# 1nc Peninsula r3

### 1

#### Their failure to specify an agent is a voting issue – makes mechanism counterplans and agent-based disads impossible – it’s a voter for fairness because the 1AR can spike out of DAs and CPs, which kills clash and nuance. Means stick them with governments implementing the plan – that’s normal means since it’s what the literature assumes and what most disad links are about

### 2

#### 1] Interp – the Affirmative must only defend that appropriation of outer space is unjust.

#### a] Private entities are non-governmental.

Dunk 11 Von Der Dunk, Frans G. "1. The Origins Of Authorisation: Article VI Of The Outer Space Treaty And International Space Law." National Space Legislation in Europe. Brill Nijhoff, 2011. 3-28. (University of Nebraska)//Elmer

4. Interpreting Article VI of the Outer Space Treaty One main novel feature of Article VI stood out with reference to the role of private enterprise in this context. Contrary to the version o fthe concept applicable under general international law, where 'direct state responsibility' only pertained to acts somehow directly attributable to a state and states could only be addressed for acts by private actors under 'indirect', 'due care' / 'due diligence' responsibility18, Article VI made no difference as to whether the activities at issue were the state's own ("whether such activities are carried on by governmental agencies" ...) or those of private actors (... "or by non-governmental entities"). The interests of the Soviet Union in ensuring that, whomever would actually conduct a certain space activity, some state or other could be held responsible for its compliance with applicable rules of space law to that extent had prevailed. However, the general acceptance of Article VI as cornerstone of the Outer Space Treaty unfortunately was far from the end of the story. Partly, this was the consequence of key principles being left undefined.

#### b] 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.

#### 2] Violation – the Affirmative defends states nationalizing markets and space industries which means they’re adding on tons of things external to the topic ie regulating corps and shifting RND and public Sector – don’t let them skirt out of this they literally say “Governments should nationalize space industries per the Aronoff card”

#### 3] Standards – Effects and Extra-T which are voters for predictable limits and ground – allowing the Aff to defend implementation through any number of agreements/mechanisms explodes predictable limits – it shifts the topic to not appropriation good/bad but how we should end it which skews pre-tournament prep. Allowing them to be Effects-T gives them unlimited advantage ground like multilateral governance good or PTD perception spill-over which skews our ground since they could say our particular mechanism side-steps your links.

#### 4] TVA – just defend space mining being bad without the multilateral governance part of the plan.

#### 5] Paradigm Issues –

#### a] Topicality is Drop the Debater – it’s a fundamental baseline for debate-ability.

#### b] Use Competing Interps – 1] Topicality is a yes/no question, you can’t be reasonably topical and 2] Reasonability invites arbitrary judge intervention and a race to the bottom of questionable argumentation.

#### c] No RVI’s - 1] Forces the 1NC to go all-in on Theory which kills substance education, 2] Encourages Baiting since the 1AC will purposely be abusive, and 3] Illogical – you shouldn’t win for not being abusive.

### 3

#### Strong commercial space catalyzes tech innovation – progress at the margins and spinoff tech change global information networks

Joshua Hampson 2017, Security Studies Fellow at the Niskanen Center, 1-25-2017, “The Future of Space Commercialization”, Niskanen Center, https://republicans-science.house.gov/sites/republicans.science.house.gov/files/documents/TheFutureofSpaceCommercializationFinal.pdf

Innovation is generally hard to predict; some new technologies seem to come out of nowhere and others only take off when paired with a new application. It is difficult to predict the future, but it is reasonable to expect that a growing space economy would open opportunities for technological and organizational innovation. In terms of technology, the difficult environment of outer space helps incentivize progress along the margins. Because each object launched into orbit costs a significant amount of money—at the moment between $27,000 and $43,000 per pound, though that will likely drop in the future —each 19 reduction in payload size saves money or means more can be launched. At the same time, the ability to fit more capability into a smaller satellite opens outer space to actors that previously were priced out of the market. This is one of the reasons why small, affordable satellites are increasingly pursued by companies or organizations that cannot afford to launch larger traditional satellites. These small 20 satellites also provide non-traditional launchers, such as engineering students or prototypers, the opportunity to learn about satellite production and test new technologies before working on a full-sized satellite. That expansion of developers, experimenters, and testers cannot but help increase innovation opportunities. Technological developments from outer space have been applied to terrestrial life since the earliest days of space exploration. The National Aeronautics and Space Administration (NASA) maintains a website that lists technologies that have spun off from such research projects. Lightweight 21 nanotubes, useful in protecting astronauts during space exploration, are now being tested for applications in emergency response gear and electrical insulation. The need for certainty about the resiliency of materials used in space led to the development of an analytics tool useful across a range of industries. Temper foam, the material used in memory-foam pillows, was developed for NASA for seat covers. As more companies pursue their own space goals, more innovations will likely come from the commercial sector. Outer space is not just a catalyst for technological development. Satellite constellations and their unique line-of-sight vantage point can provide new perspectives to old industries. Deploying satellites into low-Earth orbit, as Facebook wants to do, can connect large, previously-unreached swathes of 22 humanity to the Internet. Remote sensing technology could change how whole industries operate, such as crop monitoring, herd management, crisis response, and land evaluation, among others. 23 While satellites cannot provide all essential information for some of these industries, they can fill in some useful gaps and work as part of a wider system of tools. Space infrastructure, in helping to change how people connect and perceive Earth, could help spark innovations on the ground as well. These innovations, changes to global networks, and new opportunities could lead to wider economic growth.

#### Tech innovation solves every existential threat – cumulative extinction events outweigh the aff

Dylan **Matthews 18**. Co-founder of Vox, citing Nick Beckstead @ Rutgers University. 10-26-2018. "How to help people millions of years from now." Vox. https://www.vox.com/future-perfect/2018/10/26/18023366/far-future-effective-altruism-existential-risk-doing-good

If you care about improving human lives, you should overwhelmingly care about those quadrillions of lives rather than the comparatively small number of people alive today. The 7.6 billion people now living, after all, amount to less than 0.003 percent of the population that will live in the future. It’s reasonable to suggest that those quadrillions of future people have, accordingly, hundreds of thousands of times more moral weight than those of us living here today do. That’s the basic argument behind Nick Beckstead’s 2013 Rutgers philosophy dissertation, “On the overwhelming importance of shaping the far future.” It’s a glorious mindfuck of a thesis, not least because Beckstead shows very convincingly that this is a conclusion any plausible moral view would reach. It’s not just something that weird utilitarians have to deal with. And Beckstead, to his considerable credit, walks the walk on this. He works at the Open Philanthropy Project on grants relating to the far future and runs a charitable fund for donors who want to prioritize the far future. And arguments from him and others have turned “long-termism” into a very vibrant, important strand of the effective altruism community. But what does prioritizing the far future even mean? The most literal thing it could mean is preventing human extinction, to ensure that the species persists as long as possible. For the long-term-focused effective altruists I know, that typically means identifying concrete threats to humanity’s continued existence — like unfriendly artificial intelligence, or a pandemic, or global warming/out of control geoengineering — and engaging in activities to prevent that specific eventuality. But in a set of slides he made in 2013, Beckstead makes a compelling case that while that’s certainly part of what caring about the far future entails, approaches that address specific threats to humanity (which he calls “targeted” approaches to the far future) have to complement “broad” approaches, where instead of trying to predict what’s going to kill us all, you just generally try to keep civilization running as best it can, so that it is, as a whole, well-equipped to deal with potential extinction events in the future, not just in 2030 or 2040 but in 3500 or 95000 or even 37 million. In other words, caring about the far future doesn’t mean just paying attention to low-probability risks of total annihilation; it also means acting on pressing needs now. For example: We’re going to be better prepared to prevent extinction from AI or a supervirus or global warming if society as a whole makes a lot of scientific progress. And a significant bottleneck there is that the vast majority of humanity doesn’t get high-enough-quality education to engage in scientific research, if they want to, which reduces the odds that we have enough trained scientists to come up with the breakthroughs we need as a civilization to survive and thrive. So maybe one of the best things we can do for the far future is to improve school systems — here and now — to harness the group economist Raj Chetty calls “lost Einsteins” (potential innovators who are thwarted by poverty and inequality in rich countries) and, more importantly, the hundreds of millions of kids in developing countries dealing with even worse education systems than those in depressed communities in the rich world. What if living ethically for the far future means living ethically now? Beckstead mentions some other broad, or very broad, ideas (these are all his descriptions): Help make computers faster so that people everywhere can work more efficiently Change intellectual property law so that technological innovation can happen more quickly Advocate for open borders so that people from poorly governed countries can move to better-governed countries and be more productive Meta-research: improve incentives and norms in academic work to better advance human knowledge Improve education Advocate for political party X to make future people have values more like political party X ”If you look at these areas (economic growth and technological progress, access to information, individual capability, social coordination, motives) a lot of everyday good works contribute,” Beckstead writes. “An implication of this is that a lot of everyday good works are good from a broad perspective, even though hardly anyone thinks explicitly in terms of far future standards.” Look at those examples again: It’s just a list of what normal altruistically motivated people, not effective altruism folks, generally do. Charities in the US love talking about the lost opportunities for innovation that poverty creates. Lots of smart people who want to make a difference become scientists, or try to work as teachers or on improving education policy, and lord knows there are plenty of people who become political party operatives out of a conviction that the moral consequences of the party’s platform are good. All of which is to say: Maybe effective altruists aren’t that special, or at least maybe we don’t have access to that many specific and weird conclusions about how best to help the world. If the far future is what matters, and generally trying to make the world work better is among the best ways to help the far future, then effective altruism just becomes plain ol’ do-goodery.\*

### 4

#### CP: The appropriation of outer space by private entities except for asteroid mining is unjust

#### Commercial mining solves extinction from terror, war, and disease and is evenly distributed

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

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

### 5

#### NASA is preserving resources by leveraging private partnerships

Miriam Kramer 21, author of Space, “NASA's plans for the future hinge on the success of private companies,” Axios, 12-7-2021, https://www.axios.com/nasa-private-spaceflight-plans-5a5710e6-5223-4da3-8c5d-5a712e1d862e.html

The private space players who will drive NASA's plans for the coming decade are declaring themselves and defining the stakes. Why it matters: NASA plans to focus on getting people to Mars and the Moon, and its deep space exploration ambitions hinge on the agency being able to successfully hand over major operations in low-Earth orbit to private companies. The space agency hopes companies will build private space stations that its astronauts can use and to continue to buy space on private rockets for launching its satellites and other payloads to orbit and beyond. NASA's "big experiment" right now is to test where these commercial partnerships work, the Planetary Society's Casey Dreier told Axios. What's happening: Last week, NASA announced it would award multimillion-dollar contracts to three teams of commercial space companies to start designing and building privately operated space stations.

#### Plan forces spending trade-offs that crush effective Earth sciences --- risks catastrophic climate change

Haymet 7 (Tony, Director of the Scripps Institution of Oceanography – University of California, San Diego, Mark Abbott, Dean of the College of Oceanic and Atmospheric Science – Oregon State University, and Jim Luyten, Acting Director – Woods Hole Oceanographic Institution, “The Planet NASA Needs to Explore”, Washington Post, 5-10, [http://www.washingtonpost.com/wp-dyn/content/article/2007/05/09/AR2007050902451.html](http://www.lexis.com/research/retrieve))

Decades ago, a shift in NASA priorities sidelined progress in human space exploration. As momentum gathers to reinvigorate human space missions to the moon and Mars, we risk hurting ourselves, and Earth, in the long run. Our planet -- not the moon or Mars -- is under significant threat from the consequences of rapid climate change. Yet the changing NASA priorities will threaten exploration here at home.

NASA not only launches shuttles and builds space stations, it also builds and operates our nation's satellites that observe and monitor the Earth. These satellites collect crucial global data on winds, ice and oceans. They help us forecast hurricanes, track the loss of Arctic sea ice and the rise of sea levels, and understand and prepare for climate changes.

NASA's budget for science missions has declined 30 percent in the past six years, and that trend is expected to continue. As more dollars are reallocated to prepare for missions back to the moon and Mars, sophisticated new satellites to observe the Earth will be delayed, harming Earth sciences.

The National Academy of Sciences has noted that the Landsat satellite system, which takes important measurements of global vegetation, is in its fourth decade of operation and could fail without a clear plan for continuation. The same is true for the QuikSCAT satellite, which provides critical wind data used in forecasting hurricanes and El Niño effects.

In January, a partnership of university and NASA scientists demonstrated that climate change and higher ocean temperatures were reducing the growth of microscopic plants and animals at the heart of the marine food web.

Their analysis was based on nearly a decade of NASA satellite measurements of ocean color, which unfortunately are at risk of being interrupted for several years.

Sea levels are rising, and the Arctic Ocean may be ice-free in summer. The buildup of carbon dioxide in the oceans threatens to make them more acidic, which may in turn hinder the ability of some types of marine life, including corals, to build their shells and skeletons. We must learn as much as we can to assess these threats and develop solutions.

Satellites provide coverage of vast, remote regions of our planet that would otherwise remain unseen, especially the oceans, which play an important role in climate change. Without accurate data on such fundamentals as sea surface height, temperatures and biomass, as well as glacier heights and snowpack thickness, we will not be able to understand the likelihood of dangers such as more severe hurricanes along the Gulf Coast or more frequent forest fires in the Pacific Northwest.

Climate change is the most critical problem the Earth has ever faced.

Government agencies and the private sector, as well as individual citizens, need to better grasp the risks and potential paths of global climate change. Mitigating these risks and preparing for the effects of warming will require scientific understanding of how our complex planet operates, how it is changing, and how that change will affect the environment and human society.

John F. Kennedy's brilliant call to put a man on the moon by the end of the 1960s set an arbitrary deadline, but the deadline we face today is set by nature. NASA must continue to play a vital role in helping find ways to protect our planet for (and perhaps from) its intelligent life. Exploration of space is a noble quest. But we can't afford to be so starry-eyed that we overlook our own planet.

#### Climate Change Causes Extinction and mass suffering – 12 studies

Ng ’19 [Yew-Kwang; May 2019; Professor of Economics at Nanyang Technology University, Fellow of the Academy of Social Sciences in Australia and Member of the Advisory Board at the Global Priorities Institute at Oxford University, Ph.D. in Economics from Sydney University; Global Policy, “Keynote: Global Extinction and Animal Welfare: Two Priorities for Effective Altruism,” vol. 10, no. 2, p. 258-266; RP]

Catastrophic climate change Though by no means certain, CCC causing global extinction is possible due to interrelated factors of non‐linearity, cascading effects, positive feedbacks, multiplicative factors, critical thresholds and tipping points (e.g. Barnosky and Hadly, [2016](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0005); Belaia et al., [2017](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0008); Buldyrev et al., [2010](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0016); Grainger, [2017](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0027); Hansen and Sato, [2012](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0029); IPCC [2014](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0031); Kareiva and Carranza, [2018](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0033); Osmond and Klausmeier, [2017](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0056); Rothman, [2017](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0066); Schuur et al., [2015](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0069); Sims and Finnoff, [2016](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0072); Van Aalst, [2006](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0079)).[7](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-note-1009_67) A possibly imminent tipping point could be in the form of ‘an abrupt ice sheet collapse [that] could cause a rapid sea level rise’ (Baum et al., [2011](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0006), p. 399). There are many avenues for positive feedback in global warming, including: the replacement of an ice sea by a liquid ocean surface from melting reduces the reflection and increases the absorption of sunlight, leading to faster warming; the drying of forests from warming increases forest fires and the release of more carbon; and higher ocean temperatures may lead to the release of methane trapped under the ocean floor, producing runaway global warming. Though there are also avenues for negative feedback, the scientific consensus is for an overall net positive feedback (Roe and Baker, [2007](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0065)). Thus, the Global Challenges Foundation ([2017](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0026), p. 25) concludes, ‘The world is currently completely unprepared to envisage, and even less deal with, the consequences of CCC’. The threat of sea‐level rising from global warming is well known, but there are also other likely and more imminent threats to the survivability of mankind and other living things. For example, Sherwood and Huber ([2010](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0071)) emphasize the adaptability limit to climate change due to heat stress from high environmental wet‐bulb temperature. They show that ‘even modest global warming could … expose large fractions of the [world] population to unprecedented heat stress’ p. 9552 and that with substantial global warming, ‘the area of land rendered uninhabitable by heat stress would dwarf that affected by rising sea level’ p. 9555, making extinction much more likely and the relatively moderate damages estimated by most integrated assessment models unreliably low. While imminent extinction is very unlikely and may not come for a long time even under business as usual, the main point is that we cannot rule it out. Annan and Hargreaves ([2011](https://onlinelibrary-wiley-com.proxy.lib.umich.edu/doi/full/10.1111/1758-5899.12647#gpol12647-bib-0004), pp. 434–435) may be right that there is ‘an upper 95 per cent probability limit for S [temperature increase] … to lie close to 4°C, and certainly well below 6°C’. However, probabilities of 5 per cent, 0.5 per cent, 0.05 per cent or even 0.005 per cent of excessive warming and the resulting extinction probabilities cannot be ruled out and are unacceptable. Even if there is only a 1 per cent probability that there is a time bomb in the airplane, you probably want to change your flight. Extinction of the whole world is more important to avoid by literally a trillion times.

## Case

### Framing

**1] 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.

2] Independently, extinction turns suffering impacts – mass death causes massive amounts of structural violence

### Solvency

#### Vote neg on presumption – space privatization may be an example of neolib, but no chance that they solve it:

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#### None of their ev is reverse causal – industrial agriculture, the defense industrial base, Amazon, Koch Industries are all examples of capitalism – plus capitalism predates space exploration, which proves they don’t control the root cause

#### Penny and Schultz are critiques of growth mindset writ large – if governments are fundamentally neoliberal, they have the same incentives to appropriate space as private companies – the aff has zero bearing on NASA – means they don’t solve spatial fixes because NASA can appropriate space resources, then sell them to private companies – proven by existing contracts between NASA and NewSpace –

#### No brightline for when spatial fixes on Earth are exhausted – corporations will continue extracting resources from Earth even if it’s less lucrative

* 1. 1AC Penny is about the militarization of space by programs like Space Force which are *FEDERAL* programs – that’s a massive alt cause

That means only let them weigh the sum total of capitalism that they resolve – I’ll give you a hint – it’s *next to nothing*.

No methodological offense – it’s infinitely regressive and super subjective – only evaluating the direct consequences of the affirmative solves.

Independently err neg – their authors are just a bunch of anti-capitalist hacks with 0 qualifications to talk ab this – ours are people with PhDs, DOD directors, and heads of NASA programs.

### Contention 1

#### Plan doesn’t get rid of global institutions like the IMF and World Bank and has no way to get rid of the neoliberalism engrained in society – absent a link between “tax some companies a bit more” and “global collapse of capitalism” you should vote neg on presumption since they have no impact outside of removing capitalism entirely.

#### LBL aff cards about cap bad –

#### Penny has no terminal impact to colonialism – just vague posturing. Prefer materiality – that was above.

#### Marx ev just says that there is some chance that colonization couldn’t help space, but we won that capitalism is good writ large so that doesn’t matter

#### Spencer ev is incorrect – this indicates that the colonization of mars leads to like rich people still joining but whats the terminal impact to that lol

### C1

#### Colonization of outer space is essential to humanity – 5 warrants (good, diverse non just extinction impacts)

Orwig 15 [(Jessica, a senior editor at Insider. She has a Master of Science in science and technology journalism from Texas A&M University and a Bachelor of Science in astronomy and physics from The Ohio State University. Before NY she spent time as an intern at: American Physical Society in MD International Center for Theoretical Physics in Italy Fermi National Accelerator Laboratory in IL American Geophysical Union in DC), “5 undeniable reasons humans need to colonize Mars — even though it's going to cost billions,” Slate, 4/21/2015, https://www.businessinsider.com/5-undeniable-reasons-why-humans-should-go-to-mars-2015-4] MN

Establishing a permanent colony of humans on Mars is not an option. It's a necessity. At least, that's what some of the most innovative, intelligent minds of our age — Buzz Aldrin, Stephen Hawking, Elon Musk, Bill Nye, and Neil deGrasse Tyson — are saying. Of course, it's extremely difficult to foresee how manned missions to Mars that would cost hundreds of billions of dollars each, could benefit mankind. It's easier to imagine how that kind of money could immediately help in the fight against cancer or world hunger. That's because humans tend to be short-sighted. We're focused on what's happening tomorrow instead of 100 years from now. "If the human race is to continue for another million years, we will have to boldly go where no one has gone before," Hawking said in 2008 at a lecture series for NASA's 50th anniversary. That brings us to the first reason humans must colonize Mars: 1. Ensuring the survival of our species The only home humans have ever known is Earth. But history shows that surviving as a species on this tiny blue dot in the vacuum of space is tough and by no means guaranteed. The dinosaurs are a classic example: They roamed the planet for 165 million years, but the only trace of them today are their fossilized remains. A colossal asteroid wiped them out. Putting humans on more than one planet would better ensure our existence thousands if not millions of years from now. "Humans need to be a multiplanet species," Musk recently told astronomer and Slate science blogger Phil Plait. Musk founded the space transport company SpaceX to help make this happen. Mars is an ideal target because it has a day about the same length as Earth's and water ice on its surface. Moreover, it's the best available option: Venus and Mercury are too hot, and the Moon has no atmosphere to protect residents from destructive meteor impacts. 2. Discovering life on Mars Nye, the CEO of The Planetary Society, said during an episode of StarTalk Radio in March that humanity should focus on sending humans instead of robots to Mars because humans could make discoveries 10,000 times as fast as the best spacecraft explorers we have today. Though he was hesitant to say humans should live on Mars, he agreed there were many more discoveries to be made there. One monumental discovery scientists could make is determining whether life currently exists on Mars. If we're going to do that, we'll most likely have to dig much deeper than NASA's rovers can. The theory there is that life was spawned not from the swamps on adolescent Earth, but from watery chasms on Mars. The Mars life theory suggests that rocks rich with microorganisms could have been ejected off the planet's surface from a powerful impact, eventually making their way through space to Earth. It's not a stretch to imagine, because Martian rocks can be found on Earth. None of those, however, have shown signs of life. "You cannot rule out the fact that a Mars rock with life in it landing on the Earth kicked off terrestrial life, and you can only really test that by finding life on Mars," Christopher Impey, a British astronomer and author of over a dozen books in astronomy and popular science, told Business Insider. 3. Improving the quality of life on Earth "Only by pushing mankind to its limits, to the bottoms of the ocean and into space, will we make discoveries in science and technology that can be adapted to improve life on Earth." British doctor Alexander Kumar wrote that in a 2012 article for BBC News where he explored the pros and cons of sending humans to Mars. At the time, Kumar was living in the most Mars-like place on Earth, Antarctica, to test how he adapted to the extreme conditions both physiologically and psychologically. To better understand his poignant remark, let's look at an example: During its first three years in space, NASA's prized Hubble Space Telescope snapped blurry pictures because of a flaw in its engineering. The problem was fixed in 1993, but to try to make use of the blurry images during those initial years, astronomers developed a computer algorithm to better extract information from the images. It turns out the algorithm was eventually shared with a medical doctor who applied it to the X-ray images he was taking to detect breast cancer. The algorithm did a better job at detecting early stages of breast cancer than the conventional method, which at the time was the naked eye. "You can't script that. That happens all the time — this cross pollination of fields, innovation in one, stimulating revolutionary changes in another," Tyson, the StarTalk radio host, explained during an interview with Fareed Zakaria in 2012. It's impossible to predict how cutting-edge technologies used to develop manned missions to Mars and habitats on Mars will benefit other fields like medicine or agriculture. But we'll figure that out only by "pushing humankind to its limits" and boldy going where we've never been before. 4. Growing as a species Another reason we should go to Mars, according to Tyson, is to inspire the next generation of space explorers. When asked in 2013 whether we should go to Mars, he answered: "Yes, if it galvanizes an entire generation of students in the educational pipeline to want to become scientists, engineers, technologists, and mathematicians," he said. "The next generation of astronauts to land on Mars are in middle school now." Humanity's aspirations to explore space are what drive us toward more advanced technological innovations that will undoubtedly benefit mankind in one way or another. "Space is like a proxy for a lot of what else goes on in society, including your urge to innovate," Tyson said during his interview with Zakaria. He added: "There's nothing that drives ambitions the way NASA does." 5. Demonstrating political and economic leadership At a February 24 hearing, Aldrin told the US Senate's Subcommittee on Space, Science and Competitiveness that getting to Mars was a necessity not only for science, but also for policy. "In my opinion, there is no more convincing way to demonstrate American leadership for the remainder of this century than to commit to a permanent presence on Mars," he said. If Americans do not go to Mars, someone else will. And that spells political and economic benefit for whoever succeeds. "If you lose your space edge," Tyson said during his interview with Zakaria, "my deep concern is that you lose everything else about society that enables you to compete economically."

#### Space colonization solves otherwise inevitable extinction.

Zarkadakis 19 [George; December 26; Ph.D. in Artificial Intelligence; George Zardakis, “Abandoning the metropolis: space colonisation as the new imperative,” <https://georgezarkadakis.com/2019/12/26/abandoning-the-metropolis-space-colonisation-as-the-new-imperative/>]

Space colonization is not only the subject of fiction but of serious science too. The late physicist Stephen Hawking argued that unless colonies were established in space the human race would become extinct. There are several natural phenomena beyond our control that could spell our obliteration. Over a long enough period of time our planet is vulnerable to catastrophic meteorite strikes, or getting exposed to the deadly radiation of a nearby supernova explosion. As our Sun burns its fuel it will start to expand and, in a few million years, will scorch Earth. We can also self-destruct by waging nuclear war, or by tilting our planet’s climate towards a runaway greenhouse effect. Space colonization is therefore the ultimate insurance policy of long-term human survival[4].

### 1NC – T/L – Impact

#### **Even if capitalism has caused environmental degradation, now it’s key to solve – the money is moving away from degradation and towards mitigation.**

Fitzmaurice 15 [Matthew, CEO of EcoAlpha Asset Management LLC, an asset management firm that invests in companies that provide solutions to global burdened resources with a specific emphasis on water, agriculture and energy efficiency. EcoAlpha focuses on public securities and seeks to generate superior risk-adjusted returns for investors. 03/23/2015. “Only Capitalism Can Save the Planet.” <https://ensia.com/voices/only-capitalism-can-save-the-planet/>] JCH-PF

To say the world has changed a lot in the last century is a huge understatement. Industrial, medical and social progress has resulted in unprecedented growth in the world’s population and economy, and that growth has placed tremendous burdens on the planet’s resources. These burdens create problems — perhaps the most substantive problems we have faced as a species: from water scarcity and pollution to climate change, reliable access to nourishing food, and affordable energy. Here’s the thing, though: where there are problems to be solved, there’s money to be made. And where there’s money to be made, we awaken one of the world’s most powerful forces for change: capitalism. Of course capitalism has played a starring role in distressing the planet’s resources. Historically, the combination of unchecked industry, a readiness to externalize costs and a relentless thirst for growth have plundered and polluted the earth. It’s not a debate, but simple fact that our population size and economies cannot continue on their present trajectories without exhausting the world’s resources. Yet, a rapidly expanding global middle class — increasingly urbanized and hungry for protein — threatens further and accelerating distress. The hopeful news is that businesses, with their almost singular focus on economic self-interest, and governments, motivated by a variety of interests, are beginning to recognize and address in earnest these inevitable problems. Today, the businesses that develop practical and affordable solutions to burdened resource problems will end up being the world’s most profitable companies. No longer can they be considered “sustainability” businesses. They are everyday businesses with a long view, targeting problems that are not going away. That’s smart business. Burdened resources have become a strong economic driver for businesses of all sizes, in all industries everywhere to spend and change — and one that will only grow in scope and intensity over time. The companies that provide effective solutions to burdened resources will provide superior risk-adjusted returns to their investors as business and governments accelerate their solutions spending out of their own economic self-interest. And because the products, technologies and services these companies provide are common solutions to global problems — and are therefore exponentially repeatable — these investments will have amplified positive impact on global resource scarcity issues. Too often people have a narrow view of these solutions, thinking only of solar panels and windmills. But solutions are enormously diverse: They include, among many others, agricultural drones that monitor soil conditions, smart irrigation technology that delivers water only where and when it’s really needed, more efficient distributed energy generation and component suppliers that make cars use less gas. As a whole, the human race has a poor track record when it comes to altruism. Although there are a great many saints among us who spend — and even sacrifice — their lives to help others, most of us are hard pressed to take care of ourselves and our families. We have a much better track record when it comes to investing money in our own self-interest, which has fueled the unprecedented innovation, economic and life-expectancy growth of the past century. In the past, many people who invested in sustainable solutions were motivated principally by conscience, willing to accept reduced returns in order to invest their money in a way that was consistent with their beliefs and convictions — be they religious, social or environmental. Now, however, we face a new reality in which our economic self-interest and the long-term well-being of the planet are coming into alignment. Because we have to face the reality of burdened resources, there’s money in it.

#### Capitalism is the only system that can solve warming – we don’t have time for whats next

Parenti 11 (Christian, PhD in Sociology from the London School of Economics, visiting fellow at CUNY's Center for Place, Culture and Politics, as well as a Soros Senior Justice Fellow, taught at the New College of California and at St. Mary's College, Tropic of Chaos: Climate Change and the New Geography of Violence, June 28, 2011)

There is one last imperative question. Several strands of green thinking maintain that capitalism is incapable of arriving at a sustainable relationship with nature because, as an economic system, capitalism must grow exponentially, while the earth is finite. You will find this argument in the literature of ecosocialism, deep ecology, and ecoanarchism. The same argument is often cast by liberal greens in deeply ahistorical and antitheoretical terms that, while critical of the economic system, often decline to name it. Back in the early 1970s, the Club of Rome’s book Limits to Growth fixated on the dangers of “growth" but largely avoided explaining why capitalism needs growth or how growth is linked to private ownership, profits, and interfirm competition. Whether these literatures describe the problem as “modern industrial society," “the growth cult," or the profit system, they often have a similar takeaway: we need a totally different economic system if we are to live in balance with nature. Some of the first to make such an argument were Marx and Engels. They came to their ecology through examining the local problem of relations between town and country—which was expressed simultaneously as urban pollution and rural soil depletion. In exploring this question they relied on the pioneering work of soil chemist Justus von Liebig. And from this small- scale problem, they developed the idea of capitalism’s overall “metabolic rift” with nature. Here is how Marx explained the dilemma: Capitalist production collects the population together in great centres, and causes the urban population to achieve an ever-growing preponderance. This has two results. On the one hand it concentrates the historical motive force of society; on the other hand, it disturbs the metabolic interaction between man and the earth, i.e. it prevents the return to the soil of its constituent elements consumed by man in the form of food and clothing; hence it hinders the operation of the eternal natural condition for the lasting fertility of the soil .... All progress in capitalist agriculture is a progress in the art, not only of robbing the worker, but of robbing the soil. From that grew the Marxist belief that capitalism, as a whole, is irreconcilably in contradiction with nature; that the economic system creates a rift in the balance of exchanges, or metabolism, connecting human society and natural systems. As with “soil robbing," so too with forests, fish stocks, water supplies, genetic inheritance, biodiversity, and atmospheric CO2 concentrations. The natural systems are out of sync; their elements are being rearranged and redistributed, ending up as garbage and pollution. As Mary Douglas, paraphrasing William James, put it, “Uncleanliness is matter out of place.”At a large enough scale, that disruption of elements threatens environmental catastrophe. It may be true: capitalism may be, ultimately, incapable of accommodating itself to the limits of the natural world. However, that is not the same question as whether capitalism can solve the climate crisis. Because of its magnitude, the climate crisis can appear as if it is the combination of all environmental crises—overexploitation of the seas, deforestation, overexploitation of freshwater, soil erosion, species and habitat loss, chemical contamination, and genetic contamination due to transgenic bioengineering. But halting greenhouse gas emissions is a much more specific problem; it is only one piece of the apocalyptic panorama. Though all these problems are connected, the most urgent and all encompassing of them is anthropogenic climate change. The fact of the matter is time has run out on the climate issue. Either capitalism solves the crisis or it destroys civilization. Capitalism begins to deal with the crisis now, or we face civilizational collapse beginning this century. We cannot wait for a socialist, or communist, or anarchist, or deep- ecology, neoprimitive revolution; nor for a nostalgia-based localista conversion back to the mythical small-town economy of preindustrial America as some advocate. In short, we cannot wait to transform everything—including how we create energy. Instead, we must begin immediately transforming the energy economy. Other necessary changes can and will flow from that. Hopeless? No. If we put aside the question of capitalism’s limits and deal only with greenhouse gas emissions, the problem looks less daunting.