## 1NC – Off

#### Interpretation – Unjust refers to a negative action – it means contrary.

Black Laws No Date "What is Unjust?" <https://thelawdictionary.org/unjust/> //Elmer

Contrary to right and justice, or to the enjoyment of his rights by another, or to the standards of conduct furnished by the laws.

#### Violation – The Aff is a positive action – it creates a new concept for Space i.e. the treating of Space as a “Global Commons”.

#### Standards –

#### Limits – making the topic bi-directional explodes predictability – it means that Aff’s can both increase non-exist property regimes in space AND decrease appropriation by private actors – makes the topic untenable.

#### Ground – wrecks Neg Generics – we can’t say appropriation good since the 1AC can create new views on Outer Space Property Rights that circumvent our Links since they can say “Global Commons” approach solves.

#### 3. TVA solves – just defend that space appropriation is bad.

#### Paradigm issues:

#### Drop the debater – their abusive advocacy skewed the debate from the start

#### Comes before 1AR theory – NC abuse is responsive to them not being topical

#### Competing interps – reasonability invites arbitrary judge intervention and a race to the bottom of questionable argumentation

#### No RVIs – fairness and education are a priori burdens – and encourages baiting – outweighs because if T is frivolous, they can beat it quickly

#### Fairness is a voter ­– necessary to determine the better debater

#### Education is a voter – why schools fund debate

## 1NC – Off

#### Interpretation: The affirmative may only implement the plan for “private entities” --- that excludes governments

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

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

#### Violation—they advocate for “global commons” which means no individual, including governments, own property in outer space.

#### 1AC defends implementation including states and private entities---**Silverstein**

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

#### Vote neg--

#### Limits – their interpretation justifies affs banning any government from appropriating space – that skirts the core topic controversy of what private entities specifically should do and kills uniqueness because national appropriation is already prohibited – unlimited topics incentivize obscure affs that negs won’t have prep on – limits are key to reciprocal prep burden – extra T creates a slippery slope that incentivizes Frankenstein affs with infinite additional planks to circumvent neg links

#### Neg ground--Kills neg prep and ground because they can shift out of links defending governments and creates infinite prep burdens for unpredictable affs that spec companies along with permutation of countries.

#### TVA solves –defend the appropriation of private entities as unjust

#### Don’t let them say plan text in a vacuum—their plan includes a global commons—ruins 1NC strategy because are no longer able to predict the mechanism the aff goes through—at best it means you give the neg links makes up for shiftiness

#### c/a paradigm

## 1NC – Off

#### JCPOA passes now – political will is key

Reuters 2/18 [(Reuters) “Iran nuclear deal could be agreed very soon, EU official says” Reuters, 2/18/2022. https://www.reuters.com/world/middle-east/iran-nuclear-deal-could-be-agreed-very-soon-eu-official-says-2022-02-18/] BC

BRUSSELS:

A senior European Union official said on Friday that a US-Iranian deal to revive Iran's 2015 nuclear agreement was close but success depended on the political will of those involved.

"I expect an agreement in the coming week, the coming two weeks or so," the EU official said. "I think we have now on the table text that are very, very close to what is going to be the final agreement," the official said.

Reuters reported on Feb 17 details of a possible deal negotiated by envoys from Iran, Russia, China, Britain, France, Germany, the European Union and United States.

"Most of the issues are already agreed. But as a principle in this kind of negotiations, nothing is agreed until everything is agreed. So we still have...some questions, some of them rather political and difficult to agree," the official said.

The official said a deal was necessary as Iran's sensitive uranium enrichment programme was moving ahead quickly. Iran has always denied it is seeking nuclear weapons.

"On the ground they are advancing very much at a speed that is not compatible with the long-term survival of the JCPOA," the official said, referring to the Joint Comprehensive Plan of Action, as the 2015 nuclear deal between Iran and world powers is formally titled.

#### Space diplomacy directly trades off with nonproliferation agreements – finite manpower, money, and political will within the AVC

Johnson-Freeze 16 [(Joan, Professor and former Chair of National Security Affairs at the US Naval War College, Newport, Rhode Island) “Space Warfare in the 21st Century: Arming the Heavens,” Cass Military Studies, 11/8/2016] JL

 \*The plan is legislated in the AVC (same bureau of the State Department that’s concerned with the JCPOA)

Proactive policymaking takes commitment, manpower, and money. A quick look at the money and manpower devoted to diplomacy in the US State and Defense departments compared to the resources available for the hardwareproducing military–industrial complex efforts described in Chapter 5 is enlightening. The Assistant Secretary of State for Arms Control, Verification, and Compliance (AVC) leads space-related diplomacy in the State Department. The AVC Bureau is responsible for “all matters related to the implementation of certain international arms control, nonproliferation, and disarmament agreements and commitments; this includes staffing and managing treaty implementation commissions.”34 The AVC arms control portfolio includes nuclear, biological, and chemical weapons and all related issues. The AVC section charged with space issues is the Office of Emerging Security Challenges; this office also handles missile defense issues and the promotion of transparency, cooperation, and building confidence regarding cybersecurity. As of financial year 2013, AVC had a budget of $31.2 million and 141 employees35 to be active participants and leaders in all of these issues.

By way of comparison, the Space Security and Defense Program, a joint program of the DoD and the Office of the Director of National Intelligence (ODNI) was programmed for a similar budget amount in financial year 2015: $32.3 million. That program is described as a “center of excellence for options and strategies (materiel, non-materiel, cross-Title, cross-domain) leading to a more resilient and enduring National Security Space (NSS) Enterprise.”36 A majority of SSDP funding is allocated to the development of offensive space control strategies. So basically, the same budget is allocated for all US global space diplomacy efforts as for an in-house Pentagon think tank to devise counterspace strategies.

Within the Pentagon, the Deputy Assistant Secretary of Defense for Space Policy is charged with all issues related to space policy, including diplomacy. The responsibilities of the Space Policy office are to:

• Develop policy and strategy for a domain that is increasingly congested, competitive, and contested

• Implement across DoD — plans, programs, doctrine, operations — and with the IC and other agencies

• Engage with allies and other space-faring countries in establishing norms and augmenting our capabilities.37

The breadth of those responsibilities, which includes reviewing space acquisitions, means that there may be only a handful of individuals actually engaged in multilateral diplomatic efforts, acting, for example, as advisors to diplomatic discussions such as those through the United Nations. Additionally, the expanse of the Pentagon results in a chain of command that makes organizational competition for attention to subject matter challenging at best. The Deputy Assistant Secretary of Defense for Space Policy reports to the Assistant Secretary of Defense for Homeland Defense, who then reports to the Principle Deputy Secretary of Defense for Homeland Defense and Global Security, who then reports to the Under Secretary of Defense for Defense Policy. There are also a multitude of space players in other governmental organizations to coordinate and contend with, particularly within the Air Force and intelligence communities. Personnel are spread thin.

US government-wide space diplomacy needs a mandate, manpower, and a supporting budget. Diplomacy, especially multilateral diplomacy, can be timeconsuming, manpower-intensive, and frustrating; and patience is not a strong American virtue. The recent experience in the UN LTS Working Group is emblematic of everything that causes the United States to shun multilateralism. Under the auspices of this group, countries had worked in good faith over the past five years to develop technical guidelines as reciprocal constraints, as insisted upon by the developing countries when they rejected the ICOC. Yet group success appeared thwarted at the February 2016 meeting of the LTS Working Group by one country, Russia.

#### Iranian proliferation goes nuclear – causes regional war and spurs proliferation cascades across the Middle East

Chilton and Hoshovsky 20 – [(Kevin, led U.S. Strategic Command and has participated in the Jewish Institute for National Security of America’s Generals and Admirals Program; Harry, policy analyst at JINSA’s Gemunder Center for Defense and Strategy) "Avoiding a nuclear arms race in the Middle East," Defense News, 2-13-2020, https://www.defensenews.com/opinion/commentary/2020/02/13/avoiding-a-nuclear-arms-race-in-the-middle-east/] TDI

This raises two immediate concerns. First, **should Iran race for the bomb, it is** almost inevitable that the United States and/or Israel will take preventative military action **to stop it from crossing that fateful threshold**. This could easily spiral into a regional war as Iran activates its various proxy forces against the United States and its allies.

Second, **an Iranian nuclear breakout attempt could** spur a proliferation cascade throughout the Middle East, **beginning with Saudi Arabia.**

Mohammed bin Salman, **the Saudi crown prince, openly stated in 2018 that if Iran developed nuclear weapons**, Riyadh would quickly “follow suit.” **One suggested approach would see Saudi Arabia purchase a nuclear power reactor from a major supplier like South Korea and then build a reprocessing plant that would yield enough weapons-grade plutonium in five years**.

A half-decade delay isn’t optimal, however, when the goal is achieving nuclear deterrence quickly. Thus, there is the so-called Islamabad option.

This refers to Riyadh’s role in financing Pakistan’s nuclear weapons program and an alleged commitment from Islamabad that it would repay the favor. While Pakistani and Saudi officials have denied any such understanding, **there is the possibility that the two could work out an arrangement where Islamabad could deploy some of its nuclear arsenal on Saudi soil following a successful Iranian breakout.**

Although this maneuver would draw sharp, international criticism, in theory, it would allow Riyadh to remain in good standing vis-a-vis the nuclear nonproliferation treaty. Nevertheless, Pakistan might not be willing to play spoiler against a nuclearized Iran. If it is, Middle Eastern geopolitics would become extremely unstable.

**If Saudi Arabia acquires nuclear weapons**, many believe Turkey would follow suit. Last September, Turkish President Recep Tayyip **Erdogan declared that he “cannot accept” the argument from Western nations that Turkey should not be allowed to attain nuclear weapons.** In 1958, Charles de Gaulle proclaimed that a nation without nuclear weapons “does not command its own destiny”; two years later, France tested its first bomb. Erdogan’s comments echo those earlier remarks and raise the possibility that Ankara could become the second NATO member to leave the alliance’s nuclear umbrella in favor of its own independent arsenal.

#### Nuclear war causes extinction – famine and climate change

Starr 15 [(Steven, Director of the University of Missouri’s Clinical Laboratory Science Program and a senior scientist at the Physicians for Social Responsibility) “Nuclear War, Nuclear Winter, and Human Extinction,” Federation of American Scientists, 10/14/2015] DD

While it is impossible to precisely predict all the human impacts that would result from a nuclear winter, it is relatively simple to predict those which would be most profound. That is, a nuclear winter would cause most humans and large animals to die from nuclear famine in a mass extinction event similar to the one that wiped out the dinosaurs.

Following the detonation (in conflict) of US and/or Russian launch-ready strategic nuclear weapons, nuclear firestorms would burn simultaneously over a total land surface area of many thousands or tens of thousands of square miles. These mass fires, many of which would rage over large cities and industrial areas, would release many tens of millions of tons of black carbon soot and smoke (up to 180 million tons, according to peer-reviewed studies), which would rise rapidly above cloud level and into the stratosphere. [For an explanation of the calculation of smoke emissions, see Atmospheric effects & societal consequences of regional scale nuclear conflicts.]

The scientists who completed the most recent peer-reviewed studies on nuclear winter discovered that the sunlight would heat the smoke, producing a self-lofting effect that would not only aid the rise of the smoke into the stratosphere (above cloud level, where it could not be rained out), but act to keep the smoke in the stratosphere for 10 years or more. The longevity of the smoke layer would act to greatly increase the severity of its effects upon the biosphere.

Once in the stratosphere, the smoke (predicted to be produced by a range of strategic nuclear wars) would rapidly engulf the Earth and form a dense stratospheric smoke layer. The smoke from a war fought with strategic nuclear weapons would quickly prevent up to 70% of sunlight from reaching the surface of the Northern Hemisphere and 35% of sunlight from reaching the surface of the Southern Hemisphere. Such an enormous loss of warming sunlight would produce Ice Age weather conditions on Earth in a matter of weeks. For a period of 1-3 years following the war, temperatures would fall below freezing every day in the central agricultural zones of North America and Eurasia. [For an explanation of nuclear winter, see Nuclear winter revisited with a modern climate model and current nuclear arsenals: Still catastrophic consequences.]

Nuclear winter would cause average global surface temperatures to become colder than they were at the height of the last Ice Age. Such extreme cold would eliminate growing seasons for many years, probably for a decade or longer. Can you imagine a winter that lasts for ten years?

The results of such a scenario are obvious. Temperatures would be much too cold to grow food, and they would remain this way long enough to cause most humans and animals to starve to death.

Global nuclear famine would ensue in a setting in which the infrastructure of the combatant nations has been totally destroyed, resulting in massive amounts of chemical and radioactive toxins being released into the biosphere. We don’t need a sophisticated study to tell us that no food and Ice Age temperatures for a decade would kill most people and animals on the planet.  Would the few remaining survivors be able to survive in a radioactive, toxic environment?

## 1NC – Case

**Moral uncertainty means preventing extinction should be our highest priority.  
Bostrom 12** [Nick Bostrom. Faculty of Philosophy & Oxford Martin School University of Oxford. “Existential Risk Prevention as Global Priority.” Global Policy (2012)]  
These reflections on **moral uncertainty suggest** an alternative, complementary way of looking at existential risk; they also suggest a new way of thinking about the ideal of sustainability. Let me elaborate.¶ **Our present understanding of axiology might** well **be confused. We may not** nowknow — at least not in concrete detail — what outcomes would count as a big win for humanity; we might not even yet **be able to imagine the best ends** of our journey. **If we are** indeedprofoundly **uncertain** about our ultimate aims,then we should recognize that **there is a great** option **value in preserving** — and ideally improving — **our ability to recognize value and** to **steer the future accordingly. Ensuring** that **there will be a future** version of **humanity** with great powers and a propensity to use them wisely **is** plausibly **the best way** available to us **to increase the probability that the future will contain** a lot of **value.** To do this, we must prevent any existential catastrophe.

### 1NC – Solvency

#### Presumption – there’s zero legal basis or enforcement mechanism for space as a “commons”

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

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

### 1NC – Debris

#### Can’t solve--- the aff only restricts the amount of space debris means any more accumulation of debris causes their impact—and public thumps

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

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

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

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

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

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

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

1. **Probability – 0.1% chance of a collision.**

**Salter 16** [(Alexander William, Economics Professor at Texas Tech) “SPACE DEBRIS: A LAW AND ECONOMICS ANALYSIS OF THE ORBITAL COMMONS” 19 STAN. TECH. L. REV. 221 \*numbers replaced with English words] TDI

The probability of a collision is currently low. Bradley and Wein estimate that the maximum probability in LEO of a collision over the lifetime of a spacecraft remains below one in one thousand, conditional on continued compliance with NASA’s deorbiting guidelines.3 However, the possibility of a future “snowballing” effect, whereby debris collides with other objects, further congesting orbit space, remains a significant concern.4 Levin and Carroll estimate the average immediate destruction of wealth created by a collision to be approximately $30 million, with an additional $200 million in damages to all currently existing space assets from the debris created by the initial collision.5 The expected value of destroyed wealth because of collisions, currently small because of the low probability of a collision, can quickly become significant if future collisions result in runaway debris growth.

### 1NC – Cap

#### 1AC Wehrlhof doesn’t say extinction – hold them to their evidence – and reject value to life arguments – it’s repugnant and paternalistic for Marlborough to be the arbiter of whether others’ lives are worth living

#### Public sector thumps— your ev is about governments not just space X—means you can solve mass production by entities

#### Don’t let them get impacts for cap they are an insignificant reduction—imf, wto, etc all still exists post plan

#### Privatization is key to space exploration and maximizing public sector efficiency

Houser 17 [(Kristen, staff writer at Freethink, where she covers science and tech. Her written work has appeared in Business Insider, NBC News and Futurimsm), “Private Companies, Not Governments, Are Shaping the Future of Space Exploration,” June 12, 2017, <https://futurism.com/private-companies-not-governments-are-shaping-the-future-of-space-exploration>] TDI

Private Companies, Not Governments, Are Shaping the Future of Space Exploration The power is in our hands. / Off World/ Blue Origin/ NASA/ Space Race 2 0 SpaceX / Flickr Image by SpaceX / Flickr SPACE RACE 2.0 Sixty years ago, the Soviet Union launched the first artificial satellite into orbit. The event served as the starting pistol in what would come to be known as the Space Race, a competition between the U.S.S.R. and the United States for spaceflight supremacy. In the decades that followed, the first human reached space, a man walked on the Moon, and the first space stations were built. The U.S.S.R. and the U.S. were soon joined by other world powers in exploring the final frontier, and by the time the Soviet Union was dissolved in 1991, the contentious Space Race was something of a distant memory. The World’s Top Space Agencies [INFOGRAPHIC] Click to View Full Infographic In recent years, however, a new Space Race has taken shape—Space Race 2.0. Rather than powerful nations guided by presidents and premiers, however, the competitors in this race are tech startups and private businesses spearheaded by billionaire entrepreneurs. And while the current atmosphere is far less contentious than that of the first Space Race (save the odd tweet or two), the competition is just as fierce. A CROWDED FIELD SpaceX, Blue Origin, Bigelow Airspace, Virgin Galactic, Boeing, Lockheed Martin… Not only has the number of private companies engaged in space exploration grown remarkably in recent years, these companies are quickly besting their government-sponsored competitors. ADVERTISEMENT “We’re starting to see advances made by private entities that are more significant than any advances in the last three years that were made by the government,” Chris Lewicki, CEO and President of Planetary Resources, tells Futurism. Amazon CEO Jeff Bezos’s Blue Origin and Tesla CEO Elon Musk’s SpaceX are arguably the two companies that are setting the pace. In November 2015, the former completed the first successful vertical rocket landing after sending their New Shepard 100 kilometers (62 miles) into the air. SpaceX landed its own rocket a month later, only they did so with a craft twice as heavy as Blue Origin’s and traveled all the way into space first. A month after that, in January 2016, Bezos’s company became the first entity to re-launch and re-land a previously used rocket. SpaceX followed suit in 2017. “The government was never able to [build reusable rockets], but now, two private companies within the space of the same year have done that,” points out Lewicki. Not only are private companies already surpassing their government counterparts, several are poised to widen their lead in the coming months and years. ADVERTISEMENT If all goes according to plan, when SpaceX’s Falcon Heavy launches in September, it’ll take the title of the world’s most powerful rocket away from NASA’s Saturn V. Virgin Galactic is already selling tickets for what it expects to be the first private spaceflights, which will take place aboard the sleek VSS Unity. SpaceX plans to send space tourists to the Moon in 2018, and then in 2024, the company hopes to launch a system that will take people all the way to Mars…roughly 5-15 years before NASA expects to do the same. ALL ON THE SAME TEAM Private companies may be in the lead, but the finish line for this Space Race isn’t exactly clear. The first iteration was arguably “won” when Neil Armstrong took his first steps on the Moon, so does this sequel end when we establish the first Moon base? When a human walks on Mars? When we leave the solar system? Truthfully, the likelihood of humanity ever calling it a day on space exploration is slim to none. The universe is huge, with galaxy estimates in the trillions, so the goalpost will continue moving back (to bring another sport into the analogy). Rather than focusing on competing in what is ultimately an unwinnable race, private and government-backed space agencies can actually benefit from collaboration thanks to their inherent differences. “The way that SpaceX, Planetary Resources, or Virgin Galactic approaches space exploration is going to be very different from NASA or the Air Force,” explains Lewicki. Private companies aren’t beholden to the same slow processes that often stall government projects, and they can secure or reallocate funding much more swiftly if need be. However, unlike agencies like NASA, they do have shareholders to keep happy and a need to constantly pursue profitability. ADVERTISEMENT The two sectors, therefore, have a tremendous opportunity to help one another. Private companies can generate revenue through government contracts —for example, NASA has contracted Boeing to transport astronauts to the International Space Station (ISS), and SpaceX just closed a deal with the U.S. Air Force to launch its secretive space drone. This leaves the government agencies free to pursue the kind of forward-thinking, longer-term research that might not immediately generate revenue, but that can be later streamlined and improved upon in the private sector. Ultimately, Space Race 2.0 has no losers. The breakthroughs happening in space exploration benefit us all, and truly, a little friendly competition never hurt anyone (unless you count the egos bruised by those tweets).

#### You link to cap bad—

**Werlhof 15** – Claudia, Professor of Political Science/Women's Studies, University Innsbruck (Austria), 2015 (“Neoliberal Globalization: Is There an Alternative to Plundering the Earth?” Global Research, May 25th, Available Online at http://www.globalresearch.ca/neoliberal-globalization-is-there-an-alternative-to-plundering-the-earth/24403)

The logic of neoliberalism as a sort of totalitarian neo-mercantilism is that all resources, all markets, all money, all profits, all means of production, all “investment opportunities”, all rights and all power belong to the corporations only. To paraphrase Richard Sennett: “Everything to the Corporations!”[54] One might add: “Now!” The corporations are free to do whatever they please with what they get. Nobody is allowed to interfere. Ironically, we are expected to rely on them to find a way out of the crisis we are in. This puts the entire globe at risk since responsibility is something the corporations do not have or know.

#### Capitalism and tech innovation solves warming—

Friedman 21 [(Thomas L., Mr. Friedman was awarded the 1983 Pulitzer Prize for international reporting (from Lebanon) and the 1988 Pulitzer Prize for international reporting (from Israel). He also won the 2002 Pulitzer Prize for commentary.) “Want to Save the Earth? We Need a Lot More Elon Musks.,” New York Times, 11/16/21. <https://www.nytimes.com/2021/11/16/opinion/glasgow-climate-change.html>] RR

This is not serious — not when you’re talking about reversing all the ways that we have destabilized Earth’s systems, from ice caps and ocean currents to coral reefs and tropical forests to the density of carbon dioxide in the atmosphere. This is pretend.

Serious was how we responded to Covid-19, when it really did feel like the world economy was ending: We fought back with the only tools we have that are as big and powerful as Mother Nature — Father Profit and New Tech.

We combined innovative biotech firms — like Pfizer-BioNTech, Moderna and some small start-ups — with today’s massive computing power and a giant market demand signal, and what did we get? In a little over a year after first being locked down by the virus, I had an effective mRNA vaccine against Covid-19 in my body — followed by a booster!

That was an amazing feat of biotechnology and computerized logistics to develop and deliver vaccines. And I hope the scientists, employees and shareholders of those vaccine innovators make boatloads of money — because it will incentivize others to apply a similar formula to stem climate change.

I have nothing against Glasgow. I admire those leaders who are trying to inspire the world to cut CO2 emissions, preserve biodiversity and hold each other to account. But we will not decarbonize the global economy with a lowest-common-denominator action plan of 195 countries. Not possible.

We will get there only when Father Profit and risk-taking entrepreneurs produce transformative technologies that enable ordinary people to have extraordinary impacts on our climate without sacrificing much — by just being good consumers of these new technologies.

In short: we need a few more Greta Thunbergs and a lot more Elon Musks. That is, more risk-taking innovators

converting basic science into tools yet to be imagined to protect the planet for a generation yet to be born.

The good news — it’s happening. Two examples:

The first is Planet.com, which I alluded to briefly in last week’s column from Glasgow. Founded in 2010 by three former NASA scientists based in San Francisco, Planet has some 200 earth-imaging satellites in orbit, most the size of a loaf of bread, to observe the entire global land mass every 24 hours in high resolution — in order to make the changes unfolding on the ground “visible, accessible and actionable.” No government in the world has this capacity.

With these new deep transparency tools we can begin to reshape capitalism. For years, the rules and incentives of capitalism enabled oil and coal companies to extract fossil fuels — and industries to use them — without paying the true cost of the damage they were causing. That was easy to do because nature was hard to value; destruction was often hard to see in real time; and consumers had no tools to react. They had to wait for the courts.

“Capitalism has produced enormous wealth, but in part that’s because it has been able to treat nature as self-replenishing, hyper-abundant and free,” explained Andrew Zolli, Planet’s chief impact officer.

That will not be so easy anymore. Satellites are now “enabling us to put natural capital on every company and every country’s balance sheet,’’ so it will not take account of just your business profits and losses, “but all of your impacts’’ on the environment as well, Will Marshall, one of Planet’s three co-founders and its C.E.O., said to me.

Planet’s satellites plus AI, Marshall explained, can track a country’s trees, farmlands, coral reefs, coastal mangroves and smokestack emissions with incredible precision — down to three meters — and provide transparency to show which trees are being illegally logged by whom and whose factories are violating their carbon dioxide emissions promises.

That data can then be used — in theory — to trigger consumer boycotts, spread through social networks, against the government or the food or mining company doing the damage, or it can stimulate foreign aid or investment in the country or community protecting its natural resources.

For instance, Planet, with a group of scientific and philanthropic partners, has helped create a detailed map — the Allen Coral Atlas — of all the world’s remaining coral reefs. The Philippines is using the atlas’s data about sea grass to plan nine new marine-protected areas throughout the country. At the same time, in a partnership paid by Norway, Planet is tracking deforestation in 64 tropical rainforest countries, including Brazil. Using Planet’s pinpoint accuracy, the Brazilian government has vastly increased the number of cease-and-desist citations against illegal loggers, according to Planet’s Brazilian partner, MapBiomas.

Even more important, Marshall said, is how Planet’s commercial business also helps by, for example, enabling farmers to do precision agriculture by giving them fine-grain images of their crops so they know exactly where to add water and fertilizer or when to harvest. “This may have the biggest ecosystem impact of all,” he said. More efficient crop yields that use less water and fewer fertilizers end up “reducing the need to plow up more tropical forest and strengthens the environment generally.”

The other company I am watching is Helion Energy, based in Redmond, Wash., which is working on “the world’s first fusion power plant.” Fusion energy has long been the holy grail for clean power generation — and it always seems 20 years away. As the International Atomic Energy Agency notes on its website: “The sun, along with all other stars, is powered by a reaction called nuclear fusion. If nuclear fusion can be replicated on earth, it could provide virtually limitless clean, safe and affordable energy.”

Last June, as the website New Atlas reported, Helion published results confirming that its latest system had managed to heat a fusion plasma to a temperature over 100 million degrees Celsius, “which is significant, since it’s around the point at which there’s enough thermal energy to create large amounts of fusion.”

On Nov. 5, in the midst of Glasgow, Helion, across the Atlantic in Redmond, announced that it had raised $500 million in new financing in a round led by Sam Altman, C.E.O. of OpenAI and former president of Y Combinator, along with a Who’s Who of tech entrepreneurs.

The current generation of Helion’s system, Techcrunch.com reported, “wouldn’t be able to replace your Tesla Powerwall and solar panels — the size of a generator is roughly the size of a shipping container. But at 50 megawatts, the generators could power around 40,000 homes.” As New Atlas pointed out, “Helion projects it will generate electricity at rock-bottom prices of around $10 per MWh … less than a third the price of coal-fired power or today’s solar PV installations.”

Is Helion THE holy grail? Don’t know. There are other companies with promising approaches — like Commonwealth Fusion Systems — all racing to the same goal. I just know this: We got into this hole thanks to the worst of capitalism — letting companies privatize their gains from despoiling the environment and warming the climate — while socializing the losses among all of us.

We can get out of it, in part, by accelerating the best of American capitalism. We need to re-energize our innovation ecosystem to where government funds basic research that pushes the boundaries of physics, chemistry and biology and then combines that innovation with immigration policies that amass the world’s best pools of engineering talent and then unleashes that talent — propelled by risk-takers — to invent new clean technologies to slow global warming at the warp speed and scale we need.