GREEN NEW DEAL

NEGATIVE

TABLE OF CONTENTS

CLIMATE ADVANTAGE ANSWERS

RECENT FEDERAL LEGISLATION WILL SOLVE CLIMATE CHANGE. THE AFFIRMATIVE ISN'T NECESSARY.
THE ECONOMIST 2023

The Economist, "America's chance to become a clean energy superpower." April 5, 2023.
https://webcache.googleusercontent.com/search?q=cache:j530GGEjDGoJ:https://www.economist.com/united-states/2023/04/05/americas-chance-to-become-a-clean-energy-superpower&cd=10&hl=en&ct=clnk&gl=us

Plug Power, a pioneer in energy technology, provides warehouses operated by Walmart and Amazon with forklifts run on hydrogen. Plug is building one of the world's largest plants to make liquid hydrogen. When your correspondent visited, workers were removing tarps from giant electrolysers, which will use clean energy to crack water into its constituents, hydrogen and oxygen. Sanjay Shrestha, Plug's chief strategy officer, says the output will be able to power 10,000 of those forklifts a day. Local officials helped with site selection and permitting, he explains, but **the Inflation Reduction Act (IRA a climate-focused law passed by Congress last August, has had "a transformational impact" on the prospects for clean hydrogen. Mention of that project gets Ali Zaidi, the White House's national climate adviser, leaping to his feet** in his West Wing office. Pointing to a chart showing clean-investment trends outperforming forecasts, he says: **"We're seeing people make bets on America even ahead of where our ambition might have been." Since President Joe Biden took office, thanks to three recent laws, the Bipartisan Infrastructure Law (BIL), the CHIPS Act and the IRA, firms have announced about $200bn in investments into everything from batteries and electric vehicles (evs) to renewables and hydrogen. Some $65bn of that has come just since the ira was signed into law last August. Jennifer Granholm, America's secretary of energy, argues that the country is well on its way to becoming "a global energy superpower".**

America's oil exports, which hit a record high last year, have kept world markets supplied, and its exports of liquefied natural gas helped rescue Europe during the Russia-induced energy shock of the past year. Mr Biden came into office with an anti-fossil-fuel stance, but concerns about energy security have led to a more open posture towards Big Oil. Witness his approval last month of Willow, an Alaskan oil project that became a cause célèbre of anti-fossil-fuel activists. Senator Lisa Murkowski, a Republican from that state, credits his "much more pragmatic" approach to the impact of Russia's invasion of Ukraine on energy markets. That pragmatism is enshrined in the fine print of the BIL and IRA. **The laws offer subsidies for decarbonisation technologies well beyond wind and solar to include carbon capture and sequestration (ccs) and hydrogen made from fossil fuels. They are specifically designed to persuade the oil and gas industry to clean up its act.**

NO SOLVENCY FOR A GREEN TRANSITION FROM A JOBS GUARANTEE. THE WORKERS DON'T HAVE THE RIGHT SKILLS.
DOLAN, NISKANEN CENTER, 2020

Ed Dolan, "Can We Put Everyone to Work? – The Alternatives to a Job Guarantee." Niskanen Center, January 14, 2020.

Second, I think **advocates overstate the ease of creating 10 to 15 million meaningful new public service jobs. To avoid competing with the private sector, they could not be jobs in hotels or factories. They could not require advanced skills or investments in heavy equipment, which would mean JG workers could play a limited role in projects like replacing aging bridges or building green energy infrastructure. When we read advocates' descriptions of JG jobs, they talk about things like teachers' aides, recycling, and planting trees on vacant lots. How many workers could be absorbed in such jobs before they became mere make-work?**

A GREEN JOBS GUARANTEE MISDIRECTS GOVERNMENT RESOURCES AND DETRACTS FROM FIGHTING CLIMATE CHANGE
WASHINGTON POST EDITORIAL BOARD 2019

Washington Post Editorial Board, Want a Green New Deal? Here's a Better One."
https://www.washingtonpost.com/opinions/want-a-green-new-deal-heres-a-better-one/2019/02/24/2d7e491c-36d2-11e9-af5b-b51b7ff322e9_story.html

WE FAVOR a Green New Deal to save the planet. We believe such a plan can be efficient, effective, focused and achievable. The Green New Deal proposed by congressional Democrats does not meet that test. Its proponents, led by Sen. Edward J. Markey (D-Mass.) and Rep. Alexandria Ocasio-Cortez (D-N.Y.), are right to call for ambition and bold action. They are right that the entire energy sector must be reshaped. But **the goal is so fundamental that policymakers should focus above all else on quickly and efficiently decarbonizing. They should not muddle this aspiration with other social policy, such as creating a federal jobs guarantee, no matter how desirable that policy might be. And the goal is so monumental that the country cannot afford to waste dollars in its pursuit. If the market can redirect spending most efficiently, money should not be misallocated on vast new government spending or mandates.**

AFFIRMATIVE EVIDENCE RELIES ON FUNDAMENTALLY INCORRECT ASSUMPTIONS ABOUT THE ECONOMY AND TECHNOLOGY. SO-CALLED "GREEN JOBS" ESTIMATES WILL FAIL FOR MULTIPLE REASONS.
MORRISS ET AL, MISSOURI LAW SCHOOL, 2009
Andrew Morriss, Professor of Economics and Dean of the School of Innovation, Texas A&M; William T. Bogart, President of Maryville College; Roger Meiners, Professor of Economics and Law, University of Texas at Arlington; Andrew Dorchak, Head of Reference Library, Case Western Reserve University School of Law. "Green Jobs Myths," Journal of Environmental and Sustainability Law, Spring 2009. https://scholarship.law.missouri.edu/cgi/viewcontent.cgi?article=1339&context=jesl

Unfortunately, the analysis provided in the green jobs literature is deeply flawed, resting on a series of myths about the economy, the environment, and technology. We have explored the problems in the green jobs analysis in depth; we now conclude by summarizing the mythologies of green jobs in seven myths about green jobs: Myth 1: There is such a thing as a "green job." **There is no coherent definition of a green job.** Green jobs appear to be ones that pay well, are interesting to do, produce products that environmental groups prefer, and do so in a unionized workplace. Yet such criteria have little to do with the environmental impacts of the jobs. **To build a coalition for a far reaching transformation of modern society, "green jobs" have become a mechanism to deliver something for every member of a real or imagined coalition to buy their support for a radical transformation of society.** Myth 2: Creating green jobs will boost productive employment. **Green jobs estimates include huge numbers of clerical, bureaucratic, and administrative positions that do not produce goods and services for consumption. Simply hiring people to write and enforce regulations, fill out forms, and process paperwork is not a recipe for creating wealth. Much of the promised boost in green employment turns out to be in nonproductive (but costly) positions that raise costs for consumers.** Myth 3: Green jobs forecasts are reliable. The **forecasts for green employment** optimistically predict an employment boom, which is welcome news. Unfortunately, the forecasts, which are sometimes amazingly detailed, **are unreliable because they are based on questionable estimates by interest groups** of tiny base numbers in employment, extrapolation of growth rates from those small base numbers, **and a pervasive, biased, and highly selective optimism about which technologies will improve.** Moreover, **the estimates use a technique** (input-output analysis) **that is inappropriate to the conditions of technological change presumed by the green jobs literature itself.** This yields seemingly precise estimates that give the illusion of scientific reliability to numbers that are simply the result of the assumptions made to begin the analysis. Myth 4: Green jobs promote employment growth. **Green jobs estimates promise greatly expanded (and pleasant and well-paid) employment. This promise is false. The green jobs model is built on promoting inefficient use of labor, favoring technologies because they employ large numbers rather than because they make use of labor efficiently.** In a competitive market, factors of production, including labor, earn a return based on productivity. By focusing on low labor productivity jobs, the green jobs literature dooms employees to low wages in a shrinking economy. **Economic growth cannot be ordered by Congress or by the U.N. Interference in the economy by restricting successful technologies in favor of speculative technologies favored by special interests will generate stagnation.** Myth 5: The world economy can be remade based on local production and reduced consumption without dramatically decreasing human welfare. **The green jobs literature rejects the benefits of trade, ignores opportunity costs, and fails to include consumer surplus in welfare calculations to promote its vision. This is a recipe for an economic disaster,** not an ecotopia. The twentieth century saw many experiments in creating societies that did not engage in trade and did not value personal welfare. The economic and human disasters that resulted should have conclusively settled the question of whether nations can withdraw into autarky. The global integration of wind turbine production, for example, illustrates that even green technology is not immune from economic reality. Myth 6: Mandates are a substitute for markets. Green jobs proponents assume that they can reorder society by mandating preferred technologies. But the responses to mandates are not the same as the responses to market incentives. There is powerful evidence that market incentives induce the resource conservation that green jobs advocates purport to desire. The cost of energy is a major incentive to redesign production processes and products to use less energy. People do not want energy; they want the benefits of energy. Those who can deliver more desired goods and services by reducing the energy cost of production will be rewarded. There is so little evidence that successful command and control regimes accomplishing conservation. Myth 7: Wishing for technological progress is sufficient. **The preferred technologies in the green jobs literature face significant problems in scaling up to the levels proposed.** These problems are documented in readily available technical literatures, but resolutely ignored in the green jobs reports. At the same time, existing technologies that fail to meet the green jobs proponents political criteria are simply rejected out of hand. **This selective technological optimism/pessimism is not a sufficient basis**

for remaking society to fit the dream of planners, politicians, patricians, or plutocrats **who want others to live lives they think other people should be forced to lead. To attempt to transform modem society on the scale proposed by even the most modest bits of the green jobs literature**, such as the Conference of Mayors report, **is an effort of staggering complexity and scale. To do so based on the combination of wishful thinking and bad economics embodied in the green jobs literature would be the height of irresponsibility. We have no doubt that there will be significant opportunities to develop new energy sources, new industries, and new jobs in the future. Just as has been true for all of human history thus far, we are equally confident that a market-based discovery process will do a far better job of developing those energy sources, industries, and jobs than could a series of mandates based on imperfect information.**

THE GREEN NEW DEAL BARELY AFFECTS CLIMATE CHANGE AND CRUSHES AMERICA WORKERS WITH HIGHER ENERGY PRICES
LORIS AND DAYARATNA, HERITAGE FOUNDATION, 2019

Nicolas Loris, Deputy Director, Roe Institute; and Kevin Dayaratna, Principal Statistician and Research Fellow, "The Green New Deal: Less About Climate, More About Control." Heritage Foundation, August 16, 2019.
https://www.heritage.org/government-regulation/commentary/the-green-new-deal-less-about-climate-more-about-control

To assess the economic effects of such a scheme, **we started by looking at a carbon tax – the most popular recommendation of those asking government to "nudge" us off of fossil fuels.** Using the Energy Information Administration's model, **we tested to see how high a carbon tax would have to go to meet the Green New Deal's emission targets. We ratcheted the tax up to $300 per ton, which dropped emissions 58% below 2010 levels – but not until 2050. That left us far short of reaching the deal's targets,** but when we tried to push the tax higher, the model crashed. Clearly, **the Green New Deal's emission targets are unrealistic. Yet the danger they pose to the economy are far too real.** Before the model's lights went out, we found that **a $300 per ton carbon tax and associated regulations would cost a family of four nearly $8,000 per year in income lost to higher energy costs, consumer prices and foregone wages. The 20-year cost totals $165,000. During that same 20-year period, the tax would siphon off an average of 1.1 million jobs per year and diminish GDP by a total of more than $15 trillion. That's a hefty price to pay for getting barely halfway to the net-zero emissions goal.** Is it worth it? After all, proponents of eliminating conventional fuels argue that the cost of climate change dwarfs the cost of climate policy. However, it terms of "climate insurance," eliminating greenhouse gas emissions doesn't get you very far. To see if this is true, we turned to another tool: the Model for the Assessment of Greenhouse Gas Induced Climate Change (MAGICC). Developed at the National Center for Atmospheric Research, this model assesses how much increases and decreases in greenhouse gas trajectories will affect global temperatures and sea levels. Running this model, we found that **overhauling America's economy – as envisioned in the Green New Deal – would abate global warming by approximately 0.2 degree Celsius by the year 2100. The reduction in sea-level rise would be less than 2 centimeters. In other words, the Green New Deal offers minimal climate improvement at impossibly high prices.**

UNILATERAL US ACTION CAN'T AFFECT CLIMATE CHANGE, AND US LEADERSHIP INTERNATIONALLY FAILS
LORIS, HERITAGE FOUNDATION, 2019

Nicolas Loris, Deputy Director, Roe Institute for Economic Policy Studies, "The Green New Deal: A Raw Deal for American Taxpayers, Energy Consumers, and the Economy." Heritage Foundation, February 25, 2019.
https://www.heritage.org/environment/report/the-green-new-deal-raw-deal-american-taxpayers-energy-consumers-and-the-economy

No matter where one stands on the urgency to combat climate change, the Green New Deal policies would be ineffective in combatting climate change. In fact, the U.S. could cut its carbon dioxide emissions 100 percent and it would not make a difference in global warming. Using the same climate sensitivity (the warming effect of a doubling of carbon dioxide emissions) **as the U.N.'s Intergovernmental Panel on Climate Change assumes in its modeling, the world would only be less than 0.2 degree Celsius cooler by 2100. Although one of the priorities of the Green New Deal is to make the U.S. a lead exporter in green technologies, assuming developing countries will forego cheap abundant carbon dioxide–emitting energy for more expensive intermittent sources is pure fantasy. Developing countries will likely expand their use of renewable power sources, but not to the extent it will have any meaningful impact on global temperatures.** While some countries are shuttering their coal-fired plants, others in **both developed and developing countries are building new plants and expanding the life of existing generators. Affordable, reliable, and widely available energy is essential to lifting people out of poverty and improving the life, health, and comfort of people trying to reach a better standard of living.**

WARMING WON'T BE THAT BAD, AND TALKING ABOUT IT APOCALYPTICALLY IS COUNTERPRODUCTIVE
SHELLENBERGER, FORBES, 2019
Michael, President of Environmental Progress, Author, Why Apocalyptic Claims About Climate Change Are Wrong
https://www.forbes.com/sites/michaelshellenberger/2019/11/25/why-everything-they-say-about-climate-change-is-wrong/?sh=775e33d212d6

Apocalyptic statements like these **have real-world impacts.** In September, **a group of British psychologists said children are increasingly suffering from anxiety from the frightening discourse around climate change.** In October, an activist with Extinction Rebellion ("XR") — an environmental group founded in 2018 to commit civil disobedience to draw awareness to the threat its founders and supporters say climate change poses to human existence — and a videographer, were **kicked and beaten** in a London Tube station by angry commuters. And last week, an XR co-founder **said** a genocide like the Holocaust was "happening again, on a far greater scale, and in plain sight" from climate change. **Climate change is an issue I care passionately about** and have dedicated a significant portion of my life to addressing. I have been **politically active** on the issue for over 20 years and have researched and written about it for 17 years. Over the last four years, my organization, Environmental Progress, has worked with some of the world's leading climate scientists to **prevent** carbon emissions from rising. So far, we've helped prevent emissions increasing the equivalent of adding 24 million cars to the road. **I also care about getting the facts and science right and have in recent months corrected inaccurate and apocalyptic news media coverage** of **fires in the Amazon** and **fires in California**, both of which have been improperly presented as resulting primarily from climate change. **Journalists and activists alike have an obligation to describe environmental problems honestly and accurately,** even if they fear doing so will reduce their news value or salience with the public. **There is good evidence that the catastrophist framing of climate change is self-defeating because it alienates and polarizes many people. And exaggerating climate change risks distracting us from other important issues including ones we might have more near-term control over.** I feel the need to say this up-front because I want the issues I'm about to raise to be taken seriously and not dismissed by those who label as "climate deniers" or "climate delayers" anyone who pushes back against exaggeration. With that out of the way, let's look whether the science supports what's being said. First, **no credible scientific body has ever said climate change threatens the collapse of civilization much less the extinction of the human species.** "'Our children are going to die in the next 10 to 20 years.' What's the scientific basis for these claims?" BBC's Andrew Neil **asked** a visibly uncomfortable XR spokesperson last month.
"These claims have been disputed, admittedly," she said. "There are some scientists who are agreeing and some who are saying it's not true. But the overall issue is that these deaths are going to happen." "But most scientists don't agree with this," said Neil. **"I looked through IPCC reports and see no reference to billions of people going to die,** or children in 20 years. How would they die?" "Mass migration around the world already taking place due to prolonged drought in countries, particularly in South Asia. There are wildfires in Indonesia, the Amazon rainforest, Siberia, the Arctic," she said. But in saying so, the XR spokesperson had grossly misrepresented the science. "There is robust evidence of disasters displacing people worldwide," **notes** IPCC, "but limited evidence that climate change or sea-level rise is the direct cause" What about "mass migration"? "The majority of resultant population movements tend to occur within the borders of affected countries," says IPCC. It's not like climate doesn't matter. It's that climate change is outweighed by other factors. Earlier this year, researchers **found** that climate "has affected organized armed conflict within countries. However, other drivers, such as low socioeconomic development and low capabilities of the state, are judged to be substantially more influential." Last January, after climate scientists criticized Rep. Ocasio-Cortez for saying the world would end in 12 years, her spokesperson **said** "We can quibble about the phraseology, whether it's existential or cataclysmic." He added, "We're seeing lots of [climate change-related] problems that are already impacting lives." That last part may be true, but it's also true that **economic development has made us less vulnerable, which is why there was a 99.7% decline in the death toll from natural disasters since its peak in 1931.** In 1931, 3.7 million people died from natural disasters. In 2018, just 11,000 did. And that decline **occurred** over a period when the global population quadrupled. What about sea level rise? IPCC estimates sea level could rise two feet (0.6 meters) by 2100. Does that sound apocalyptic or even "unmanageable"? Consider that one-third of the Netherlands is below sea level, and some areas **are** seven meters below sea level. You might object that Netherlands is rich while Bangladesh is poor. But the Netherlands adapted to living below sea level 400 years ago. Technology has improved a bit since then. What about claims of crop failure, famine, and mass death? That's science fiction, not science. Humans today produce enough food for 10 billion people, or 25% more than we need, and scientific bodies predict increases in that share, not declines. The United Nations Food and Agriculture Organization (FAO) **forecasts** crop yields increasing 30% by 2050. And the poorest parts of the world, like sub-Saharan Africa, are expected to see increases of 80 to 90%. Nobody is suggesting climate change won't negatively impact crop yields. It could. But such declines should be put in perspective. Wheat yields increased 100 to 300% around the world since the 1960s, while a study of 30 models **found** that yields would decline by 6% for every one degree Celsius increase in

temperature. Rates of future yield growth depend far more on whether poor nations get access to tractors, irrigation, and fertilizer than on climate change, says FAO. All of this helps explain why IPCC anticipates climate change will have a modest impact on economic growth. By 2100, IPCC projects the global economy will be 300 to 500% larger than it is today. Both **IPCC** and the Nobel-winning Yale economist, William Nordhaus, **predict** that warming of 2.5°C and 4°C would reduce gross domestic product (GDP) by 2% and 5% over that same period. Does this mean we shouldn't worry about climate change? Not at all. One of the reasons I work on climate change is because I worry about the impact it could have on endangered species. Climate change **may** threaten one million species globally and **half** of all mammals, reptiles, and amphibians in diverse places like the Albertine Rift in central Africa, home to the endangered mountain gorilla. But it's not the case that "we're putting our own survival in danger" through extinctions, as Elizabeth Kolbert **claimed** in her book, Sixth Extinction. As tragic as animal extinctions are, they do not threaten human civilization. If we want to save endangered species, we need to do so because we care about wildlife for spiritual, ethical, or aesthetic reasons, not survival ones.

And exaggerating the risk, and suggesting climate change is more important than things like habitat destruction, are counterproductive. For example, Australia's fires are not driving koalas extinct, as Bill McKibben suggested.

WARMING IS NATURAL, NOT MAN-MADE, AND ABOUT TO REVERSE
ESSENHIGH, OHIO STATE UNIVERSITY, 2001

Robert, Professor of Energy Conservation, June 15th, Science Daily, Global Warming Natural, May End Within 20 Years, Says Ohio State University Researcher https://www.sciencedaily.com/releases/2001/06/010615071248.htm

Global warming is a natural geological process that could begin to reverse itself within 10 to 20 years, predicts an Ohio State University researcher. The researcher suggests that atmospheric **carbon dioxide** -- often thought of as a key "greenhouse gas" -- **is not the cause of global warming. The opposite is most likely to be true,** according to Robert Essenhigh, E.G. Bailey Professor of Energy Conservation in Ohio State's Department of Mechanical Engineering. It is the **rising global temperatures that are naturally increasing the levels of carbon dioxide, not the other way around,** he says. Essenhigh explains his position in a "viewpoint" article in the current issue of the journal Chemical Innovation, published by the American Chemical Society. Many people blame global warming on carbon dioxide sent into the atmosphere from burning fossil fuels in man-made devices such as automobiles and power plants. Essenhigh believes these people fail to account for the much greater amount of carbon dioxide that enters -- and leaves -- the atmosphere as part of the natural cycle of water exchange from, and back into, the sea and vegetation. **"Many scientists who have tried to mathematically determine the relationship between carbon dioxide and global temperature would appear to have vastly underestimated the significance of water in the atmosphere as a radiation-absorbing gas,"** Essenhigh argues. "If you ignore the water, you're going to get the wrong answer." How could so many scientists miss out on this critical bit of information, as Essenhigh believes? He said a National Academy of Sciences report on carbon dioxide levels that was published in 1977 omitted information about water as a gas and identified it only as vapor, which means condensed water or cloud, which is at a much lower concentration in the atmosphere; and most subsequent investigations into this area evidently have built upon the pattern of that report. For his hypothesis, Essenhigh examined data from various other sources, including measurements of ocean evaporation rates, man-made sources of carbon dioxide, and global temperature data for the last one million years. **He cites a 1995 report from the Intergovernmental Panel on Climate Change (IPCC)**, a panel formed by the World Meteorological Organization and the United Nations Environment Programme in 1988 to assess the risk of human-induced climate change. In the report, the IPCC wrote that some 90 billion tons of carbon as carbon dioxide annually circulate between the earth's ocean and the atmosphere, and another 60 billion tons exchange between the vegetation and the atmosphere.
Compared to man-made sources' emission of about 5 to 6 billion tons per year, the natural sources would then account for more than 95 percent of all atmospheric carbon dioxide, Essenhigh said. "At 6 billion tons, humans are then responsible for a comparatively small amount - less than 5 percent - of atmospheric carbon dioxide," he said. "And if nature is the source of the rest of the carbon dioxide, then it is difficult to see that man-made carbon dioxide can be driving the rising temperatures. In fact, I don't believe it does." Some scientists believe that the human contribution to carbon dioxide in the atmosphere, however small, is of a critical amount that could nonetheless upset Earth's environmental balance. But Essenhigh feels that, mathematically, that hypothesis hasn't been adequately substantiated. Here's how Essenhigh sees the global temperature system working: As temperatures rise, the carbon dioxide equilibrium in the water changes, and this releases more carbon dioxide into the atmosphere. According to this scenario, atmospheric carbon dioxide is then an indicator of rising temperatures -- not the driving force behind it. Essenhigh attributes the current reported rise in global temperatures to a natural cycle of warming and cooling. He examined data that Cambridge University geologists Nicholas Shackleton and Neil Opdyke reported in the journal Quaternary Research in 1973, which found that global temperatures have been oscillating steadily, with an average rising gradually, over the last one million years -- long before human industry began to release carbon dioxide into the atmosphere. Opdyke is now at the University of Florida. According to Shackleton and Opdyke's data, average global temperatures have risen less than one degree in the last million years, though the amplitude of the periodic oscillation has now risen in that time from about 5 degrees to about 10 degrees, with a period of about 100,000 years. **"Today, we are simply near a peak in the current cycle that started about 25,000 years ago,"** Essenhigh explained. As to why highs and lows follow a 100,000 year cycle, the explanation Essenhigh uses is that the Arctic Ocean acts as a giant temperature regulator, an idea known as the "Arctic Ocean Model." This model first appeared over 30 years ago and is well presented in the 1974 book Weather Machine: How our weather works and why it is changing, by Nigel Calder, a former editor of New Scientist magazine. According to this model, when the Arctic Ocean is frozen over, as it is today, Essenhigh said, it prevents evaporation of water that would otherwise escape to the atmosphere and then return as snow. When there is less snow to replenish the Arctic ice cap, the cap may start to shrink. That could be the cause behind the retreat of the Arctic ice cap that scientists are documenting today, Essenhigh said. As the ice cap melts, the earth warms, until the Arctic Ocean opens again. Once enough water is available by evaporation from the ocean into the atmosphere, snows can begin to replenish the ice cap. At that point, the Arctic ice begins to expand, the global temperature can then start to reverse, and the earth can start re-entry to a new ice age. According to Essenhigh's estimations, Earth may reach a peak in the current temperature profile within the next 10 to 20 years, and then it could begin to cool into a new ice age. Essenhigh knows that his scientific opinion is a minority one. As far as he knows, he's the only person who's linked global warming and carbon dioxide in this particular way. But he maintains his evaluations represent an improvement on those of the majority opinion, because they are logically rigorous and includes water vapor as a far more significant factor than in other studies. "If there are flaws in these propositions, I'm listening," he wrote in his Chemical Innovation paper. "But if there are objections, let's have them with the numbers."

IMPACT TURN: GLOBAL WARMING IS GOOD

1. GLOBAL STARVATION COMING NOW
HOROWITZ, CNN, 2023

Julia, Jan 17th, CNN Business, Russia's War in Ukraine sparked a historic food crises. Its not over, https://www.cnn.com/2023/01/15/business/global-food-crisis-davos/index.html

Yet **the world is still in the grips of the worst food crisis in modern history,** as Russia's war in Ukraine shakes global agricultural systems already grappling with the effects of extreme weather and the pandemic. Market conditions may have improved in recent months, but experts do not expect imminent relief. That means more pain for vulnerable communities already struggling with hunger. It also boosts the **risk of starvation and famine** in countries such as Somalia, which is contending with what the United Nations describes as **a "catastrophic" food emergency.** **"All the major causes of the food crisis are still with us — conflict, Covid, climate change, high fuel prices,"** Cary Fowler, the US special envoy for global food security, told CNN. "I do think we have to prepare for 2023 being a rough year." The issue is on the agenda as government and business leaders head to the World Economic Forum in Davos, Switzerland this week. It will vie for attention as attendees discuss topics ranging from energy costs and maintaining global security to artificial intelligence and demographic shifts.

David Beasley, head of the UN's World Food Programme, **tweeted** that the elite gathering comes at a "critical time." His agency received $14 billion in 2022, an unprecedented sum that included more than $7 billion from the United States. That helped it deliver food and assistance to **about 160 million people**. But high food prices mean that funding **can't go as far**, and Russia's war continues to generate volatility. More work also needs to be done to boost supplies of food in countries with greater needs. **"The ranks of the food insecure are growing faster than our ability to provide humanitarian assistance,"** Fowler said. **"We can't get out of this crisis by supplying food aid."** The highest food prices on record Before Russia invaded Ukraine, the price of food was already at its highest level in a decade due to scrambled supply chains and extreme weather events, such as the worst drought in almost a century in **central and southern Brazil**. **Record prices** for natural gas — a key input to make nitrogen-based fertilizers — had also become a nightmare for farmers. Ukraine normally supplies about 45 million metric tons of grain to the global market every year and is the world's top exporter of sunflower oil.

Together with Russia, it accounted for about one quarter of global wheat exports in 2019.

As Russian troops blockaded the country's ports, the strained food system was dealt another shock — **this one even harder to bear.** "The Ukraine crisis has had this ongoing negative impact on world food prices and [added] even more volatility," said Abby Maxman, CEO of Oxfam America. "The supply chains and how they flow to places like East Africa and the Horn of Africa are taking big hits." That drove the Food Price Index developed by the UN's Food and Agriculture Organization to its highest annual level on records dating back to 2005, rising more than 14% compared to 2021. **In 2022, the number of people grappling with acute food insecurity — meaning their access to food was so restricted that it threatened their lives and livelihoods — shot up to 345 million from 135 million in 2019.** There have been some signs of improvement. The index has dropped for nine consecutive months, and its December value was below that of one year ago.

2. CLIMATE CHANGE WILL OPEN UP NEW AGRICULTURAL LANDS AND FORCE FARMERS TO CHOOSE WHAT CROPS TO GROW WHERE MORE EFFICIENTLY, INCREASING OUTPUT FOR A BILLION MORE PEOPLE
THE ECONOMIST 2022

Nov. 10th, Climate change will force farmers to reshuffle what is grown where,
https://www.economist.com/graphic-detail/2022/11/10/climate-change-will-force-farmers-to-reshuffle-what-is-grown-where

Agricultural yields have been rising for decades, defying predictions that the world's population would outgrow its food supply. Such gains stem largely from scientific advances in areas like fertilisers and genetics. This pace of discovery could slow down. Even so, farmers could still increase yields by changing a lower-tech part of their job: picking what to plant where. A surprisingly large share of farmland is used for crops that do not maximise nutritional or economic value. One study in Nature Geoscience showed that **by changing what is planted on existing fields, output could rise enough to feed 825m more people, while reducing water use by 10%.** And global warming is likely to make the current distribution of crops even less efficient: a paper in Nature Food found that climate change could cut maize yields by 6-24% by the late 21st century. Today, crop-site mismatches tend to be most extreme in poor countries. Of the 12 crops analysed in a recent study in the Proceedings of the Royal Society, those most often planted in unsuitable locations were cassava, rice, sorghum and potatoes. The first three are favourites of smallholder and subsistence farmers. Because such producers need to feed their families every year, they often prioritise resistance to poor weather over maximising yield. There is no practical way to get millions of small farmers to switch their crops. But **global warming could force even agribusiness firms,** which do much of the farming in richer countries, **to change what they plant.** Maize, America's biggest crop, is sensitive to heat, and may need genetic modification to remain viable even under moderate warming scenarios. Soyabeans, grown on nearly half of Brazil's farmland, are also expected to suffer. And coffee struggles with extreme temperatures, which climate change will make more common. In contrast, breadfruit, which can live for months without rain, should do well at low latitudes. But bumper breadfruit harvests will do little for caffeine-starved office workers.

Warming will also generate opportunities. Parts of Russia, Canada, China and the north-western United States should become prime areas for wheat, which resists heat and drought better than maize does—though chopping down forests in these regions would accelerate climate change. A few hotter, poorer areas could benefit too: **increased rainfall might improve rice production in India and west Africa.** Although such forecasts reflect the best estimates of how climate change will affect individual crops in specific regions, they are highly uncertain. Rather than preparing for a single scenario, the best defence is for farmers to learn about a wide variety of crops. The only guarantee is that global warming will transform agriculture in ways that cannot be fully foreseen.

CHINA AND EUROPE HAVE TAKEN THE LEAD ON CLIMATE, AND WHAT THE US DOES IS IRRELEVANT. PLUS, THE US CAN'T BE TRUSTED TO MAINTAIN CLIMATE ACTION BECAUSE OF THE REPUBLICANS.
TOOZE, COLUMBIA UNIVERSITY, 2020
Adam Tooze, Professor of History, Columbia University. "Did Xi Just Save the World?" Foreign Policy Magazine, September 25, 2020. https://foreignpolicy.com/2020/09/25/xi-china-climate-change-saved-the-world%E2%80%A8/

Beijing has not asked for a quid pro quo from Europe or anyone else. Nor has it waited for the outcome of the U.S. election in November. This ought to give Americans from all sides pause. If the Republican China hawks mean what they say, it surely should be puzzling to them that Beijing, which they accuse of foisting the climate issue on the world to hobble America, is now making a huge and unilateral commitment on decarbonization. But Xi's move should also be a wake-up call for advocates of proactive climate policy on the Democratic side. Against the backdrop of climate negotiations in the Bill Clinton and Barack Obama eras, their approach tends, in its own way, to be highly transactional. **The conceit** that one can still hear from veterans of U.S. climate diplomacy **is that the world is waiting for America to come back to the table and that no big deal like that at Paris in 2015 is conceivable without the United States. But 2020 is not 2015. The sobering truth is that neither the EU nor China is any longer conditioning its climate policy on the United States.** If you are serious about the issue, how could you? **If Washington does come around to supporting a Green New Deal** of the Joe Biden variety, **that will,** of course, **be welcome. But in light of America's cavalier dismissal of the Paris agreement, even if a new administration were to make a new and more ambitious round of commitments, what would that amount to? So long as the basics of the American way of life remain nonnegotiable and climate skepticism has a strong grip on public opinion, so long as the rearguard of the fossil fuel industries is allowed the influence that it is, so long as one of the two main governing parties and the media that supports it are rogue, America's democracy is not in a position to make credible commitments.** Whatever the outcome of the election, Donald Trump will surely carry through on his declaration that the United States is exiting the Paris agreement. The day on which that decision comes into effect is Nov. 4. Trump's inversion of U.S. policy is possible because Obama never put the Paris agreement to Congress. Indeed, after the abortive cap and trade legislation of 2009, the cornerstone of the original Green New Deal, **the Obama administration abandoned major legislative initiatives on climate change. Instead, it relied on regulatory interventions and the force of cheap fracked gas to deliver a modest decarbonization agenda, anchored on ending coal.** In the future too, the two things that can be counted on to drive the climate agenda in the United States are technology and markets. And the same goes for other recalcitrant fossil fuel addicts around the world. If there are affordable and high-quality technological options, the switch to green will happen. Due to the advances in solar and wind power, we are rapidly approaching that point. Whatever Trump's bluster, coal is on its way out in the United States, too. The U.S. environmental movement remains a vigorous and inspiring voice. America's science base and business nous, as well as the enthusiasm of capital markets for ventures like Tesla, can be counted on as drivers of progress. There are no doubt positive synergies to be had between market-driven energy choices in the United States and the industrial policy options that the European and Chinese bids for neutrality will open up. Solar and wind have already given examples of that. But **amid the shambles of U.S. policy** both **on climate** and the coronavirus, **it is time to recognize a qualitative difference between the United States and Europe and China. Whereas Europe and China can sustain an emphatic public commitment to meeting the challenges** of the Anthropocene **with international commitments and public investment, the structure of the U.S. political system and the depth and politicization of the culture wars make that impossible.** Perversely, the only way to build bipartisan political support for a green transition in the United States may be to pitch it as a national security issue in a cold war competition with China. Of course, one should not despair of a more creative and positive scenario for the United States. The Green New Deal points the way. The push from the left has shifted the terms of debate across the Democratic Party. Of late, there are even voices in the Republican Party calling for an accommodation with the reality of global warming. But who knows how the electorate will decide on Nov. 3 and whether America's institutions will hold up. For the United States, everything hangs in the balance. For the rest of the world, that is not the case. As Xi made clear on Sept. 22, **as far as the most important collective issue facing humanity is concerned, the major players are no longer waiting. If the United States joins the decarbonization train, that will be all well and good. A constructive U.S. contribution to U.N. climate diplomacy will be most welcome. But the era in which the United States was the decisive voice has passed. China and Europe are decoupling.**

THE GREEN NEW DEAL CAN'T SOLVE CLIMATE CHANGE. CENTRALIZED PLANNING IS EMPIRICALLY WORSE FOR THE ENVIRONMENT AND HARMFUL ACTIVITIES WILL SHIFT TO OTHER COUNTRIES, FOR NO NET GAIN.
LORIS, HERITAGE FOUNDATION, 2019

Nicolas Loris, Deputy Director, Roe Institute for Economic Policy Studies, "It's Not Just About Cost. The Green New Deal Is Bad Environmental Policy, Too." Heritage Foundation, November 15, 2019.
https://www.heritage.org/environment/commentary/its-not-just-about-cost-the-green-new-deal-bad-environmental-policy-too
We're not hearing much about the "Green New Deal" these days, but it's still a priority for some candidates, as anyone who's attended a recent Bernie Sanders rally can attest. **Criticism of the GND tends to center on cost and rightly so. It would be extremely expensive. Researchers estimate it would take more than $5 trillion just to switch from coal, nuclear and natural gas to 100% renewables. But even if you set economic concerns aside, an ironic fact remains: In the United States and around the world, the central-planning policies at the heart of the GND have a horrible track record for the environment. Governments** in countries such as Venezuela and China (or in the past like the Soviet Union and Cuba) **either routinely mismanage and waste resources, or ramp up production with little to no accountability for environmental damage that comes with it. The absence of price signals reduces the incentive to be more efficient and do more with less. In addition, the absence of property rights reduces the incentive to conserve and gives government-controlled industries a free pass to pollute without compensating or protecting its citizens. The Green New Deal would massively expand the size and scope of the federal government's control over activities best left to the private sector. It would empower the feds to change and control how people produce and consume energy, harvest crops, raise livestock, build homes, drive cars and manufacture goods.** Secondly, the Green New Deal would result in a number of unintended consequences. For instance, **policies that limit coal, oil and natural gas production in the United States will not stop the global consumption of these natural resources. Production will merely shift to places where the environmental standards are not as rigorous, making the planet worse off. Moreover, it's not as if wind, solar and battery technologies magically appear. Companies still have to mine the resources, manufacture the product and deal with the waste streams.** There are challenges to disposing potentially toxic lithium-ion batteries and solar panels, or even wind turbine blades that are difficult and expensive to transport and crush at landfills. While these are solvable problems, they're seldom discussed by GND proponents.

THE GREEN NEW DEAL WOULDN'T SOLVE CLIMATE CHANGE AND WOULD CAUSE ECONOMIC AND ENVIRONMENTAL PROBLEMS
HEATH, THE LIBERTY CHAMPION, 2021

Julia, Liberty University Student, April 13th, The Green New Deal would harm Americans, not help them, https://www.liberty.edu/champion/2021/04/the-green-new-deal-would-harm-americans-not-help-them/#:~:text=Many%20support%20the%20GND%20because,%E2%80%9Cbarely%20distinguishable%20from%20zero.%E2%80%9D

The Green New Deal (GND), a piece of legislation proposed by Rep. Alexandria Ocasio-Cortez, gained support from a large base of the younger generation. **The Green New Deal's goal is to solve America's environmental issues.** However, as a student and a young person who will receive the negative effects of this deal should it pass, I find this proposal concerning, as its main directive is to siege control and impose progressive laws override their desires to aid the "climate crises."

Many support the GND because they want to solve climate change, but **multiple studies have shown it wouldn't do much to help the issue. According to a study done by the American Enterprise Institute, the proposal would reduce global temperatures by "0.083 to 0.173 degrees," a number "barely distinguishable from zero."**

The GND would also be astronomically expensive. In a study reported by Bloomberg News, the proposal could cost up to $93 trillion over the span of 10 years, or $65,000 per family, per year.

That's more than three times the national debt. Between paying for my tuition and student loans, I can't afford to take on more financial burden and neither can the majority of other college students. In addition, **the Heritage Foundation reports that the GND would cause the average household's electricity cost to increase by about 12-14%. Economic recession or not, this is an additional hardship that struggling Americans cannot afford.** Another concern is that the initial goal of the GND was not to solve environmental issues, but rather to restructure the economy. Rep. Ocasio-Cortez's former chief of staff, Saikat Chakrabarti, even said, "The interesting thing about the Green New Deal is it wasn't originally a climate thing at all," and, "…we really think of it as a how-do-you-change-the-entire-economy thing," according to the The Washington Post. This legislation seems to be a proposal for economic change camouflaged as a piece of environmental legislation. Environmental policies implemented by the government from the top-down, such as the GND, can lead to more pollution, which is contradictory to the solution this policy aims to provide. As reported by the journal Global Environmental Change, Russia (formerly the USSR when these policies were put into place) already implemented top-down policies like the GND, however, its air quality is 1.5 times dirtier than the USA's per unit of GDP in the 1980s.

The Green New Deal aims to restructure the economy under the guise of environmental solutions. Lastly, **the GND would largely expand the use of wind and solar energy, but in order to make this work on a national, industrial scale, it would mean the clearing of hundreds of thousands of square miles of forest and habitat to make way for those facilities,** according to the Committee for a Constructive Tomorrow. In an effort to promote conservation, habitats for wildlife would be destroyed while making room for these facilities, such as solar panel farms. The Green New Deal is a harmful environmental policy that aims to implement faulty solutions to the environmental problem that would harm the American people more than it would help. As a college student and lover of the environment, I am strongly opposed to the Green New Deal.

GREEN NEW DEAL CAN'T SOLVE CLIMATE CHANGE, DOESN'T HELP OTHER COUNTRIES
SHARMA, BLOOMBERG 2019

Mihir, March 16th, Opinion, The Green New Deal Isn't Global Enough,
https://www.bloomberg.com/view/articles/2019-03-17/green-new-deal-won-t-solve-global-climate-change

That extra word, **"global," suggests why international players today aren't terribly enthused by the Democrats' plan. The program** -- or what little of it can be adduced from what's now largely a slogan -- **is focused entirely on green investment in the U.S. The basic notion that climate change is a global problem that requires a global solution seems to have been forgotten.** Don't get me wrong: De-carbonizing the U.S. economy would be a big deal. A lot of good work can be and is being done. The Beyond Coal campaign **supported** by former New York City Mayor Michael Bloomberg (the founder and majority owner of Bloomberg LP, parent of Bloomberg News) has already helped **shut down** 285 of the country's 500-plus coal-fired power plants and is aiming to close the rest by 2030. And getting climate change back onto the political agenda is important in and of itself. Nor should Republicans be allowed to use concerns about the growth of emissions in the developing world to stymie work on carbon mitigation at home. Yet, fawning coverage of the Green New Deal rubs many in the developing world the wrong way. We've long known that an economy transitioning to a low-carbon growth path will both require investment and create jobs. But, the New Deal of the 1930s is simply not the right analogy. Then, economies across the world had enormous amounts of unused capacity that just needed to be put to work. By contrast, **a global low-carbon transition will require laying claim to resources that are productively employed in carbon-intensive sectors of the economy. It will be expensive. It will require sacrifice. And resources will need to flow more freely across national borders.** The New Deal framing and rhetoric is merely an extension of what the left of the Democratic Party has long argued about multiple other policy issues -- that special interests beholden to the one percent are holding back changes that would benefit all. This may well be true and the answer may indeed be greater and fairer redistribution. The original New Deal argued correctly that redistribution of resources would spur growth under the specific conditions of the Depression. But, that hardly means that something similar is possible today -- that simply redistributing resources within the U.S. economy, through a program managed by the U.S. government, would be sufficient to address climate change as well as create general prosperity. Someone needs to remind the Democrats that when it comes to global problems such as climate change, much of the U.S. is itself the one percent. (In 2012, economist Branko Milanovic estimated that an average income of over $34,000 put you in into the global one percent.) This group will have to sacrifice something if climate change is to be stopped. The truth is that **the resources that Democrats want the U.S. government to appropriate and use domestically need instead to flow elsewhere in the world.** That valuable finance and capacity is needed to help the developing world pay for cities that don't stress the planet, to protect those who are losing livelihoods and homes because of climate change, and to ensure that everyone in the world has access to reliable, affordable and clean energy. The good news is that much of this financing can actually pay for itself in the long run. Since Americans seem addicted to mid-century references, **what we need isn't a Green New Deal, but a Green Marshall Plan. Meanwhile, the global one percent will have to adjust its expectations.** Yes, people in America will have to eat fewer hamburgers. Yes, people in France and elsewhere will have to pay more for their petrol.

INEQUALITY ADVANTAGE ANSWERS

THE FEDERAL JOBS GUARANTEE IS COUNTERPRODUCTIVE – IT KILLS MOTIVATION TO WORK AND EFFICIENCY
STANDING, UNIVERSITY OF LONDON, 2019
Guy Standing, Professor of Development Studies, School of Oriental and African Studies, University of London, "Basic Income as Common Dividends: Piloting a Transformative Policy." 2019.
https://progressiveeconomyforum.com/publications/basic-income-as-common-dividends-piloting-a-transformative-policy/
Another failing of the job guarantee route is the mapping of a path to 'workfare'. What would happen to somebody who declined to accept the guaranteed job? They would be labelled 'lazy' or 'choosy' and thus 'ungrateful' and 'socially irresponsible'. **Yet there are many reasons for refusing a job. Studies show that accepting a job below a person's qualifications can lower their income and social status for the long term.** As what is happening in the current UK benefit system attests, those not taking jobs allocated to them would face benefit sanctions, and be directed into jobs, whether they liked them or not. **Jobs done in resentment or under duress are unlikely to be done well. A job guarantee would be a recipe for perpetuating low productivity.** What would happen if a person in a guaranteed job performed poorly, perhaps because of limited ability or simply because they knew it was 'guaranteed'? If you are guaranteed a job, why bother to work hard? **If you are an employer and are given a subsidy to pay employees guaranteed a job, why bother to try to use labour efficiently? If subsidised through tax credits or a wage subsidy, a worker would need to produce only a little more value than the cost to the employer to make it profitable to retain him or her.** This would cheapen low-productivity jobs relative to others and inhibit the higher productivity arising from labour-displacing technological change. If a job of a certain type is guaranteed, what happens if an employer wishes to invest in technology that would remove the need for such jobs? **Those calling for a job guarantee also ignore the fact that any market economy requires some unemployment, as people need time to search for jobs they are prepared to accept,** and firms must sift applicants for jobs they want to have done. To adopt a job guarantee policy would risk putting the economy in gridlock. Job guarantee advocates, such as Larry Summers, President Clinton's former Treasury Secretary, argue that people without jobs 'are much more likely to be dissatisfied with their lives' and are more likely to be drug addicts and abusive than those with even low-wage jobs.135 This is bogus. I suggest **there would be no correlation between life satisfaction and having a job if the comparison was made between those in lousy jobs and those with no job but an adequate income on which to live.** Somebody facing a choice between penury and a lousy job will prefer the job. But that does not mean they like or want it for itself. The polling company Gallup conducts regular State of the Global Workplace surveys in over 150 countries. In 2017, it found that **globally only 15% of workers were engaged by their job, and in no country did the figure exceed 40%.** One recent UK survey found that **37% of jobholders did not think their job made any significant contribution.** Summers ends his article by equivocating – 'the idea of a jobs guarantee should be taken seriously but not literally'. He seems to mean government should try to promote more employment, through 'wage subsidies, targeted government spending, support for workers with dependants, and more training and job-matching programmes'. In other words, he reverts to the standard social democratic package that has not done very well in the past three decades. **Besides being a recipe for labour inefficiency and labour market distortions, tending to displace workers employed in the 'free' labour market and to depress their wages, the job guarantee proposal fails to recognise that today's crisis is structural and requires transformative policies. Tax credits, job guarantees and statutory minimum wages would barely touch the precariat's existential insecurity that is at the heart of the social and economic crisis, let alone address the aspirations of the progressive and growing part of the precariat for an ecologically grounded Good Society.**

THE GREEN NEW DEAL CAUSES ENERGY POVERTY BY INCREASING ENERGY COSTS FOR POOR PEOPLE
LORIS, HERITAGE FOUNDATION, 2019

Nicolas Loris, Deputy Director, Roe Institute for Economic Policy Studies and Fellow, Heritage Foundation, "The Green New Deal: A Raw Deal for American Taxpayers, Energy Consumers, and the Economy." Heritage Foundation, February 25, 2019. https://www.heritage.org/environment/report/the-green-new-deal-raw-deal-american-taxpayers-energy-consumers-and-the-economy

Direct Taxpayer Costs. Regardless, **the Green New Deal proposes that the federal government largely pay for the transition,** and this would come **at significant cost to the taxpayer**. Moreover, switching over to a **100 percent renewable electricity grid is only a fraction of the plan. Eliminating greenhouse gas emissions** from the transportation, manufacturing, and agriculture sectors **would substantially increase economic harm. Americans will pay as taxpayers** for the government borrowing and taxing to finance the Green New Deal **but will also devote more money to their energy bills. The reality is that the costs to families, businesses, and the economy would be considerably greater than any direct cost to taxpayers.** An essential reason coal, natural gas, and nuclear power provide 83 percent of America's electricity generation is because these resources are abundant, reliable, and affordable. **A government-forced transition to 100 percent renewables** or politically determined clean energy sources **would cause electricity rates to skyrocket.** In fact, 29 states, the District of Columbia, and 3 territories have a Renewable Portfolio Standard (RPS), which mandates that a certain percentage of a given state's electricity generation come from politically determined renewable sources. While a number of variables impact the price of electricity, RPSs are a factor in driving electricity bills higher.21 Research from the Massachusetts Institute of Technology in November 2018 has perhaps the most detailed model estimating the costs of deep decarbonization in the electricity sector.22 The authors run 912 scenarios looking at a wide range of uncertainties that take into account geographical differences in renewable potential, different technology cost assumptions, and different carbon-dioxide-emission-reduction targets. In some scenarios they include "firm" low-carbon power sources, such as nuclear power, natural gas, and coal with carbon capture and sequestration and high-capacity reservoirs for hydroelectric power. **In the scenario that achieves zero carbon dioxide emissions** in the power sector by using 100 percent renewable power, **the study projects that average electricity prices would increase to $150 to $300 per megawatt hour.23 (In 2017, the average was $105 per megawatt hour.**24) As calculated by Philip Rossetti at the American Action Forum, **families would face electricity costs that are between 43 percent and 286 percent higher,** resulting in households paying hundreds of dollars more in their monthly electricity bill.25 **Regardless of what Green New Deal proponents ultimately accept as clean energy sources, the reality is that 63 percent of America's electricity needs are met by coal and natural gas. Petroleum products account for 92 percent of the country's transportation sector use.** They make up such high percentages because **they are abundant, reliable, and affordable. Significantly restricting their use would, in turn, significantly raise the costs of electricity** bills and the price at the pump. Importantly, **the policies** proposed in the Green New Deal **are highly regressive. More expensive energy adversely affects low-income households disproportionately because they spend a higher percentage of their budget on energy costs**. Americans with after-tax incomes of less than $30,000 spend 23 percent of their budgets on energy, compared to just 7 percent for those earning more than $50,000, according to a report by the American Coalition for Clean Coal Electricity.26 **According to the 2011 National Energy Assistance Survey, a poll of low-income families, 24 percent went without food for a day, and 37 percent decided to forego medical and dental coverage, in order to pay higher energy bills. Nearly one in five had a family member who became sick due to the home being too cold.**

IMPACT: HIGHER ELECTRICITY PRICES HURT THOSE IN POVERTY, CAUSING HUNGER, ILLNESS, AND DEATH.

CLEMENTE, REPORTER, 2015

Jude, Sept. 21st, Forbes, Higher Cost Energy Worsens the Shameful Rise in American Poverty, https://www.forbes.com/sites/judeclemente/2015/09/21/higher-cost-energy-worsens-the-shameful-rise-in-american-poverty/?sh=18f536bc62c4

Policies that **admittedly** increase the cost of energy in the name of "improving health" must always be challenged. That's because **wealth is the root of our health, and higher cost energy takes money away from us, disproportionately hurting those that can least afford it. Simply put, there's nothing better that we can do to allow Americans to live healthier, better, and longer lives than increase their** earning potential and disposable **income. Because energy is a necessity, affordable energy is fundamental to our progress** and frees up money to be spent to grow our consumer-based economy. Unfortunately, Americans today face a growing anti-fossil fuel agenda designed to: 1) increase the cost of energy to reduce usage and greenhouse gas emissions and 2) prop up the more costly and less reliable competing sources. Ultimately, however, this movement is based on reducing disposable income of families and increasing the cost of doing business in America. Thus, the Clean Power Plan and the New Methane Rule (**which will be the most expensive regulation in history**) cannot be as beneficial as proponents claim because such overregulation increases the cost of indispensable items like electricity, oil, and natural gas. This attack on fossil fuels is the real "wealth and health problem" because they constitute 85% of our energy, having nowhere near large-scale replacements, particularly not the higher cost, naturally intermittent sources of energy that the anti-fossil fuel movement promotes. And we already know what these policies bring: drastically higher energy costs.

See Europe, California, Ontario, and Australia. We need "facts, not fear on U.S. air pollution," as our pollutant emissions continue to plummet, and Americans have never been healthier. The "Law of Diminishing Returns" indicates that incremental gains in air quality are becoming much smaller and costlier, and "these costs are ultimately paid by people in the form of higher prices, lower wages, and reduced choices." **Meanwhile, our worst health problem, poverty, worsens. The BLS' Electricity Price Index continues to break record highs**, and critically, we know that it's policy that's increasing power rates because fuel prices for electricity for both natural gas and coal (which are a combined 70% of U.S. electricity) have **fallen** and remain **very low**. Indeed, when you can't solve the very real domestic problems of today such as spiraling poverty, it's much easier to over focus on the more eccentric and distant ones whose solutions lie in the actions of other countries. In short, "tackling climate" is much easier than "tackling poverty" because progress, or the lack thereof, is much less defined. As related, "climate scientists" are typically tenured university professors where losing your job is virtually impossible (unless you do something REALLY stupid!), in stark contrast to the typical American who can easily get laid off when costs such as energy increase for companies. For many, climate altruism comes pretty damn cheap. Even worse, policies that increase the cost of energy are being promoted under the guise of helping our most vulnerable, when the exact opposite is true. That's because **our most vulnerable are the ones that can least afford higher costs for indispensable necessities like energy** - minorities, the elderly, women (especially single mothers), and children. They have far less ability to take care of themselves. As such, we should be doing all we can to decrease, not increase, energy prices. "Working minority families lag behind white ones in every state," and the Kaiser Family Foundation has the U.S. poverty rate at 24% for Hispanics, 27% for African Americans, and just 10% for Whites. The National Black Chamber of Commerce estimates that the Clean Power Plan will lead to 7 million job losses for African Americans and 12 million lost for Hispanics, with the poverty rate increasing by more than 23% and 26%, respectively. Another study by the Pacific Research Institute found that the rule would increase home energy bills for African Americans by $410 a year. Over 70% of U.S. elderly live on fixed incomes and simply can't absorb higher energy costs. In fact, a monthly Social Security check gets devoured just paying for the utility bill each year. The 60 Plus Association reports that 72% of likely voters aged 55 and over put the effect of government regulations on their energy bills among top concerns. Indeed, the real "War on Women" is being waged by those that push policies that increase the price of energy. With 11 million single mothers and female-headed families much more likely to be poor, poverty is the ultimate "women's issue." The female-to-male earnings ratio is still less than 80%. Pew Research estimates that about 38% of African American children live below the poverty line, and are four times as likely as White or Asian children to grow up poor. For the first time since 1974, the number of poor African American children (4.2 million) outnumber White children (4.1 million), even though there are three times as many White children in America. And there are 5.4 million poor Hispanic children, or equivalent to the entire population of Minnesota. Researchers at the University of California, Berkeley document the obvious: how being poor erodes health and increases mortality rates, all exacerbated by already rising living expenses like utility bills. Overall, three million more children are in poverty since 2008, 22% of all kids are now poor. **Policies that increase energy prices have very real and** even deadly **consequences. A staggering 110 million Americans** - 35% of the country - **are eligible for the Low Income Home Energy Assistance Program** (LIHEAP), but typically just 10-20% get that vital help. From 2009-2015, LIHEAP funding fell 33% to $3.4 billion. **Keeping cool in hot Summer and warm in cold Winter are necessities for health and safety, and higher energy costs make them much harder for tens of millions.** As Joan McCarty of American Association of Retired Persons New York puts it: "**every extra dollar that goes to a utility bill is a dollar less for food and medicine**." Higher electricity and other fuel prices like gasoline or diesel are the proverbial "double whammy." Not only do they directly make Americans pay more to use those key products, but they also increase costs for businesses, which just get passed onto consumers in the form of higher priced items (Reagan once explained this

on Carson, see **here**). Today, 1 in 5 U.S. families survive on food stamps (SNAP program), with over 46 million Americans on SNAP for over 35 months**.** Per Feeding America, **"Hunger in America exists for over 50 million people**…including more than 1 in 5 children." **For low-income families responses to rising energy bills, the** National Energy Assistance Directors Association **finds that: 24% went without food for at least one day, 37% went without medical or dental care, 34% did not fill a prescription or took less than the full dose, 19% had someone become sick because their home was too cold.**

THE GREEN NEW DEAL WORSENS INEQUALITY BY RAISING ENERGY PRICES, CAUSING RIPPLE EFFECTS THROUGHOUT THE ECONOMY. IT ALSO LEADS TO FAILED GOVERNMENT INVESTMENTS.
LORIS, HERITAGE FOUNDATION, 2019

Nicolas Loris, Deputy Director, Roe Institute for Economic Policy Studies and Fellow, Heritage Foundation, "The Great Hypocrisy of the Green New Deal," Heritage Foundation, March 5, 2019.
https://www.heritage.org/energy-economics/commentary/the-great-hypocrisy-the-green-new-deal

Green New Dealers are trying to sell their policies in the name of economic security and justice. However, policies that take away affordable, reliable power from American families are highly regressive. Higher energy costs hit low-income households hardest, because they spend a higher percentage of their budget on energy. The higher these costs climb, the more they are forced to make difficult choices between keeping the heat on or providing food for their family or perhaps going to the doctor. **Higher energy prices** mean more than just having less money available for other necessities. It **means having to spend more for all of the goods and services you purchase. That's because energy is a critical component of manufacturing, communications and transportation**—all of which are involved in getting goods and services to your household. **The Green New Deal doesn't lead to more economic security and justice. It leads to greater economic strain, with low-income families being stressed the most. And where's the justice in cronyism and corporate welfare. The Green New Deal would open the floodgates of both.** Ocasio-Cortez rightly blasted New York's special tax breaks for Amazon's proposed HQ2. Offering up billions in state and city special tax breaks left a sour taste in many peoples' mouths. **Cronyism works for big companies because they can offer a lot**: investment, jobs and prosperity. But **it is not a strategy for long-term economic success because it comes at the expense of other investments and opportunities. The investments will come when there's an attractive, level-playing field for all companies to compete. The Green New Deal would introduce significantly higher level of cronyism because** Ocasio-Cortez wants **the federal government** (i.e., American taxpayers) **to pay for the whole thing. Remember Solyndra,** the half-billion dollar solar boondoggle that went belly up? **That's just a small taste of things to come** under a Green New Deal that puts potentially trillions of dollars up for grabs. As was the case with Solyndra, **when the feds start picking energy technologies and companies to fund, they are essentially gambling with other peoples' money. And there is never a guarantee the bet will pay off**. Solyndra is merely one example of a failed company that could not survive even with the federal government's help. And there are many other examples of green cronyism that even more closely parallel New York's erstwhile deal with Amazon, which Ocasio-Cortez found so distasteful. Taxpayers gave money or government-backed loans to companies that already enjoyed large market capitalization and/or substantial private investors. Federal "investment" wasn't needed. But, hey, who's gonna turn down free money? The **economic pain of green cronyism cuts deeper than wasted taxpayer money. When Washington steers money to — or away from — "favored" businesses** or technologies, private-sector investment follow. **This not only stifles competition and innovation, it also centralizes control in the hands of politicians, elites and lobbyists.**

A JOBS GUARANTEE ONLY REACHES HALF OF THE UNEMPLOYED, MINIMIZING REDUCTIONS IN INEQUALITY
DOLAN, NISKANEN CENTER, 2018

Ed Dolan, "Three More Reasons to be Cautious About a National Job Guarantee." Niskanen Center, May 21, 2018. https://www.niskanencenter.org/three-more-reasons-to-be-cautious-about-a-national-job-guarantee/

The 5 million who were out of the labor force but said they did want a job cited various reasons for not working, many of which would make it hard to draw them into public-service jobs. Based on annual data for 2017, **20 percent of them reported that school, family responsibilities, ill health, lack of transportation or other reasons kept them from looking for jobs. Only 9 percent reported that their reasons for not job-hunting were discouragement about the availability of work, fear that private employers would discriminate against them, or similar reasons.** In some cases, these barriers to work could be overcome by a JG program that offered extensive support services, but **it would be unrealistic to think that all 5 million could easily be slotted into public-service jobs. Realistically, a JG program might absorb half of the long-term unemployed and half of those who want a job but are not currently in the labor force — fewer than 4 million people,** of whom 3 million or so might come from the prime-age group. That would raise the share of the prime-age population who are employed to about 62 percent from its current level of 60.3, leaving it still well below peak rates of the past.

THE GOVERNMENT DOESN'T HAVE THE MANAGEMENT CAPACITY TO OVERSEE THE MILLIONS OF NEW WORKERS FROM A JOBS GUARANTEE. IT WILL TAKE DECADES TO SOLVE
BIVENS, ECONOMIC POLICY INSTITUTE, 2018

Josh Bivens, Chief Economist, "How do our job creation recommendations stack up against a job guarantee?" Economic Policy Institute, April 12, 2018. https://www.epi.org/blog/how-do-our-job-creation-recommendations-stack-up-against-a-job-guarantee/

Darity and Hamilton estimate that a job guarantee today would absorb about 11 million workers. I don't think we have the public sector managerial capacity right now to oversee the work of 11 million people—who will be coming from varying backgrounds and labor qualifications—and ensure that they will be perceived as undertaking socially useful tasks. This is essentially three times as many people as there are K-12 public school teachers in this country today. **These 11 million workers will not have a shared mission** (like school teachers) **or overwhelmingly have advanced education** (again, like teachers). **We will need to slot them into a system of management and oversight that has yet to be created or defined** (unlike public education, where at least the goals and population to be served are clear enough). Further, **if the private sector contracts in a recession, this number could swell within 18 months to 22 million. This would require careful management of a workforce more than 10 times as large as Wal-Mart's global labor force. Building anything like this much public sector management capacity strikes me as a project that will be years, if not decades, in the making. And attempts to do this all at once will lead inevitably, I think, to stories about how these are disorganized make-work programs** and the stigma will follow. This is why I emphasize ramping up a smaller "public option" over time.

POSITIVE EFFECTS FROM A JOBS GUARANTEE ARE OVERSTATED. THERE ARE MULTIPLE REASONS WHY IT WON'T SUCCEED.
DOLAN, NISKANEN CENTER, 2018

Ed Dolan, "Three More Reasons to be Cautious About a National Job Guarantee." Niskanen Center, May 21, 2018. https://www.niskanencenter.org/three-more-reasons-to-be-cautious-about-a-national-job-guarantee/

I do not mean to be completely dismissive about public-service jobs. Volunteers are great, but they are not always enough to monitor water quality or maintain historical sites. The idea that local governments should keep a list of "shovel-ready" jobs in reserve to serve as fiscal stimulus in hard times is nothing new. **But a full-scale national job guarantee — one that employs tens of millions during downturns and does not go to zero even in the best of times — is something else again. The bottom line is that a national job guarantee sounds great until you actually think about it. When you do the numbers, you find out that many of the people you want most to help are not good candidates for public-service jobs. When you look at past efforts, you see that welfare-to-work programs of any kind are unlikely to succeed without expensive investments in staffing and administration. And when you do the accounting, you find that many of the supposed benefits of putting millions of people to work in new public-service jobs are illusory.**

MANAGERIAL CHALLENGES AND THE RISKS OF CORRUPTION UNDERMINE JOBS GUARANTEES
CHAIT, NEW YORK MAGAZINE 2018

Jonathan Chait, Political Columnist, "Democrats Are Rushing Into a Jobs Guarantee. It Could Be a Huge Mistake." New York Magazine, April 25, 2018. https://nymag.com/intelligencer/2018/04/democrats-are-rushing-a-jobs-guarantee-its-a-huge-mistake.html

The big problem is that designing a federal jobs program large enough to usefully employ all applicants is a devilishly complex challenge that none of the proposals currently circulating have worked through. Proposals to implement universal access to day care, or single-payer health insurance, have plenty of models up and running in industrialized democracies. The job guarantee doesn't have an easy showcase to copy. Advocates point to the Works Progress Administration during the New Deal, which put millions of unemployed men to work. They have also mentioned the Jefes program in Argentina from 2001, and a rural jobs program in India. What all three cases have in common is that they functioned in an environment where the work required relatively little training or equipment. The WPA is justifiably famous, but these days, not a lot of construction work can be done with just shovels. The Center for American Progress cites large, unmet needs that could be filled with unemployed workers: "There are not nearly enough home care workers to aid the aged and disabled. Many working families with children under the age of 5 need access to affordable child care. Schools need teachers' aides, and cities need EMTs." It's true that some temporary needs could be handled with the temporary workers who would be hired by the government for this purpose. But **the program by design would fluctuate in size along with the business cycle, swelling during a recession, and contracting during a recovery. You can't just have your teachers and child-care workers come and go. The jobs in the job guarantee would have to be for work that is either temporary, or optional. That constricts the kinds of work that can be done.** This is a more imposing obstacle than you might think. (I was far more optimistic about the potential for a federal job guarantee before I began studying the details.) In both the private and public sector, jobs are designed with an output in mind, with employing people a by-product. **If employing people becomes the primary goal, then instead of starting with a job description and finding people who can do it, you start with the people you need to hire and then find work they're qualified to do. And this task would be undertaken, even with a several year ramp-up, on a massive scale.** The white papers I've read have all basically yadda-yadda-yaddad away this enormous managerial challenge. "Let everyone from churches to civic organizations to individuals submit ideas," proposes Jeff Spross in Democracy Journal. "That would create a ground-level dialogue, giving Americans more democratic control over the planning of their local economies." **Managing and overseeing $500 billion a year in open-ended employment subsidies, while safeguarding against direct embezzlement or the use of public labor for private gain, is a staggering bureaucratic challenge** that won't disappear by calling it "democratic control." If the government decided to reduce both the cost to taxpayers, and the ambition of the program, it could scale the job guarantee back to a low-wage make-work program — finding tasks people can do during working hours as a bridge to prepare them for a real job. That would be more feasible to design, but also fall far short of the lofty promises currently dancing in Democratic heads. **Job training and workfare programs have a pretty discouraging history.**

JOBS GUARANTEES REPEATEDLY UNDERPERFORM. THEY SEND NEGATIVE SIGNALS ABOUT GOVERNMENT-EMPLOYED WORKERS, UNDERMINING THEIR ABILITY TO TRANSITION TO THE PRIVATE SECTOR AND CREATING A PERPETUALLY ESCALATING FEDERAL WORKFORCE.
HUGHES, NATIONAL REVIEW, 2018

Charles Hughes, "Getting Stuck Working for Uncle Sam." National Review, May 16, 2018.
https://www.nationalreview.com/2018/05/democrat-job-guarantee-proposal-costly-ineffective/

In the short term, these benefits and wages would be a boon to many of these participants. **One of the major concerns is how people would fare while in these guaranteed jobs and whether they would ever be able to move out of the program to better employment in the private sector.** In a recent meta-analysis, economists David Card of the University of Berkeley, Jochen Kluve of Humboldt University, and Andrea Weber of the University of Mannheim analyzed estimates of over 200 evaluations of active labor-market programs around the world. They found that while job-search assistance, sanctions, or subsidized private-sector- employment programs demonstrate some level of effectiveness, **public-sector-employment subsidies generally have negligible or even negative effects across all time horizons.** The authors note that the poor performance of public-employment programs confirms their own earlier work and another study from University of Chicago professor James Heckman. They suggest that **the consistently weak performance of public-jobs programs suggests that "private employers place little value on the experiences gained in a public sector program . . . and [programs] only serve to slow down the transition of participants to unsubsidized jobs."** This could be due to a range of reasons. First, **private employers might be skeptical that the work people are doing in public-employment programs helps them develop skills or abilities that would translate to the private sector.** Second, **the need for a worker to sign up for the program sends a negative signal about the employee's skills. If only workers with limited skills or prospects end up in the program, employers assume that participants were unable to find private employment on their own and would not be good candidates. Third, employers might find it difficult to identify people who performed their jobs well while in the jobs-guarantee program.** As I have written previously, the current system for evaluation of federal employees leaves much to be desired. Out of the almost 1.2 million permanent federal employees included in an analysis by the Government Accountability Office, only one-tenth of 1 percent had a performance rated "unacceptable," and another three tenths of 1 percent were rated "minimally successful." More than a third of these employees were rated "outstanding." **If performance reviews in the program are similar to the existing efforts for current employees, they will give minimally useful feedback to employees and impart no information to private-sector employers.** Some participants might have been chronically absent during their time in the program or had lackluster performance. The early draft of the Sanders proposal suggests that a Division of Progress Investigation would have the authority to discipline participants as needed. The track record of disciplinary measures for current government employees should make us extremely skeptical regarding its effectiveness. For these reasons, **private companies might then be deterred from hiring people who participated in the jobs-guarantee program. Aside from the problems related to cost or finding enough timely work for jobs-guarantee participants, the program would also introduce serious concerns about the effects on the long-term prospects for participants. Previous research has found that public-sector-employment programs teach few skills, leading to minimal or negative effects for employees. Once people enter the program, they might never be able to find a way to leave, and the rolls of participants would grow inexorably year after year.**

ECONOMY DISADVANTAGE LINKS

THE PLAN DESTROYS MORE PRIVATE SECTOR JOBS THAN THE GOVERNMENT JOBS IT CREATES, CRUSHING THE ECONOMY
LORIS, HERITAGE FOUNDATION 2019

Nicolas Loris, Deputy Director, Roe Institute for Economic Policy Studies and Fellow, Heritage Foundation, "Green New Deal Would Cost a Lot of Green." Heritage Foundation, March 22, 2019.
https://www.heritage.org/environment/commentary/green-new-deal-would-cost-lot-green

Granted, **a massive tax-and-spend program will "create" jobs** by building wind turbines, installing solar panels and building electric vehicles. **Yet government spending does not actually create jobs; it merely shifts resources to politically connected sectors of the economy and away from more productive uses. Overall, the number of jobs destroyed would far outweigh any subsidized jobs created. Let's not forget** President Barack **Obama's warning about the costs of his cap-and-trade plan** to reduce greenhouse gas emissions over a decade ago. To meet the carbon-dioxide reduction targets, **he said, electricity rates would "necessarily skyrocket."** According to one FAQ sheet on the proposal, **cap-and-trade "may be a tiny part of the larger Green New Deal plan to mobilize our economy." To fulfill the obligations of the Green New Deal, the economy would necessarily have to tank.**

THE FEDERAL JOBS GUARANTEE UNDERMINES PRIVATE SECTOR JOBS, CAUSING INFLATION AND REDUCING INVESTMENT
IP, WALL STREET JOURNAL, 2018
Greg Ip, "The Problem With a Federal Jobs Guarantee (Hint: It's Not the Price Tag)," Wall Street Journal, May 2, 2018. https://www.wsj.com/articles/the-problem-with-a-federal-jobs-guarantee-hint-its-not-the-price-tag-1525267192
Unemployment was 20% or more when Roosevelt put millions to work through the Civilian Conservation Corps and Works Progress Administration. Nowadays, full employment is part of the Federal Reserve's mandate, and while its record has blemishes, today it can claim mission accomplished. **With the unemployment rate now at 4.1%, mainstream economists consider the U.S. effectively at** or beyond **full employment; Letting unemployment go lower risks shortages and inflation.** But the big thinkers behind the federal jobs guarantee have their eyes on a bigger prize. That 4.1% only represents the 6.6 million who are unemployed under the Labor Department's official definition. Another 5.1 million don't meet it but want a job, and 5 million work part time because they can't find full-time work. Eradicating these last vestiges of un- or underemployment "would fundamentally transform the current labor market," write Mark Paul, William Darity and Darrick Hamilton in a paper for the Center on Budget and Policy Priorities, a left-of-center think tank. Their proposal, which forms the basis of Mr. Sanders's bill, would "significantly alter the current power dynamics between labor and capital" by forcing all employers to match the federal standards for pay and benefits. Yes, a job guarantee would cost a fortune, but **ignoring the obvious political impediments, the price tag isn't the catastrophe some critics claim.** To hire all the official and unofficial unemployed and half the involuntary part timers at $15 an hour plus $3 an hour for benefits would cost around $450 billion, or 2.3% of gross domestic product. The actual cost could be much lower: Many of the unemployed won't take up the federal offer because they expect to get something better, don't like what's being offered, or face some sort of obstacle (family, disability, etc.). Also, some of what gets spent on salaries will be saved in reduced Medicaid, tax credits, unemployment insurance and other safety net outlays. Five scholars at the Levy Institute, a think tank, have advanced a plan they say will cost just 1% to 1.5% of gross domestic product. The federal government spends three times that on Social Security and twice that on defense. **The price tag would jump in recessions as laid-off people flock to the program.** That's a feature, not a bug: By automatically injecting public money into the economy, it would prop up spending, private employment and tax revenue, lessening the recession's severity. And unlike universal basic income, **another fashionable idea for reducing inequality in which everyone gets a check regardless of whether they work, a jobs guarantee gets the taxpayer something in return: workers. That**, however**, is also the problem.** Here's why. According to the Economic Policy Institute, **39% of the workforce, some 54 million people, now earn $15 an hour or less. All would have an incentive to quit and join the federal program.** Of course, **most wouldn't because their employers would, grudgingly, raise pay to keep them, then pass the cost on to customers, a de facto inflation tax. Indeed, advocates say the job guarantee accomplishes the same thing as a $15 minimum wage without the job loss.** Nonetheless, potentially **millions of workers would end up on the federal payroll instead of in the private sector. And there's the rub. Utopians would argue jobs exist to give people dignity and a decent standard of living. The reality is more mundane: Jobs are how people,** as producers, **satisfy their needs as consumers. Low-paid work such as brewing coffee, cleaning hotel rooms and flipping hamburgers gets a bad rap but it satisfies a genuine demand:** People want coffee, clean hotels and hamburgers. **A federal make-work program would crowd out many of those private services. Crowding out is fine when the government is providing something more valuable,** Roger Farmer and Dmitry Plotnikov, economists at the University of California at Los Angeles, wrote in 2010. For example, **military spending crowded out private consumption during World War II, when the U.S. "was fighting for its survival." In ordinary times, that is a harder case to make**. A 2011 study by Lauren Cohen, Joshua Coval and Christopher Malloy of Harvard Business School found that **when a member of Congress takes over an important committee, his state often enjoys an influx of federal spending. But that benefit is offset by a contraction in private investment and employment, evidence of crowding out.**

RARE EARTH MINERALS DA

A) UNIQUENESS CHINA DOMINATES THE RARE EARTH ELEMENT SUPPLY CHAIN IN THE STATUS QUO, AND MANIPULATES ACCESS TO THESE KEY MINERALS TO ASSERT ITS DOMINANCE, BUT THE US INVESTING IN DOMESTIC CAPACITY NOW

BARRETT, FORTUNE MAGAZINE, 2021

Eamon, Fortune Magazine, Feb 2nd, US takes another step to break China's stranglehold on rare earth metals, https://fortune.com/2021/02/02/us-dod-rare-earth-metals-contract-lynas-china-hondo-texas/

The U.S. Department of Defense **awarded** Australia mining giant Lynas $30.4 million on Monday to finance the construction of a rare earth metal processing plant in Hondo, Texas. The payout comes as **the U.S. attempts to bolster its domestic supply of rare earth metals, which are vital for making wind turbines, some consumer tech, and missiles. The world's supply of rare earths is currently dominated by China. The country is home to roughly 40% of the world's rare earth deposits but, more crucially, it has developed the most advanced facilities for processing the ores into useful metals.** "I think the Chinese have given us a case study in developing rare earths. They did not let a thousand flowers grow [to compete with them]," Lynas CEO Amanda Lacaze **said** during the Fortune Global Forum in 2019. **Although rare earths aren't really rare**—their ores are about as common as copper and lead— **processing them into metals is a costly and polluting endeavor**, which is why few countries objected when China decided to take on the job and expanded rare earth production to surpass the U.S. in the 1980s. **The U.S. currently has only one operating rare earth mine, at Mountain Pass in California.** The mine's previous owner, Molycorp, declared bankruptcy in 2014 after cheaper Chinese mines, plus a lack of demand from U.S. manufacturing, made the mine uncompetitive. MP Materials—a consortium that includes a Chinese shareholder—bought the mine in 2017 and reopened it the next year. **China has twice threatened to use its dominance in rare earths as a weapon against political rivals:** once in 2010, when China clashed with Japan over ownership of islands in the East China Sea, and again in 2019, as negotiations on the U.S.-China trade war fell apart. **In response to the strategic threat posed by China's stranglehold on the rare earth industry, U.S. lawmakers introduced multiple bills in 2019 and 2020 to bolster American production of the metals.**

B) LINK: THE GREEN NEW DEAL REJECTS MINING FOR RARE EARTH MINERALS BLACKMON, FORBES, 2021

David Blackmon, Public Policy Analyst, "Opposition to US Mineral Mining Could Derail the Green New Deal." Forbes, April 26, 2021. https://www.forbes.com/sites/davidblackmon/2021/04/26/opposition-to-us-mineral-mining-could-derail-the-green-new-deal/?sh=bf6c5ac1cc31

The United States could be about to witness a replay of the politics of the Shale Revolution, only this time those politics will be playing out around the mining of the country's own supplies of rare earth minerals. America has ample supplies of these minerals, which are crucial to the continued advancement of solar and wind power, as well as the batteries for electric vehicles. But the processes required in mining for those minerals are negatively impactful to the environment, as all extractive industries invariably are, and thus likely to become points of public controversy. Enter the anti-development green lobby. Enter the Democratic Party politics that push the "Green New Deal" that envisions a rapid "energy transition" to renewables and electric vehicles and the abolition of fossil fuels and the internal combustion engine. The sparks will inevitably fly when the traditional priorities of these interest groups and policy goals collide with the realities on the ground. **During the early days of the shale revolution, there was initially a general consensus within both major political parties that America's new abundance of natural gas from shale formations across the country presented an opportunity to dramatically reduce the country's emissions** of both carbon and pollutants through a rapid shift away from coal in power generation. **But the consensus within the Democratic ranks quickly began to disintegrate as the green community that funds such a large portion of the party's campaigns mounted its campaign to demonize hydraulic fracturing** ("fracking") starting in 2008. Today, the leaders of the Democratic party talk about natural gas in power generation more as a nuisance to be quickly eliminated than as a "bridge fuel" that has done so much to create cleaner air in this country. **The question for those promoting this "energy transition" will inevitably become whether the same kinds of destructive and costly political dynamics can be avoided when it comes to efforts to mine for large U.S. resources of minerals such as lithium, cobalt and others?**

C) IMPACT: NEW MINERAL SUPPLIES ARE INDISPENSABLE TO SOLVING CLIMATE CHANGE – THERE'S A SHORTAGE NOW. SHUTTING DOWN RARE EARTH MINERAL PRODUCTION TURNS THE CLIMATE CHANGE ADVANTAGE.

RILEY, CNN, 2021

Charles – CNN, "A shortage of these metals could make the climate crisis worse," https://www.cnn.com/2021/05/05/business/climate-crisis-metals-shortage/index.html

The world won't be able to tackle the climate crisis unless there is a sharp increase in the supply of metals required to produce electric cars, solar panels, wind turbines and other clean energy technologies, according to the International Energy Agency. **As countries switch to green energy, demand for copper, lithium, nickel, cobalt and rare earth elements is soaring. But they are all vulnerable to price volatility and shortages,** the agency warned in a report published on Wednesday, because their supply chains are opaque, **the quality of available deposits is declining and mining companies face stricter environmental and social standards. Limited access to known mineral deposits is another risk factor.** Three countries together control more than 75% of the global output of lithium, cobalt and rare earth elements. The Democratic Republic of Congo was responsible for 70% of cobalt production in 2019, and China produced 60% of rare earth elements while refining 50% to 70% of lithium and cobalt, and nearly 90% of rare earth elements. Australia is the other power player. In the past, mining companies have responded to higher demand by increasing their investment in new projects. But **it takes on average 16 years from the discovery of a deposit for a mine to start production,** according to the IEA. **Current supply and investment plans are geared to "gradual, insufficient action on climate change,"** it warned. "These risks to the reliability, affordability and sustainability of mineral supply are manageable, but they are real," the Paris-based agency said in the most comprehensive report on the issue to date. **"How policy makers and companies respond will determine whether critical minerals are a vital enabler for clean energy transitions, or a bottleneck in the process." The minerals are essential to technologies that are expected to play a leading role in combating climate change. The average electric car requires six times more minerals than a conventional car,** according to the IEA. Lithium, nickel, cobalt, manganese and graphite are crucial to batteries. **Electricity networks need huge amounts of copper and aluminum, while rare earth elements are used in the magnets needed to make wind turbines work.** Meeting the goals of the Paris climate agreement will require a "significant" increase in clean energy, according to the IEA, which estimates that the annual installation of wind turbines would need to grow threefold by 2040 and electric car sales would need to expand 25 times over the same period. Reaching net zero emissions by 2050 would require even more investment. **"The data shows a looming mismatch between the world's strengthened climate ambitions and the availability of critical minerals that are essential to realizing those ambitions,"** Fatih Birol, executive director of the IEA, said in a statement. "The challenges are not insurmountable, but governments must give clear signals about how they plan to turn their climate pledges into action." The agency said that policymakers should provide more clarity on the energy transition, promote the development of new technology and recycling, enhance supply chain resilience and encourage higher environmental, social and governance (ESG) standards. The IEA, which advises the world's richest countries and was founded after the oil supply shocks in the 1970s, said that mineral supplies will be the energy security challenge of the 21st century. "Concerns about price volatility and security of supply do not disappear in an electrified, renewables-rich energy system," it said.

RARE EARTH MINERALS DA 2NC/1NR EXTENSIONS:

Uniqueness:

1. **EXTEND BARRETT 2021 -- US DEVELOPMENT OF DOMESTIC REMS IS UNDERWAY, SO WE'LL SOLVE THIS PROBLEM IN A FEW YEARS, BUT THE PLAN REVERSES THIS TREND.**

2. **AND CONSTRUCTION IS ABOUT TO BREAK GROUND ON THE ROUND TOP MINE, TO PROVIDE THE US WITH A 130 YEAR SUPPLY AND PROCESSING CAPABILITIES FOR RARE EARTH ELEMENTS, WHICH IS KEY FOR MILITARY, ECONOMIC, AND TECH COMPETITIVENESS.**

VINOSKI, FORBES, 2020

Jim, Forbes, 4/7, The US Needs China for Rare Earth Minerals? Not for Long, Thanks to this mountain. https://www.forbes.com/sites/jimvinoski/2020/04/07/the-us-needs-china-for-rare-earth-minerals-not-for-long-thanks-to-this-mountain/?sh=5a6c996d28b9

It's amazing good fortune, then, that out in the barren scrub of Far West Texas **85 miles east of El Paso, an unassuming** 1,250-tall **mountain called Round Top holds the promise of making America largely self-sufficient in these critical minerals.** The mountain contains five out of six light rare earths (such as neodymium), 10 out of 11 heavy rare earths (dysprosium, for example), and all five permanent magnet materials. What's more, Round Top has large deposits of lithium, critical for batteries in EVs and power storage. **USA Rare Earth** is a privately held Delaware LLC that **was formed specifically to develop the project to extract and process Round Top's valuable ore.** One of the company's primary investors is Navajo Transitional Energy Company (NTEC). Texas Minerals Resources Corporation had previously invested $25 million in the Round Top project, and is now a 20% junior partner in the endeavor."The risk here has been well-established since President Xi's not-so-veiled threat last year," said Pini Althaus, CEO of USA Rare Earth, referring to a visit by Xi Jinping last May to a Chinese rare earth facility that coincided with state media reports about potential bans on rare earths exports to the U.S. as a trade war retaliation. **"From a national security standpoint, having the U.S. military rely on China for rare earths for their fighters and Tomahawk cruise missiles is just not prudent. And there's also the high-tech world and US manufacturing to think about."** It's not only the political threats that are a concern. **"China is prioritizing their domestic consumption,"** Althaus pointed out. "They manufactured $1 trillion worth of product from their rare earths materials last year. Heavy rare earths in particular are in short supply – they're not endless."**Round Top**, however, **offers a 130-year supply of the critical minerals**. And USA Rare Earth is looking at benefits beyond the ore itself. "It's not just about supply," said Althaus. "We want to reinvigorate the processing industry that's been offshored." Toward that end, **the company is constructing the first U.S. plant to produce high-purity rare earth oxides**, first in a pilot plant opening in Denver, Colorado, scheduled to be fully-functional in May, and later in a full-scale continuous process operation on the Round Top site. **The focus there is on sustainable processing, using renewable energy for power** and an environmentally-friendly continuous ion exchange separation method, which has the added benefits of low capital and operating costs and streamlined permitting. What's more, USA Rare Earth today announced the acquisition of the neodymium iron boron (NdFeB) permanent magnet production equipment formerly owned and operated in North Carolina by Hitachi Metals America, Ltd. Those magnets are critical in many of the product applications listed above, but currently there is no domestic manufacturing capacity. The company will warehouse the equipment while they search for a suitable location for the new magnet production facility. The planned operation will eventually produce 2,000 tons per year of rare earth magnets, filling 17% of domestic demand, and will generate $140 million in annual sales. **The mining and processing project's financials appear robust** as well. USA Rare Earth estimates that, over the first 20 years of the project, annual gross revenues will average $422 million, with an annual average EBITDA of $282 million. The project payback period is 1.8 years. "The first 20 years, we expect to generate $8.4 billion in revenue," Althaus said. "That's based on extracting 20,000 tons per year. But that's just for the U.S. – we've been approached by other governments who are interested too, which may justify increasing our annual production from our current projections." Feasibility work and permitting for the mine continue this year, with **construction slated to begin in late 2021. Commercial production at the mine is anticipated in 2023.**

US ENVIRONMENTAL ADVOCATES ARE TRYING TO SHUT DOWN RARE EARTH MINING. THE GREEN NEW DEAL SEALS IT.
BLACKMON, FORBES, 2021

David Blackmon, Public Policy Analyst, "Opposition to US Mineral Mining Could Derail the Green New Deal." Forbes, April 26, 2021. https://www.forbes.com/sites/davidblackmon/2021/04/26/opposition-to-us-mineral-mining-could-derail-the-green-new-deal/?sh=bf6c5ac1cc31

For this "energy transition" to succeed in the U.S., it is obvious that the country must be able to produce its own supplies of these minerals. Yet, the processes for extraction of such minerals are quite impactful on the surrounding environment and are already being opposed by green groups in America. I detailed the processes involved with and opposition to the growing U.S. lithium industry in a piece several weeks ago. The process for obtaining antimony, a rare earth mineral used in the production of solar panels, wind and hydro turbines, semi-conductors and batteries, is equally, if not more impactful. Antimony today is mostly obtained from the mining of stibnite, an alloy made up of antimony and Sulphur, and the vast majority of stibnite mining currently takes place in China. Already, the problems become obvious. But they get worse. **The most common method of mining for stibnite is via open pit mining, a process that U.S. green groups have traditionally opposed when use for mining of coal, copper and other important minerals. Whether these groups would remain intellectually consistent when it comes to mining for rare earth minerals needed to facilitate the "Green New Deal" remains to be seen.** Antimony also bonds to copper, gold and other precious metals, and can be obtained from mining operations for those minerals. Right now, we see the Biden/Harris Department of Interior working to delay a proposed Rio Tinto copper mine in Arizona due to green lobby opposition. In response to pressure from ESG investors, Rio Tinto plans for this to be an underground mine, not open pit, a major and costly concession that appears to have had no mitigating impact where the opposition is concerned. For the "Green New Deal" to succeed, something will have to ultimately give in cases such as this. Cobalt is typically obtained as a by-product from the refining process related to nickel mining. Traditionally, nickel has been most commonly obtained as the result of extremely impactful surface strip-mining operations. America has abundant domestic resources of nickel, but again, the problems where the green community is concerned quickly become obvious. The bottom line here is this: **There will be no successful "energy transition" or "Green New Deal" implementation in the United States unless companies are allowed to access this country's own plentiful supplies of these and other rare earth minerals. Anyone who is serious about the energy transition and countering Chinese dominance in critical mineral and rare earth development should support domestic policies that ensure responsible but swift mining development for these minerals. The irony is that the same green lobby that advocates for the "Green New Deal" is perhaps the largest potential obstacle to its success.**

COVID HAS MADE OUR SUPPLY CHAIN ISSUES WORSE
VINOSKI, FORBES, 2020
Jim, Forbes, 4/7, The US Needs China for Rare Earth Minerals? Not for Long, Thanks to this mountain.
https://www.forbes.com/sites/jimvinoski/2020/04/07/the-us-needs-china-for-rare-earth-minerals-not-for-long-thanks-to-this-mountain/?sh=5a6c996d28b9
A whole slate of new bad behaviors by China's repressive regime have been laid bare by the COVID-19 crisis. There were already plenty of complaints before the pandemic began, but **the coronavirus seems to be supercharging the pressure on U.S. companies to reduce their Chinese sourcing.** One of the biggest recent challenges in that regard has been China's dominance in mining **and processing critical rare earth minerals.** These are vital building blocks for everything from smart phones, EV batteries and medical imaging machines to advanced defense weaponry, **so our reliance on a less-than-friendly nation for our supply presents a huge political and economic risk. But right now China controls 90% of global rare earth production.**

WE DON'T NEED TO WIN THAT CHINA CUTS OFF ALL REMS, JUST THAT ENVIRONMENTAL REGULATIONS INCREASE THE PRICE OF REMS UNTIL WE CAN'T COMPETE WITH CHINA ANYMORE. FACTORING THE ENVIRONMENTAL COSTS IN MAKES GREEN TECH UNCOMPETITIVE
LIU, CHINA WATER RISK, 2016
Hongqiao, June, Can China Continue to fuel our global clean and smart future?
https://chinawaterrisk.org/wp-content/uploads/2016/07/CWR-Rare-Earths-Shades-Of-Grey-2016-ENG.pdf
It appears that **the only direction for global rare earth prices is up if environmental costs are factored in. Will this then translate into higher prices for green and clean tech goods, which then makes them less attractive and affordable?** In turn, will manufacturers reduce their use of rare earths and so their goods preform less well and become less energy efficient?

RARE EARTHS KEY TO SOLVE WARMING
LIU, CHINA WATER RISK, 2016

Hongqiao, June, Can China Continue to fuel our global clean and smart future?
https://chinawaterrisk.org/wp-content/uploads/2016/07/CWR-Rare-Earths-Shades-Of-Grey-2016-ENG.pdf
Last December in Paris, an epic agreement on climate change was reached, setting the world on the long road towards de-carbonizing global economic growth. **Promising technological innovations on clean energy, energy storage and efficiency are considered major drivers of the upcoming "clean, green & smart" revolution. A deep-dive into the underlying new technologies however, leads to a severe yet overlooked problem. Rare earths**, a cluster of 17 elements often called the "vitamins of industry", **may prove to be a bottleneck to such "clean, green & smart" innovations**. From offshore wind turbines to Apple or Xiaomi's latest smartphones, **rare earths are embedded in our clean energy**, smart tech and more. **Rare earths are essential to our non-fossil fuel, highly smart and climate-friendly future. Indeed, we can't achieve a low-carbon future without these clean technologies, and they currently do not work without rare earths**

CRITICAL MINERAL SHORTAGES COLLAPSE US TECHNOLOGY DOMINANCE BECAUSE THE CHINESE CURRENTLY CONTROL VITAL MINERALS
GREEN, DEFENSE NEWS, 2018

Jeffery A. Green is president and founder of J.A. Green & Company, a bipartisan government relations firm based in Washington DC. Mr. Green served as a missile combat crew commander in the U.S. Air Force and continues to serve as a colonel in the United States Air Force Reserve. (5-2-2018; "America's critical minerals problem has gone from bad to worse;" *Defense News*; https://www.defensenews.com/opinion/2018/05/02/americas-critical-minerals-problem-has-gone-from-bad-to-worse/

Critical minerals are the building blocks for military equipment. From minerals that are ubiquitous in the supply chain, such as copper and steel, to those that are very specialized—like rare earth elements and beryllium—**America's technological superiority hinges on maintaining reliable access to key materials. Without access to such minerals, our precision-guided missiles will not hit their targets, our aircraft and submarines will sit unfinished in depots, and our war-fighters will be left without the equipment they need to complete their missions. Unfortunately, America's critical minerals problem has gone from bad to worse. The nation's only domestic rare earth producer was forced into bankruptcy** in 2015 after China suddenly restricted exports and subsequently flooded the market with rare earth elements. Adding insult to injury, the mine was then sold last summer for $20.5 million to MP Mine Operations LLC, a Chinese-backed consortium that includes Shenghe Resources Holding Co. Now, according to MINE Magazine, **this same mine is exporting critical minerals to a processing plant in China—because the United States cannot process or refine these materials at commercial scale. Without a dramatic change in minerals policies, the United States will not be able to minimize the economic damage that will come when China decides to leverage its minerals monopolies against us.**

CHINA IS SQUEEZING THE RARE EARTH MARKET NOW AS PART OF A STRATEGIC NATIONAL PLAN TO ENSURE ITS DOMINANCE OF RARE EARTH DEPENDENT INDUSTRIES.

RAPOZA, FORBES, 2021

Kenneth, 1/17, Forbes, CHina's rare earth slump a sign of domestic hoarding for EV batteries and more, https://www.forbes.com/sites/kenrapoza/2021/01/17/chinas-rare-earths-slump-a-sign-of-domestic-hoarding-for-ev-batteries-and-more/?sh=5ffc914779a8

China loves to be in everybody's strategic supply chains. Rare earths is one of them. These are the minerals, often dug out of mines in Africa, that China controls. They go into your iPhone. They go into the Panasonic battery that powers your Tesla **TSLA -1.3%**.

China's rare earth exports fell to 35,448 tons last year from 46,330 tonnes in 2019, customs data showed on Thursday. China blamed the pandemic for weak demand. **The 2020 exports were the lowest since 2015,** according to Reuters. But **there may be more to it than the pandemic. For those China watchers, and competitors, looking for tears in the fabric, the slump has a little less to do with the pandemic than Beijing may be letting on**. **"We are seeing the unfolding of the Chinese Communist Party's Made in China 2025 and Belt and Road initiatives,"** says Pini Althaus, CEO of USA Rare Earth. Both policies have been strategies for China's continued dominance as a global manufacturer and exporter of finished goods. This strategy is leading to an increase in local demand for rare earth metals, and other important metals that are more commonly known and used in EV batteries such as lithium and cobalt. Last month, China's **export control law (**ECL) went live. **It's their latest effort to control the export of strategic commodities — including minerals used for EV batteries — and to increase dependency on China by 'hoarding' supply.** Many of the minerals China does get outside of his borders are mined by state-owned enterprises who then bring the raw materials home to be processed into usable metals for manufacturing. As these Chinese state-owned -companies operate at a loss, for the most part, they serve the purpose of being able to supply end-users with cheap resources. China controls around 86.5% of the Democratic Republic of Congo's cobalt exports and their SOEs own most of them, according to business intel conducted by Horizon Advisory. The DRC is home to around 60% of the world's mined cobalt, for example. There are at last 12 mines of cobalt in that country and China's companies invest in and own them all. China Non-Ferrous Metal Mining Group is the biggie in this space there. China is also stockpiling rare earths and critical minerals for its own domestic use, as **companies and governments face worldwide shortages due to new demand for electric vehicles. China is on par to totally own that market.** The more of those metals in China's control, the higher the price for batteries, making it cheaper to make them in China than in Detroit, for example, where South Korea's LG Chem is making batteries for the new line of Ford battery-powered trucks. Emily de La Bruyère, co-founder of Horizon, says **China "has a large enough market share in rare minerals like lithium that it can have an outsized impact on pricing."** Two of the world's largest battery makers are Chinese — BYD and CATL. Tesla is now developing batteries with CATL at its Gigafactory in Shanghai, the Tesla hub for China, Asia and exports bound for Europe. The customs data released and reported by **Reuters** on Thursday showed that in 2020, China exported the fewest rare earth elements in five years, falling by more than 25% from 2019 as China is using more of that resource to crank up its own base supply. Most of it is likely going to chipmakers and battery makers. **"This decline is a harbinger of a tightening of the market, limiting global access, increasing prices and enabling China to maintain dominance (in the space),"** says Althaus.

INTERNAL LINK: DESTROYING THE US RARE EARTH MARKET WILL MAINTAIN CHINA'S STRATEGIC MONOPOLY ON 17 RARE EARTH ELEMENTS THAT PLAY KEY ROLES IN MODERN HIGH TECH INDUSTRIES SUCH AS ELECTRONICS, GREEN TECH AND MILITARY HARDWARE.
HSU, SCIENTIFIC AMERICAN, 2019

Jeremy, Scientific American, May 31st, Don't panic about rare earth elements,
https://www.scientificamerican.com/article/dont-panic-about-rare-earth-elements/

As trade tensions rise between the U.S. and China, rare earth minerals are once again in the political spotlight. Today Chinese mines and processing facilities provide most of the world's supply, and Chinese leader Xi Jinping has hinted about using this as political leverage in trade negotiations with U.S. President Donald Trump's administration. But in the long run, many experts say the global market involving these materials would likely survive even if China completely stopped exporting them. **The 17 rare earth elements,** which cluster near the bottom of the periodic table, **play a vital role in several industries: consumer electronics** including Apple AirPods and iPhones, **green technologies such as** General Electric **wind turbines and Tesla electric cars,** medical tools including Philips Healthcare scanners, **and military hardware such as F-35 jet fighters. The U.S. government lists them among minerals deemed critical to the country's economic and national security**, and the Trump administration notably exempted rare earth elements from tariffs it imposed on $300 billion worth of Chinese goods. On the other side of the trade conflict, Xi recently made a politically symbolic visit to one of China's main rare earth mining and processing facilities, and China used tariffs of its own to target a U.S. rare earth mine in California.

US TECH LEADERSHIP SOLVES ENORMOUS THREATS TO HUMAN SURVIVAL
JAIN, ATLANTIC COUNCIL, 2019,
Ash, senior fellow with the Scowcroft Center for Strategy and Security, where he oversees the Atlantic Council's Democratic Order Initiative and D10 Strategy Forum; and Matthew Kroenig, deputy director for strategy in the Scowcroft Center for Strategy and Security and associate professor of government and foreign service at Georgetown University, 10/30/19, "Present at the Re-Creation: A Global Strategy for Revitalizing, Adapting, and Defending a Rules-Based International System," https://www.atlanticcouncil.org/wp-content/uploads/2019/10/Present-at-the-Recreation.pdf

The system must also be adapted to deal with new issues that were not envisioned when the existing order was designed. Foremost among these issues is emerging and disruptive technology, including AI, additive manufacturing (or 3D printing), quantum computing, genetic engineering, robotics, directed energy, the Internet of things (IOT), 5G, space, cyber, and many others. Like other disruptive technologies before them, **these innovations promise great benefits, but also carry serious downside risks.** For example, AI is already resulting in massive efficiencies and cost savings in the private sector. Routine tasks and other more complicated jobs, such as radiology, are already being automated. In the future, autonomous weapons systems may go to war against each other as human soldiers remain out of harm's way. Yet, **AI is also transforming economies and societies, and generating new security challenges.** Automation will lead to widespread unemployment. The final realization of driverless cars, for example, will put out of work millions of taxi, Uber, and long-haul truck drivers. Populist movements in the West have been driven by those disaffected by globalization and technology, and mass unemployment caused by automation will further grow those ranks and provide new fuel to grievance politics. Moreover, some fear that **autonomous weapons systems will become "killer robots" that select and engage targets without human input, and could eventually turn on their creators, resulting in human extinction.** The other technologies on this list similarly balance great potential upside with great downside risk. 3D printing, for example, can be used to "make anything anywhere," reducing costs for a wide range of manufactured goods and encouraging a return of local manufacturing industries.61 At the same time, **advanced 3D printers can also be used by revisionist and rogue states to print component parts for advanced weapons systems or even WMD programs, spurring arms races and weapons proliferation.62 Genetic engineering can wipe out entire classes of disease through improved medicine, or wipe out entire classes of people through genetically engineered superbugs. Directed-energy missile defenses may defend against incoming missile attacks, while also undermining global strategic stability. Perhaps the greatest risk to global strategic stability from new technology, however, comes from the risk that revisionist autocracies may win the new tech arms race.** Throughout history, states that have dominated the commanding heights of technological progress have also dominated international relations. The United States has been the world's innovation leader from Edison's light bulb to nuclear weapons and the Internet. Accordingly, stability has been maintained in Europe and Asia for decades because the United States and its democratic allies possessed a favorable economic and military balance of power in those key regions. Many believe, however, that China may now have the lead in the new technologies of the twenty-first century, including AI, quantum, 5G, hypersonic missiles, and others. **If China succeeds in mastering the technologies of the future before the democratic core, then this could lead to a drastic and rapid shift in the balance of power, upsetting global strategic stability**, and the call for a democratic- led, rules-based system outlined in these pages.63