty wide variation in the extent to which these countries have reduced their territorial and consumption emissions since 2005. Some countries — such as the UK, Denmark, Finland, and Singapore – have seen territorial emissions fall faster than consumption emissions, while the US, Japan, Germany, and Spain (among others) have seen consumption emissions fall faster. Figure 3 shows reductions in consumption and territorial emissions for each country, with the size of the dot representing the size of the population in 2019. Absolute decoupling is possible. There is no physical law requiring economic growth — and broader increases in human wellbeing — to necessarily be linked to CO2 emissions. All of the services that we rely on today that emit fossil fuels — electricity, transportation, heating, food — can in principle be replaced by near-zero carbon alternatives, though these are more mature in some sectors (electricity, transportation, buildings) than in others (industrial processes, agriculture).

#### We’re past tipping points, so only tech, not emission reductions, can solve

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 made 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.

### Space Col

#### Rapid growth key to space colonization---extinction.

Kovic '19 [Marko; March 2019; co-founder president of the Zurich Institute of Public Affairs Research; "The future of energy," https://osf.io/preprints/socarxiv/aswz9/download]

Ideally, the mitigation of climate risks will coincide with and contribute to the development of improved or even entirely novel sources of energy that will increase the long-term chances of humankind’s survival by means of space colonization. This is not an unrealistic expectation, given that the mitigation of climate risks consists, to a large degree, of replacing fossil fuels with other, less harmful sources of energy. However, some climate change mitigation strategies might actually harm the long-term prospects of humankind. First, it is possible that dominant climate change mitigation strategies will actively exclude any form of nuclear energy from the repertoire of climate-friendly energy sources. Existing and experimental (molten salt) fission reactors could play a significant role in replacing carbon-heavy energy sources, but pro-environmental attitudes often overlap with anti-nuclear sentiments [65]. As a result, and in combination with other problems such as large-scale market failures of existing fission reactors (one of the reasons being that generating electricity from fossil fuels is cheaper) [66], nuclear fission does not currently have significant standing as a “cleantech” contribution to climate change mitigation. From a long-term perspective, an unfavorable view of nuclear energy in the context of climate change might mean that technological progress in the areas of nuclear fission and fusion might come to a halt (for example, due to explicit bans or implicit disincentives). If such a scenario came to be, our attempts at colonizing space would almost certainly fail: There are currently no alternatives to fission and fusion, and it is highly improbable that Solar power alone could suffice for sustaining extraterrestrial habitats. Second, there is some probability that climate change mitigation strategies will change the social order towards a degrowth philosophy. Degrowth is a vague socio-economic concept and social movement that, in general, calls for a contraction of the global and national economies by means of lower production and consumption rates, and, to some degree, to more profound changes to the “capitalist” system of economic production [67]. Degrowth or degrowth-like approaches are being actively considered as climate risk mitigation strategies [68, 69], and degrowth would almost certainly be a highly effective measure for mitigating climate change. After all, if we were to drastically reduce or even completely eliminate the (industrial) sources of greenhouse gases, the amount of greenhouse gases that are being emitted would accordingly drastically sink. From the long-term perspective of humankind’s survival, degrowth is problematic in at least two ways. First, there is a risk that the general contraction of economic activity would also slow or eliminate progress in the domain of energy, which would, in turn, reduce the probability of successful space colonization due to an absence of suitable energy sources. Second, and more fundamental: If degrowth were to become a dominant societal paradigm, it is uncertain whether the long-term survival of humankind by means of space colonization would be regarded a desirable goal. In a literal sense, establishing extraterrestrial colonies would mean growth; the size of the total human population would grow, and the area of space-time that humans occupy would grow. In a more philosophical sense, degrowth might even be antithetical to space colonization. Even though both degrowth and space colonization have a similar moral goal – increasing wellbeing – , the ends to that goal are very different. Within degrowth philosophy, the goal is, metaphorically speaking, not to “live beyond our means”: We should strive for “ecological balance”, and such a state should increase the average wellbeing. But the frame of reference is the status quo; Earth and humankind as we know it today. Space colonization, on the other hand, operates with a much larger frame of reference: All the future generations of humans (and other sentient beings) who could enjoy wellbeing if we succeed in colonizing space – and who will categorically be denied that wellbeing if we fail to colonize space [70]. The goal of space colonization as a moral project is not to live beyond our means, but to actively redefine and expand what our means are through scientific and technological progress.

#### Cap gets us off the rock and solves every impact.

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It was one small step for man, one giant leap for capitalism. Only three countries have ever launched human beings into orbit. This past weekend, SpaceX became the first private company ever to do so, when it sent its Crew Dragon capsule into space aboard its Falcon 9 rocket and docked with the International Space Station. This was accomplished by a company Elon Musk started in 2002 in a California strip mall warehouse with just a dozen employees and a mariachi band. At a time when our nation is debating the merits of socialism, SpaceX has given us an incredible testament to the power of American free enterprise. While the left is advocating unprecedented government intervention in almost every sector of the U.S. economy, from health care to energy, today Americans are celebrating the successful privatization of space travel. If you want to see the difference between what government and private enterprise can do, consider: It took a private company to give us the first space vehicle with touch-screen controls instead of antiquated knobs and buttons. It took a private company to give us a capsule that can fly entirely autonomously from launch to landing — including docking — without any participation by its human crew. It also took a private company to invent a reusable rocket that can not only take off but land as well. When the Apollo 11 crew reached the moon on July 20, 1969, Neil Armstrong declared “the Eagle has landed.” On Saturday, SpaceX was able to declare that the Falcon had landed when its rocket settled down on a barge in the Atlantic Ocean — ready to be used again. That last development will save the taxpayers incredible amounts of money. The cost to NASA for launching a man into space on the space shuttle orbiter was $170 million per seat, compared with just $60 million to $67 million on the Dragon capsule. The cost for the space shuttle to send a kilogram of cargo into to space was $54,500; with the Falcon rocket, the cost is just $2,720 — a decrease of 95 percent. And while the space shuttle cost $27.4 billion to develop, the Crew Dragon was designed and built for just $1.7 billion — making it the lowest-cost spacecraft developed in six decades. SpaceX did it in six years — far faster than the time it took to develop the space shuttle. The private sector does it better, cheaper, faster and more efficiently than government. Why? Competition. Today, SpaceX has to compete with a constellation of private companies — including legacy aerospace firms such as Orbital ATK and United Launch Alliance and innovative start-ups such as Blue Origin (which is designing a Mars lander and whose owner, Jeff Bezos, also owns The Post) and Virgin Orbit (which is developing rockets than can launch satellites into space from the underside of a 747, avoiding the kinds of weather that delayed the Dragon launch). In the race to put the first privately launched man into orbit, upstart SpaceX had to beat aerospace behemoth Boeing and its Starliner capsule to the punch. It did so — for more than $1 billion less than its competitor. That spirit of competition and innovation will revolutionize space travel in the years ahead. Indeed, Musk has his sights set far beyond Earth orbit. Already, SpaceX is working on a much larger version of the Falcon 9 reusable rocket called Super Heavy that will carry a deep-space capsule named Starship capable of carrying up to 100 people to the moon and eventually to Mars. Musk’s goal — the reason he founded SpaceX — is to colonize Mars and make humanity a multiplanetary species. He has set a goal of founding a million-person city on Mars by 2050 complete with iron foundries and pizza joints. Can it be done? Who knows. But this much is certain: Private-sector innovation is opening the door to a new era of space exploration. Wouldn’t it be ironic if, just as capitalism is allowing us to explore the farthest reaches of our solar system, Americans decided to embrace socialism back here on Earth?

## Framing

#### Pain and pleasure bad – they don’t have an alternative model to risk calc so assume that

#### Extinction o/ws under any framework– infinite future generations

Pummer 15 — (Theron Pummer, Junior Research Fellow in Philosophy at St. Anne's College, University of Oxford, “Moral Agreement on Saving the World“, Practical Ethics University of Oxford, 5-18-2015, Available Online at http://blog.practicalethics.ox.ac.uk/2015/05/moral-agreement-on-saving-the-world/, accessed 7-2-2018, HKR-AM) \*\*we do not endorse ableist language=

There appears to be lot of disagreement in moral philosophy. Whether these many apparent disagreements are deep and irresolvable, I believe there is at least one thing it is reasonable to agree on right now, whatever general moral view we adopt: that it is very important to reduce the risk that all intelligent beings on this planet are eliminated by an enormous catastrophe, such as a nuclear war. How we might in fact try to reduce such existential risks is discussed elsewhere. My claim here is only that we – whether we’re consequentialists, deontologists, or virtue ethicists – should all agree that we should try to save the world. According to consequentialism, we should maximize the good, where this is taken to be the goodness, from an impartial perspective, of outcomes. Clearly one thing that makes an outcome good is that the people in it are doing well. There is little disagreement here. If the happiness or well-being of possible future people is just as important as that of people who already exist, and if they would have good lives, it is not hard to see how reducing existential risk is easily the most important thing in the whole world. This is for the familiar reason that there are so many people who could exist in the future – there are trillions upon trillions… upon trillions.There are so many possible future people that reducing existential risk is arguably the most important thing in the world,even if the well-being of these possible people were given only 0.001% as much weight as that of existing people. Even on a wholly person-affecting view – according to which there’s nothing (apart from effects on existing people) to be said in favor of creating happy people – the case for reducing existential risk is very strong. As noted in this seminal paper, this case is strengthened by the fact that there’s a good chance that many existing people will, with the aid of life-extension technology, live very long and very high quality lives. You might think what I have just argued applies to consequentialists only. There is a tendency to assume that, if an argument appeals to consequentialist considerations (the goodness of outcomes), it is irrelevant to non-consequentialists. But that is a huge mistake. Non-consequentialism is the view that there’s more that determines rightness than the goodness of consequences or outcomes; it is not the view that the latter don’t matter. Even John Rawls wrote, “All ethical doctrines worth our attention take consequences into account in judging rightness. One which did not would simply be irrational, crazy.” Minimally plausible versions of deontology and virtue ethics must be concerned in part with promoting the good, from an impartial point of view. They’d thus imply very strong reasons to reduce existential risk, at least when this doesn’t significantly involve doing harm to others or damaging one’s character. What’s even more surprising, perhaps, is that even if our own good (or that of those near and dear to us) has much greater weight than goodness from the impartial “point of view of the universe,” indeed even if the latter is entirely morally irrelevant, we may nonetheless have very strong reasons to reduce existential risk. Even egoism, the view that each agent should maximize her own good, might imply strong reasons to reduce existential risk. It will depend, among other things, on what one’s own good consists in. If well-being consisted in pleasure only, it is somewhat harder to argue that egoism would imply strong reasons to reduce existential risk – perhaps we could argue that one would maximize her expected hedonic well-being by funding life extension technology or by having herself cryogenically frozen at the time of her bodily death as well as giving money to reduce existential risk (so that there is a world for her to live in!). I am not sure, however, how strong the reasons to do this would be. But views which imply that, if I don’t care about other people, I have no or very little reason to help them are not even minimally plausible views (in addition to hedonistic egoism, I here have in mind views that imply that one has no reason to perform an act unless one actually desires to do that act). To be minimally plausible, egoism will need to be paired with a more sophisticated account of well-being. To see this, it is enough to consider, as Plato did, the possibility of a ring of invisibility – suppose that, while wearing it, Ayn could derive some pleasure by helping the poor, but instead could derive just a bit more by severely harming them. Hedonistic egoism would absurdly imply she should do the latter. To avoid this implication, egoists would need to build something like the meaningfulness of a life into well-being, in some robust way, where this would to a significant extent be a function of other-regarding concerns (see chapter 12 of this classic intro to ethics). But once these elements are included, we can (roughly, as above) argue that this sort of egoism will imply strong reasons to reduce existential risk. Add to all of this Samuel Scheffler’s recent intriguing arguments (quick podcast version available here) that most of what makes our lives go well would be undermined if there were no future generations of intelligent persons. On his view, my life would contain vastly less well-being if (say) a year after my death the world came to an end. So obviously if Scheffler were right I’d have very strong reason to reduce existential risk. We should also take into account moral uncertainty. What is it reasonable for one to do, when one is uncertain not (only) about the empirical facts, but also about the moral facts? I’ve just argued that there’s agreement among minimally plausible ethical views that we have strong reason to reduce existential risk – not only consequentialists, but also deontologists, virtue ethicists, and sophisticated egoists should agree. But even those (hedonistic egoists) who disagree should have a significant level of confidence that they are mistaken, and that one of the above views is correct. Even if they were 90% sure that their view is the correct one (and 10% sure that one of these other ones is correct), they would have pretty strong reason, from the standpoint of moral uncertainty, to reduce existential risk. Perhaps most disturbingly still, even if we are only 1% sure that the well-being of possible future people matters, it is at least arguable that, from the standpoint of moral uncertainty, reducing existential risk is the most important thing in the world. Again, this is largely for the reason that there are so many people who could exist in the future – there are trillions upon trillions… upon trillions. (For more on this and other related issues, see this excellent dissertation). Of course, it is uncertain whether these untold trillions would, in general, have good lives. It’s possible they’ll be miserable. It is enough for my claim that there is moral agreement in the relevant sense if, at least given certain empirical claims about what future lives would most likely be like, all minimally plausible moral views would converge on the conclusion that we should try to save the world. While there are some non-crazy views that place significantly greater moral weight on avoiding suffering than on promoting happiness, for reasons others have offered (and for independent reasons I won’t get into here unless requested to), they nonetheless seem to be fairly implausible views. And even if things did not go well for our ancestors, I am optimistic that they will overall go fantastically well for our descendants, if we allow them to. I suspect that most of us alive today – at least those of us not suffering from extreme illness or poverty – have lives that are well worth living, and that things will continue to improve. Derek Parfit, whose work has emphasized future generations as well as agreement in ethics, described our situation clearly and accurately: “We live during the hinge of history. Given the scientific and technological discoveries of the last two centuries, the world has never changed as fast. We shall soon have even greater powers to transform, not only our surroundings, but ourselves and our successors. If we act wisely in the next few centuries, humanity will survive its most dangerous and decisive period.Our descendants could, if necessary, go elsewhere, spreading through this galaxy…. Our descendants might, I believe, make the further future very good. But that good future may also depend in part on us. If our selfish recklessness ends human history, we would be acting very wrongly.” (From chapter 36 of On What Matters)

#### The affirming the res as a normative doesn’t delink disads – we’re saying a world without private appropriation of space leads to nuclear war which is unjust

#### The stuff about capitalist futurism bad – only true if they win cap bad