Nevs Voss, xx-xx-xxxx, "When Will Fossil Fuels Run Out?", Infinity Renewables, https://infinity-renewables.com/162-2/

When it comes to environmental health and doing our bit to help Planet Earth, we're more educated than we've ever been before. Not a week goes by without a headline about global warming, or an article about some emerging renewable technology that might save the planet we live on.It's the same with fossil fuels. We know that they're dangerous, and yet they're still the conventional means of generating energy for our homes and businesses. We know they're dangerous. We also know that fossil fuels are a depleting resource. One day, we'll have none left. But when? Will it be in the not-too-distant-future, or will it be way beyond our time? We went in search of the most definitive answers possible. Before we get into it, let's have a quick look at the current energy landscape. Being part of the renewable movement, we think that D-Day cannot come soon enough. The sooner fossil fuels run out, the better. However, this is the staunch environmentalists in us talking. The eco-warriors. There's a bigger picture to consider: the simple expiry of fossil fuels is not sustainable because the fact remains that we absolutely depend on them. At the moment. Worldwide demand is high and rising: only last year, the **Energy and CO2 Status Report showed that demand for energy worldwide rose by 2.1%**. This has more than doubled since the last report in 2016! So, demand for fossil fuels continues to grow, and that demand is met by oil, coal, and natural gas. In fact, figures from 2017 show that 70% of the growth of global demand was catered for by the same fossil fuel resources. Fortunately, renewable energy isn't too far behind. Stats from the same Status Report show that renewables experienced the highest growth of all energy sources last year, with China and the United States leading a rate of growth never before seen for renewables. So, that's something! Now we've got an idea of the playing field, let's get down it. It's a difficult question. Although fossil fuels have been around for millions of years, we've only been using them for around two centuries. In that relatively short space of time, though, we've consumed a massive amount and it continues unabated. So, if we continue at our current rate, it is estimated that all of our fossil fuels will be depleted by 2060. If we keep on mining the earth in such a damaging way, we might find new reserves that will push that date back. Of course, we don't want that to happen. The expiry date differs with each resource, so now we're going to look at each fuel-group separately. This is unique. It's estimated that known oil-deposits will run out by 2052. Realistically, we may never run out of oil because, given the depth of the Earth's core, there will be new wells to discover. That said, it's highly likely that the practice of mining such depths will become economically unviable. Prices for fuel will rise – **as they have always done** – and ultimately we will look for alternative, cheaper means of producing energy. The price of oil will increase due to heightened labour costs, while the supply itself will wane. This will have a knock-on effect, whereby homeowners will realise that renewables are far cheaper than fossil fuels. We are hurtling towards this scenario. According to the Oil Market Report, which was commissioned by the International Energy Agency, demand has **slowed in the last quarter after a significant uptick throughout 2016 and 2017**. This means that it's due another surge, and this should be even higher than previous years.And let's also remember that the worldwide transport industry is driven (no pun intended) solely by oil, which means that it's being consumed at a far quicker rate than other fossil fuels. According to the World Coal Association, **there are an estimated 1.1 trillion tonnes of coal reserves across the world**. At our current rates of production and consumption, there is enough coal to last us 150 years. By around 2168, coal will be no more (unless we discover new deposits which push that date back). It all relies on the rate of demand, which, for coal, grew considerably last year. Construction and industry are responsible for 80% of the rise in global demand, and China accounted for a third of its growth in 2017. Coal is by far the most polluting fossil fuel still in production. According to the **Union of Concerned Scientists (UCS)**, this dirty resource is the culprit for some of our worst environmental crimes. The good news is that we're turning our backs on it, slowly: just last year, **the UK spent three days without coal power** – the first time we've gone without coal since the 19th century. According to BP's Statistical Review of World Energy 2018, **we have 193.5 trillion cubic metres of gas left**, which will last anywhere between 90 and 120 years. The number will always vary: as we've seen already, it depends on the annual rate of consumption, which has risen steadily from a relative low of 3 trillion cubic metres to more than 3.5 trillion (BP Statistical Review). There you have it. We've given you the best answers we could find. Although the depletion of fossil fuels won't likely happen in our lifetime, it may well happen in your children's or grandchildren's lifetimes.

Far The, 3-24-2021, "Nuclear Power is the Most Reliable Energy Source and It's Not Even Close", Energy.gov, https://www.energy.gov/ne/articles/nuclear-power-most-reliable-energy-source-and-its-not-even-close

As you can see, nuclear energy has by far the highest capacity factor of any other energy source. This basically means nuclear power plants are producing maximum power more than 92% of the time during the year.
That's about nearly 2 times more as natural gas and coal units, and almost 3 times or more reliable than wind and solar plants. Nuclear power plants are typically used more often because they require less maintenance and are designed to operate for longer stretches before refueling (typically every 1.5 or 2 years).Natural gas and coal capacity factors are generally lower due to routine

maintenance and/or refueling at these facilities.Renewable plants are considered intermittent or variable sources and are mostly limited by a lack of fuel (i.e. wind, sun, or water). As a result, these plants need a backup power source such as large-scale storage (not currently available at grid-scale)—or they can be paired with a reliable baseload power like nuclear energy.A typical nuclear reactor produces 1 gigawatt (GW) of electricity. That doesn't mean you can simply replace it with a 1 gigawatt coal or renewable plant.Based on the capacity factors above, you would need almost two coal or three to four renewable plants (each of 1 GW size) to generate the same amount of electricity onto the grid.

No Author, xx-xx-xxxx, "Renewables and Weather", No Publication, https://www.teammidwest.com/electric/electric-resources/guides-and-tips/how-does-weather-affect-renewable-energy/

As discussions about climate change increasingly take center stage, one question seems to stick in everyone's minds: How reliable is renewable energy? Renewable energy sources like sunlight, wind speed, and water seem like the obvious candidates to replace fossil fuels, which are currently the largest single source of carbon emissions. But what happens to reliability as our daily weather trends change? Weather that doesn't exist doesn't generate energy. You need sunlight for solar, water for hydro, and wind for…well, wind. Here in Michigan, consistent sunlight isn't a guarantee, especially during our frequently overcast winter days. Even when it's partly cloudy, solar panels can have a greatly diminished output if the clouds cast a shadow. Wind can be similarly spotty. According to the U.S. Energy Information Administration, "Favorable sites [for turbines] include the tops of smooth, rounded hills; open plains and water; and mountain gaps that funnel and intensify wind." Michigan has some of this, but in general, our state isn't optimal for windy conditions. And then there's hydro. While our state is blessed with an abundant supply of fresh water, this doesn't guarantee easy energy. changing precipitation and temperatures can pose problems for water availability. How about storms and other extreme weather events? Solar might suffer, but lots of wind and precipitation mean better outlooks for wind and hydro, right? Unfortunately, it's not that simple. Storms can certainly increase output for certain renewables – at least to a point. But when the equipment tries to take on too much energy at once, it can get overwhelmed and be forced to shut down. Flooding and extreme wind speeds can be a serious threat to hydro and wind power. And of course, the equipment itself is susceptible to weather damage. Lightning strikes, hail, and other hazards are just as dangerous to renewable energy structures as they are to any other. Does this mean renewable energy is a dead end? No! Many renewable energy technologies are still in their infancy. Solutions like battery energy storage, which captures energy from renewables to deploy later, are still being developed and can help us use renewables more effectively in the future. As they continue to improve, and as new research is conducted, renewables will become an even more attractive option. We aren't putting all our eggs in one basket, either. Solar, wind, hydro, and other renewables can work together to provide the energy we need. On days where one is reduced, another might be more productive. Finally, it's important to remember that fossil fuels come with their own set of uncertainties, not least of which is their limited availability. We can't rely on them indefinitely – even when the alternatives still have growing pains.

RenéE Cho, 10-31-2024, "How Climate Change Impacts Renewable Energy", State of the Planet, https://news.climate.columbia.edu/2024/10/31/how-climate-change-impacts-affect-renewable-energy/

"The world's capacity to generate renewable electricity is expanding faster than at any time in the last three decades," the International Energy Agency said in a report published earlier this year. This sign of growth offers "a real chance of achieving the goal of tripling global capacity by 2030 that governments set at the COP28 climate change conference." In 2022, 29.1% of the world's electricity was generated by renewable energy resources, and in 2023, renewable capacity grew another 50%. That year, 21.4% of total U.S. energy was produced by renewables, and in April of this year alone, solar, wind, hydropower and biomass provided 31% of the nation's electricity. Because renewable energy sources depend on the environment, both the supply of and demand for renewables are affected by climate impacts such as high heat, drought, altered precipitation patterns, flooding, extreme weather and wildfires. Geothermal energy, which depends on heat from the Earth's interior, is the renewable energy source least affected by climate change impacts, but it provides only 0.4% of U.S. electricity. "Where there may be impacts on renewable generating facilities, we need to plan for that and prepare for that," said Romany Webb, deputy director of the Sabin Center for Climate Change Law at the Columbia Climate School. "But we need to think about how climate change will impact the energy system as a whole because, unfortunately, no electricity generating system is immune from the impacts of climate change." Webb said that the North American Electric Reliability Corporation and others suggest that fossil fuel-based resources are actually at much higher risk from climate impacts. For example, most fossil fuel facilities are designed to operate at a specific temperature and require water for cooling. As air temperatures rise and increase water temperatures, fossil fuel and nuclear facilities have had to shut down because nearby water bodies were too warm to draw from, or the plants couldn't release used water into them because that would have exceeded their thermal limits. Solar provides between 6% and 8% of electricity in the U.S. As heat waves become more frequent, high heat makes solar panels less efficient, and ensuing warmer nights do not allow a solar system's infrastructure to cool down, stressing it and reducing efficiency. Heat waves also increase the demand for cooling, which strains the grid and can affect the system's capacity to generate and transmit energy. Smoke from wildfires and added cloud cover during extreme weather events may decrease the amount of solar radiation reaching panels and reduce solar output. Hurricanes have been found to decrease solar photovoltaic generation by 18 to 60% compared with clear days. And tropical cyclones can decrease solar radiation by 80%, even for days after they hit. Any extreme weather can also damage solar energy infrastructure, especially wind hazards. Wind power, which provides 10.2% of U.S. electricity, is especially affected by extreme weather events. For example, cyclones can alter the patterns and intensity of wind, leading to fluctuations in the generation of

electricity. Intense wind events can force wind turbines to shut down altogether to prevent damage when wind speeds exceed a certain threshold, typically 55 mph. Even a category one hurricane has wind speeds of 74 to 95 mph. Hurricane Maria caused one wind farm in Puerto Rico to lose almost half its turbine blades. Cold temperatures and icing deposit on turbines can reduce wind generation by 10%, according to one study. The 2021 winter storm Uri in Texas resulted in extensive blackouts as wind turbines froze and natural gas and coal providers went offline. Offshore wind towers and foundations can also be damaged by storm surges and sea ice. Overall, researchers have found that 40% of wind energy production could be lost in some regions due to climate change impacts.

Changes in precipitation, runoff and river flow can also affect hydropower, and extreme rain and floods can damage dam infrastructure. And while floods and storms may increase hydropower's resources, the gains are offset by droughts and heat waves. Our renewable energy resources, as well as the overall grid and energy infrastructure, need to be ready to deal with climate impacts—but they aren't. Because much of the system is old and was largely built for temperatures and weather conditions that prevailed in the past, it is vulnerable to climate change impacts. Hotter temperatures not only mean higher demand for electricity for cooling, which stresses the grid, they also cause power lines to sag and reduce their carrying capacity and efficiency. High temperatures also stress transformers and other equipment, decreasing their lifespan. Hot nighttime temperatures prevent transmission lines from cooling down, adding to their stress. And extreme weather events such as storms and floods can jeopardize energy generation infrastructure and damage power lines. In addition, climate change impacts will likely cause mismatches of supply and demand in many parts of the world, particularly where the energy system is more dependent on renewable energy, according to one study. For the smooth and consistent operation of energy systems, supply and demand sides need to match. When they don't, power outages and a cascade of consequences, such as delayed access to energy and higher prices, could result.

Scientific, xx-xx-xxxx, "Nuclear Essentials", No Publication, https://world-nuclear.org/nuclear-essentials/how-can-nuclear-combat-climate-change

The United Nations has identified climate change as "the defining issue of our time", with the central aim of the 2015 Paris Agreement is to keep the rise in global temperatures to well below 2 °C compared to pre-industrial levels, and with the aim to limit the rise to 1.5 °C. This is driven by the scientific consensus that limiting the rise to 1.5 °C would significantly reduce the risks posed by climate change. Despite this, carbon dioxide emissions related to energy continue to rise – reaching 33.1 billion tonnes in 2018, a record high, and have increased by more than 40% since 2000. Concerted international efforts over the past 20 years have increased the amount of electricity generated by wind, solar and other renewable sources, but have failed to displace fossil fuels from the mix. As a matter of fact, in 2017, fossil fuels produced more electricity – in relative and absolute terms – than ever before. In its 2018 report, Global Warming of 1.5 °C, the Intergovernmental Panel on Climate Change (IPCC) warned that we are likely to breach the 1.5 °C threshold by as early as 2030. Nuclear power plants produce no greenhouse gas emissions during operation, and over the course of its life-cycle, nuclear produces about the same amount of carbon dioxide-equivalent emissions per unit of electricity as wind, and one-third of the emissions per unit of electricity when compared with solar. Experts have concluded that in order to achieve the deep decarbonization required to keep the average rise in global temperatures to below 1.5°C, combating climate change would be much harder, without an increased role for nuclear. Because nuclear power is reliable and can be deployed on a large scale, it can directly replace fossil fuel plant, avoiding the combustion of fossil fuels for electricity generation. The use of nuclear energy today avoids emissions roughly equivalent to removing one-third of all cars from the world's roads.

Investment drives innovation. Holtzman 23

Benjamin **Holtzman**, Nuclear Energy Institute. "Opportunities for Industries," **2023**. https://www.nei.org/advanced-nuclear-energy/opportunities-for-industries. [Ben is the Director of New Nuclear at the Nuclear Energy Institute. He is an accomplished and results-driven nuclear professional with over 15 years of experience in a variety of regulatory, technical, and business arenas. He currently is focused on developing a more efficient risk-informed regulatory framework, accelerating industry deployment readiness, and engaging with investors and new end-users to understand new nuclear opportunities. Ben has a B.S. in nuclear engineering, a M.S. in nuclear, plasma, & radiological engineering, and an executive M.B.A.] //MH

Industries across the economy are recognizing nuclear's ability to reduce—or erase—their carbon footprints. **Existing nuclear, small modular reactors, and other advanced nuclear technologies also offer significant opportunities for industry innovation and growth beyond electricity.** Explore Nuclear & Your Industry Aerospace - Nuclear has successfully powered space... ...exploration for decades. Now, the industry is developing new nuclear energy technologies to power the next phase of space travel: early unmanned

missions, earth satellites, permanent lunar bases and missions to Mars. Companies such as Zeno Power, X-energy and Ultra Safe Nuclear Corporation are creating next-generation radioisotope power systems to send spacecraft and probes even farther into space. NASA is exploring nuclear thermal propulsion to reduce flight time, enabling human missions to Mars and beyond. As part of the historic Artemis space program, NASA also awarded contracts for a small nuclear power system that could run a permanent base for surface power on the Moon for upwards of 10 years. **Agriculture - Nuclear technologies can reduce the carbon... ...footprint of this industry's energy intensive processes.** Nuclear can make hydrogen for zero-carbon ammonia production and can also directly provide the process heat required to produce synthetic fertilizers. **Nuclear technology can be used to improve crop yield and develop plant varieties that need less water and are more resistant to the impacts of climate change.** Nuclear's desalination capabilities can enable irrigation in arid regions and combat water disputes between agricultural, commercial, and residential interests. Nuclear can also help fight against pests, avoiding the need to use harmful pesticides. Irradiating food also kills E. coli, listeria and salmonella, so fresh foods can last longer. **Data Centers and Information Technology - Google and other companies... ...like Microsoft are turning to nuclear energy for a dependable, carbon-free source of power to power their data centers continuously. In the future, data centers may have dedicated, standalone, small modular reactors (SMRs) or microreactors to power their operations "behind the meter."** SMRs can provide backup power for data centers on the grid and also operate independently of a grid. Some designs for new nuclear facilities also allow for data centers to be co-located on the same site, creating even more efficiencies. Finance, Blockchain, and Cryptocurrency - To address the substantial energy consumption... ...linked to cryptocurrency mining and transactions, businesses are looking towards eco-friendly energy alternatives. Nuclear energy can deliver consistent carbon-free power for continuous mining and transaction processing. Oklo entered a 20-year agreement with Compass Mining to offer 100 percent carbon-free electricity for crypto mining. Energy Harbor signed an agreement with Standard Power to deliver nuclear-generated, carbon-free, electricity to its bitcoin blockchain mining center in Ohio. Additionally, Talen Energy intends to establish a nuclear-powered cryptocurrency mining and data facility adjacent to the Susquehanna nuclear power plant. **Manufacturing - Advanced reactors can provide heat for... ...industrial processes such as chemical production and metal refining, enabling these industries to reduce their carbon footprint. Dow Chemical partnered with X-energy to develop SMR technology, while Nucor has invested in NuScale Power Corporation to support the development of small modular reactor nuclear plants which can meet their needs for reliable carbon-free electricity to power steel production.** Nucor was also the first major industrial company to join the United Nations 24/7 Carbon-Free Energy Global Compact, which is aimed at accelerating the decarbonization of the world's electricity systems to mitigate climate change and ensure access to clean and affordable energy. **Medicine and Health - Nuclear power plants play a crucial role in public health... ...by producing a life-saving resource, Cobalt-60.** This isotope sterilized billions of pieces of medical equipment in hospitals during the height of the COVID -19 pandemic. **Radioisotopes, which are naturally formed during the process of producing reliable, carbon-free electricity, have significant lifesaving applications such as diagnosis and treatments for cancers.** Bruce Power and Ontario Power Generation (OPG) are among the companies that collect these medical isotopes and process them for worldwide distribution. Demand for radioisotopes is continuously increasing. Nuclear radiation is also used to treat food, kill bacteria, and eradicate insects and parasites that cause illness. Lastly, microreactors offer the potential to provide hospitals with clean energy 24/7/365, either independently or as part of a microgrid, without relying on a larger power grid. These compact reactors can be transported by land, air, or sea to remote areas, allowing hospitals in communities with inadequate access to health care or that have been affected by disasters to be powered with reliable energy. Textiles - The textile industry can remove chemicals and... ...pollutants, such as dyes, starches, acids, salts and detergents, from its water by using nuclear electron beam technology. Electron beams can break apart the chemical bonds of clothing dyes and remove pollutants, allowing textile manufacturers to recycle wastewater for reuse. One textile factory in Southern China uses the technique to save up to 4.5 million cubic meters of fresh water annually, which is equivalent to the water consumed by about 100,000 people. The fashion industry, which accounts for nearly 10 percent of global emissions, is also turning to nuclear energy to decarbonize. Transportation - Some of today's nuclear reactors are demonstrating... ...the capability for carbon-free production of large quantities of hydrogen,

which can be used as fuel to power various forms of transportation, including aviation, shipping, heavy transport, fuel-cell trains, and vehicles. Advanced nuclear reactors can produce hydrogen. Nuclear energy is also a highly feasible option for providing steady and reliable carbon-free electricity to EV charging stations 24/7/365.

C2: US HEG

The US is a failing hegemon

Zhongping 24, Song Zhongping [2024, Jun. 24**],** is an adjunct professor and Phoenix Television's commentator and host. He graduated from the PLA Second Artillery Engineering University. "Can the west preserve US hegemony" [https://www.thinkchina.sg/politics/can-west-preserve-us-hegemony] // Accessed 10/31/24 recut; Shyam

The US is in an era of weak hegemony, and the only way to maintain its leadership is to form a collective Western hegemony, says Chinese commentator Song Zhongping.The US made heavy preparations to ensure a Western collective hegemony — notably by containing emerging countries to safeguard its own position. **Countries including China, Russia, South Africa, India and Brazil have continued developing their economies and technological competencies. This has raised concerns for the US-led Western world that these emerging countries would challenge the US's global hegemony and the current international order.** Whether through rhetoric rejecting challenges to global rules centred around the US order, or through actions rallying Western countries to suppress emerging nations, the goal is to safeguard the post-World War II international order from any change. After all, behind the rules and order that the US clamours about lies its hegemony.

Today, the US can no longer sustain global hegemony solely through its own national strength, signalling the quiet arrival of an era characterised by declining American hegemonic influence. Despite the US's ongoing advancements in technology, military, and finance, its global share of strength is declining. This is clearly demonstrated with the G7. According to the International Monetary Fund, the combined GDP of the G7 accounted for 44.9% of the world in 1995, but had significantly dropped by 2010 to only 34.3%. By 2023, **the combined GDP fell even more to a mere 29.9%.** Meanwhile, BRICS countries such as China, India and Russia saw their combined GDP account for 32.1% of the world; ahead of the G7 by 2.2 percentage points. **These statistics showed that the US-led G7 has already lost its once complete leadership of the world.**

Investment into Nuclear Energy helps reverse this downward spiral.

Gattie 24, David Gattie. (2024, June 3). "Competitive Advantage as a National Security Objective for US Nuclear Power Policy" brookings. Accessed March 8, 2025 from. [https://gjia.georgetown.edu/2024/06/03/competitive-advantage-as-a-national-security-objective-for-us-civilian-nuclear-power-policy/]//

Following World War II (WWII), the **United States committed itself to providing global leadership in civilian nuclear power.** The **ultimate goal behind this initiative was to bolster national security by establishing and maintaining its competitive advantage in nuclear technology** vis-à-vis the Soviet Union (USSR). **However, this advantage has eroded, now belonging to the United States' acute threat, Russia, and strategic competitor, China. Advanced nuclear reactors offer an opportunity for the United States to regain its competitiveness in the field, but to optimize it, policymakers must recognize the most urgent value of nuclear power and set the primary objectives of US nuclear power policy to focus on restoring national security and regaining competitive advantage over adversary nations.** Introduction: The United States' Civilian Nuclear Power Policy Legacy From the beginning of the Manhattan Project through the early years of the Cold War, **the highest levels of the US national security enterprise–including the Office of the President, the US military, the Department of State, the National Security Council, and the US Congress–were deeply involved in the deliberations on atomic energy and nuclear power policy.** Having developed the technology for the most devastating military weapon in history, the United States occupied a unique global position with a first-mover advantage in atomic energy. Geopolitically and strategically, it gained a global advantage in nuclear technology and a competitive advantage over the USSR. Policymakers anticipated the dominance would be short-lived, projecting it would last five to ten years. Their prediction was optimistic, as the USSR successfully tested a nuclear device in 1949. This backdrop created a sense of urgency within the US national security enterprise, reflected in the five principled objectivesfor US civilian nuclear power policy outlined by the National Security Council in 1955: 1) maintain US leadership in the field, particularly in the development and application of atomic power; 2) use such US leadership to promote cohesion within the free world and to forestall Soviet exploitation of the peaceful uses of atomic energy to attract unaligned nations; 3) increase progress in developing and applying the peaceful uses of atomic energy in free nations abroad; 4) assure continued US access to foreign uranium and thorium supplies; and 5) prevent the diversion to non-peaceful uses of any fissionable materials provided to other countries. **National security concerns extended beyond the USSR's development of nuclear weapons as an instrument of hard power. The upper echelons of the US government were concerned about the USSR's latent use of civilian nuclear power as an instrument of soft power to attract the allegiance of uncommitted countries. These principles reflect a deep understanding of the intrinsic national security value that atomic energy and civilian nuclear power hold, transcending that of other energy resources.** They also demonstrate the conviction that the United States needed the world's premier civilian nuclear program to hold a leadership role in controlling atomic energy and nuclear technology. Policymakers deliberated from the position that they were "not dealing simply with a scientific problem but with a problem in statecraft and the ways of the human spirit" and that their "decisions about the peacetime development of nuclear energy have not, cannot, and probably should not be made on the basis of strict economic realism." On these policy principles, the United States established itself as the twentieth-century global leader in civilian nuclear power deployment and atomic energy. Beyond Market Value: National Security as True Comparative Loss of an Eroding US Nuclear Competitive Advantage While the United States dominated civilian nuclear development in the twentieth century, it no longer occupies those commanding heights. From 1960-1999, 473 nuclear reactors were connected to the grid globally. Of these, the United States accounted for 130, Russia accounted for 33, and China none. Since 2000, China has connected fifty-two reactors to the grid with twenty-three under construction, Russia connected thirteen to the grid with three under construction, and the United States connected three to the grid with no reactors under construction. In this same period, China and Russia have been involved with 114 of the 170 reactors that have been connected to the grid globally. The two US reactors connected to the grid in 2023-24 are the first new US nuclear construction projects in over thirty years. Its competitive advantage—not only in new nuclear construction but also in nuclear partnerships—has eroded and now belongs to China and Russia. **Neither perspective adequately addresses the challenge posed by great power rivals, who are leveraging nuclear power to meet their geopolitical objective of marginalizing US strategic influence abroad.**

If US hegemony continues to decline, however, China will overtake them as the leading global hegemon.

Pradhan 23, "The Decline of US Hegemony: Is the Era of Unipolarity Coming to an End?" [https://niice.org.np/archives/8798]//

The Global Financial Crisis of 2008 is one indication that the USA is a declining power. The crisis reportedly **had an adverse effect on American domestic politics, making it one of the worst in almost eight decades.** Following the Great Recession, many people lost their homes, assets, or jobs. The decline of US hegemony can also be cited from its excessive military overstretch. The global image of the USA as a powerhouse began to take a sharp turn with the advent of the military expedition in Afghanistan, and the "Global War on Terror" in Syria and Iraq. More than 750 military sites and surveillance facilities are maintained by the US throughout more than 130 nations. Concerns about American hegemony have been generated by the country's military incursions and its position as a stern arbitrator in The Global South and other developing and underdeveloped nations. **The emergence of China as a global power, particularly its rise as an economic power, and the fact that Chinese manufacturing companies are out-producing US companies is another reason for**

concern. According to an expert, in the space of just a few decades, **the global economy has become more dependent on the Chinese industry** for parts **and** components (Winder, 2020:17). Financial institutions such as BRICS, Shanghai Cooperation Organisation (SCO), and Asian Infrastructure Investment Bank (AIIB) have rivalled the US-led Bretton Woods System and The Washington Consensus. As an implication, **the economic balance of power started shifting towards** the East with **China** taking up the mantle of the leader of the new economic structure and order. **China is expected to surpass the US** as the world's largest manufacturer and is predicted to **become the world's largest economy in dollar-based GDP** by 2041.

Nuclear power increases GDP

Nuclear Energy Institute. "The economic contribution of the US nuclear power industry."Oxford Economics, October 14, 2024,https://www.oxfordeconomics.com/resource/the-economic-contribution-of-the-us-nuclear-power-industry/.

The US nuclear power generation industry provided approximately 19% of the electricity output of the electric power sector in 2022. To generate this electricity, the nuclear power industry directly employed 73,832 workers, including 48,252 employees working at nuclear power plants themselves. But the full economic contribution of the nuclear power industry extends further. **Altogether, the total** (direct, indirect, and induced) **economic contribution of the US nuclear power industry in 2022 totaled 256,849 workers and $63.8 billion of GDP. This activity generated $15.9 billion in** federal, state, and local **taxes**. The states with the largest economic contribution from nuclear power were Illinois ($5.9 billion in GDP), Pennsylvania ($4.8 billion), South Carolina ($3.9 billion), and California ($3.6 billion). On average, each of the 52 US counties which house the nation's 54 nuclear power plants had 1,758 workers whose job was supported by nuclear power, and **an average GDP contribution from nuclear power of $770 million**. Nuclear power has a number of positive sustainability characteristics. Unlike electricity generated by burning fossil fuels like gas or coal, **nuclear power generates no significant emissions of air pollution. Nuclear power's land use footprint is the smallest of any electricity generating technology, less than one-fiftieth that of ground-installed solar, and one three-hundredth that of on-shore wind, per unit of electricity produced.** Working at a **nuclear power plant** is one of the safest jobs in America, **with zero fatal accidents since 2017, and a rate of non-fatal accidents one-seventh that of the electric power industry as a whole.**

Study of nuclear energy consumption to GDP

Al-mulali, Usama. "Investigating the impact of nuclear energy consumption on GDP growth and CO2 emission: A panel data analysis." ScienceDirect, February 25. https://www.sciencedirect.com/science/article/abs/pii/S0149197014000304

This study investigates the influence of nuclear energy consumption on GDP growth andCO2emission in 30 major nuclear energy consuming countries. **The panel mode was used taking the period 1990–2010. The results of the study indicated that nuclear energy consumption has a positive long run effect on GDP**

growth while it has no long run effect on CO2 emission. The Granger causality test results also revealed **that nuclear energy consumption has a positive short run causal relationship with GDP growth while it has a negative short run causal relationship with CO2 emission**. Based onthe results of this study**, nuclear energy consumption has an important role inincreasing GDP growth in the investigated countries with no effect on CO2emission**.Consequently, unlike fossil fuels which also increase GDP growth, nuclear energy consumption causes less damage to the environment. From the results of thestudy, a number of recommendations were provided for the investigated countries

Another study but shows the amount of dollars

Nuclear Energy-Providing Power, Building Economies." Nuclear Innovation: CleanEnergy Future, n.d. https://outage.nrel.gov/

For countries seeking to start a nuclear program, the initial years may result in fewer domestic jobs because equipment, technology, and expertise are often imported. However, even countries new to nuclear energy can expect strong positive impacts on their economies through the adoption of nuclear energy. **In 2021**, **the International Atomic Energy Agency (IAEA) analyzed 10 countries** to assess the economic impact from nuclear energy in terms of gross domestic product (GDP) and employment, including a base case in which no nuclear energy was adopted. Economic data and reference years from 2007–2020 were used as inputs; projections were provided from 2020–2034 on the impact of nuclear adoption or expansion. Several of these countries were nuclear newcomers**. Results indicate the GDP of these countries grew between 0.2% and 3% because of investments in nuclear energy. This resulted in billions of dollars (estimated in U.S. dollars) in each country from both domestic and international sources,** with 10%–70% of investments occurring in-country, depending on f financing and construction agreements.

US heg is eroding

Warner 25 (Daniel Warner is the author of An Ethic of Responsibility in International Relations. (Lynne Rienner),February 14, 2025,"The United States is Falling Apart and the World is Taking Notice", Counterpunch,https://www.counterpunch.org/2025/02/14/the-united-states-is-falling-apart-and-the-world-is-taking-notice/, DOA 3/11/25) KC

The United States is imploding. The reign of Donald Trump is not only challenging and threatening the very foundations of its constitutional democracy, it is calling into question the U.S.'s post-World War II hegemonic role. Empires or hegemonic powers rise and fall. Often they are defeated by emerging powers. Sometimes their decline takes place over time. But rarely do they self-destruct as spectacularly as the U.S. is doing. **The U.S. implosion is dramatic in its intensity and rapidity. In just over three weeks, Donald Trump has been able to redefine the United States' position in the world from a global power to an international outcast.** Despite whatever military and economic power the U.S. still has, its image and global leadership have been undermined by President Trump's foreign policy decisions. The word "implode" is rarely used in international relations. The decline of empires or hegemonic powers is usually due to external forces. The Roman Empire fell because of a series of invasions by "barbarian tribes." The Ottoman Empire fell because it aligned with Germany during World War I and was formally dismantled after the War because it had chosen the losing side. The United States is now in the throes of losing its global position by an implosion based on President Trump's policies. Internationally, Trump has undermined the U.S.'s global image and influence by systematically provoking allies, neutrals and competitors. Besides targeted tariff threats and proposals for territorial expansion into Greenland, Panama and Canada, the president has made two policy decisions that have led to universal condemnation with major global repercussions. The first is his decision to gut the United States Agency for International Development (A.I.D.). While there are certainly inefficiencies in any

institution that spent $38 billion in 2023 and operates in 177 different countries, A.I.D. has been fundamental in projecting a positive American image throughout the world. As an example of its outreach, Samantha Power, the former administrator of A.I.D., wrote in The New York Times how out of the $38 billion spent, "nearly $20 billion was for health programs (such as those that combat malaria, tuberculosis, H.I.V./AIDS and infectious disease outbreaks) and humanitarian assistance to respond to emergencies and help stabilize war-torn regions…Other U.S.A.I.D. investments…pay dividends in the longer term, such as giving girls a chance to get an education and enter the work force, on growing local economies." Foreign assistance is all about human capital. It is a crucial element in projecting soft power. When President John F. Kennedy established A.I.D. in 1961, he said in a message to Congress; "We live at a very special moment in history. The whole southern half of the world–Latin America, Africa, the Middle East, and Asia–are caught up in the adventures of asserting their independence and modernizing their old ways of life. These new nations need aid in loans and technical assistance just as we in the northern half of the world drew successively on one another's capital and know-how as we moved into industrialization and regular growth." He acknowledged that the reason for the aid was not totally altruistic, "For widespread poverty and chaos lead to a collapse of existing political and social structures which would inevitably invite the advance of totalitarianism into every weak and unstable area. Thus our own security would be endangered and our prosperity imperilled. A program of assistance to the underdeveloped nations must continue because the nation's interest and the cause of political freedom require it." The fear of Communism was obvious in 1961. The motivation behind U.S. foreign assistance is always humanitarian and political at the same time; the two can never be separated. **Today, the United States is competing with China and its Belt and Road Initiative for global influence. Trump's freezing and defunding U.S. foreign assistance is not a defeat to China; it's a default, a no-show. Defunding and freezing foreign assistance effects millions of people throughout the world and invites even allies to look to China as a partner in trade and development.**

Whereas the A.I.D. example is an excellent case study of a major power purposefully retreating globally (withdrawal from the World Health Organization and the Paris Accord on climate change included), Trump's proposal for the Gaza Strip is an outright, active, foreign policy autogoal. (A former advisor to Bernie Sanders called it Trump's "apocalyptic daydream.") Trump's insistence that the United States will take control of Gaza, evicting almost two million people from their homeland in order to create a place "better than Monaco," "the Riviera of the Middle East," has generated international condemnation. "Forcible displacement of an occupied group is an international crime, and amounts to ethnic cleansing," Navi Pillay, chair of the United Nations Commission of Inquiry on the Occupied Palestinian Territory, told Politico. "There is no way under the law that Trump could carry out the threat to dislocate Palestinians from their land," she said. Politically, the Foreign Ministry of Saudi Arabia, a key actor in stabilizing relations in the Middle East, forcefully dismissed the proposal; "Saudi Arabia also reiterates its previously announced unequivocal rejection of any infringement on the legitimate rights of the Palestinian people, whether through Israeli settlement policies, the annexation of Palestinian lands, or attempts to displace the Palestinian people from their land," it said. Egypt, Jordan and other Arab countries have also rejected the plan. King Abdullah II of Jordan gracefully avoided directly responding to the plan during his joint press conference with Trump. But following the meeting, the King said on X, "I reiterated Jordan's steadfast position against the displacement of Palestinians in Gaza and the West Bank. This is the unified Arab position." The only country who seem pleased is Israel, with Prime Minister Netanyahu smiling like a Cheshire cat listening to Trump present the plan during their joint press conference. In three weeks, Donald Trump has imploded whatever positive image the United States might have had internationally. While he may think he is doing what his MAGA followers want, international reactions – save Israel's – are further nails in the coffin of United States hegemony.

The US is behind on nuclear developments

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Dependence on Adversaries and the Importance of the Other Low-Carbon Power Source: Nuclear **China dominates global supply chains for renewable energy and batteries and is now setting its sights on becoming a superpower in nuclear energy.**[11] **China understands the simultaneous need for clean baseload power in the form of nuclear (despite China's current heavy reliance on coal) in addition to intermittent renewable energies. Over the past several decades, as the West has grown increasingly cautious about nuclear, China has**

forged ahead and is now building twenty-five reactors, more than the next six countries combined.[12] **In fact, it has more nuclear reactors under construction than any other nation in the world, and approved ten new reactors in each of the past two years.13 The country is expected to surpass France and the United States to become the world's leading atomic power generator by 2030, according to BloombergNEF**.[14] **It also is responsible for a new breakthrough: a meltdown-proof nuclear reactor, which has been a goal for several U.S. companies like X-energy and Kairos, as well as the U.S. Department of Defense, but which China is building faster**.[15] **China's new nuclear dominance would be added to its control of solar, wind, and EVs (through the magnetic motor and lithium-ion battery supply chain).16 It already processes 90 percent of rare earth elements and 60 to 70 percent of lithium and cobalt (which China manufactures with very low environmental and labor standards).17 Overall, the United States is reliant on other countries for its critical minerals, needing to import more than half its supply of thirty-one out of the thirty-five minerals defined as critical by the government in 2018; the country also has no domestic production at all for fourteen of those minerals.**[18] **The United States must double-track its energy efforts just as China has: work to increase nuclear power as a workhorse that can ensure the United States has reliable electricity, while also (re)establishing domestic renewable supply chains and manufacturing. In other words, America needs to build—and lead—in multiple forms of energy.** Unfortunately, it seems the United States cannot get out of its own way. According to a 2022 International Energy Agency (IEA) analysis that describes the path to reach net zero by 2050, the world would need to double its nuclear energy capacity even with the assumed exponential growth in solar and wind.19 The IEA's model assumes an average of 30 gigawatts of new nuclear capacity coming online every year starting in the 2030s and staying on that track for another two decades, until 2050. The math then becomes clear: **the world needs to build and turn on the equivalent of 180 more 1,000-megawatt reactors, or twenty-five more new reactors per year, by 2030, with further growth afterward in order to hit the 2050 target.20 If all of those reactors are built by China and Russia, not just for their domestic use but also for export, other countries will be locked into their tech and supply chains for decades. Russia supplies more than 40 percent of the world's enriched uranium, including about 20 percent of what the United States uses, which means one in twenty American households were powered by Russian-enriched nuclear fuel in 2022**.[21] Fortunately, lawmakers passed the Prohibiting Russian Uranium Imports Act, signed by President Joe Biden in May 2024, which bans unirradiated low-enriched uranium from Russia or Russian firms from being imported into the United States, with the goal of increasing U.S. production.22 The law includes nearly $3 billion in federal funding to expand the domestic uranium industry in hopes of building demand, and will also help build new low-enriched uranium supply (which is what current reactors use as fuel) as well as create capacity to produce high-assay low-enriched uranium (HALEU, which is what advanced and next-generation reactors use as fuel). **Adding Russia and China together, these two U.S. adversaries control nearly 60 percent of the world's supply of enrichment needed to fuel the next generation of reactors.23 China also intends to build a total of 150 new nuclear reactors between 2020 and 2035, which includes a target of selling thirty nuclear reactors via its Belt and Road Initiative to states it considers its vassals.**[24] And thanks to its massive state support system, **China can build a lot cheaper: it has already bid to build Saudi Arabia's first nuclear plant at a price at least 20 percent lower than competing bidders.25 China now seems to be at least a decade ahead of the United States in nuclear power, specifically because of its ability to field fourth-generation reactors; is poised to build six to eight new nuclear power plants each year; and is expected to surpass the United States in nuclear-generated electricity by 2030.**[26] **China is expected to finish its first commercially operating SMR by 2026, while leading U.S. advanced nuclear firm TerraPower is expected to be online by 2030.**[27] **In addition, the current U.S. nuclear fleet is aging. The vast majority of American nuclear capacity was built between 1970 and 1990**, with the country's newest plant (Plant Vogtle's AP1000 reactor in Georgia) completed in 2024.28

Aff investment is key

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Unfortunately, as industry analyst Luongo observed, "**It is generally agreed the U.S. has lost its global dominance in nuclear energy**."103 Therefore, the United States needs to develop a coherent national strategy and whole-of-government approach to reanimating the deployment of modern nuclear reactor technology. This should be predicated on the recognition that **America's current nuclear installed base is aging rapidly, and**, more importantly, that **modern nuclear reactor technologies are substantially safer and more efficient** (in producing energy from a given set of fuels) **than previous designs**. It should also be predicated on a recognition **that if the United States is to contribute to global clean energy and decarbonization objectives, an embrace of nuclear energy must be part of an "all-of-the-above" energy strategy**. A recent U.S. **Department of Energy** (DOE) **report** suggests **that if the United States commits more to nuclear, it could triple its nuclear-power generation to 300 GW by 2050** (and make an important contribution toward meeting America's net-zero emission goals).104 **This would also promote U.S. energy security and the resilience of America's energy system. Policymakers will need to both fund the future and provide necessary funding today to appropriately maintain America's existing fleet of nuclear reactors, building upon Congress's creation of a $6 billion relief fund in the 2021 Bipartisan Infrastructure Investment and Jobs Act** (BIIJA), whose intent is to preserve America's existing nuclear fleet and related jobs through 2031.105 The 2022 Inflation Reduction Act also includes tax credits through 2032 for existing U.S. reactors. (The advanced nuclear tax credit under Section 45J of the Energy Policy Act of 2005, which offers a maximum 1.8 cent per kilowatt-hour credit, continues to be the only currently available federal generation credit for new nuclear electricity generation facilities not yet placed into service.)106 **DOE's Advanced Reactor Demonstration Program (ARDP), launched in 2020, seeks to speed the demonstration of advanced reactors through cost-shared partnerships with U.S. industry**. Since its 2020 launch, Congress has appropriated $3.2 billion to the program, including $2.48 billion in funding through FY 2025 as part of the BIIJA. The agency is extending awards to applicants developing: 1) advanced reactor demonstrations, which are expected to result in a fully functional advanced nuclear reactor within seven years of the award; 2) advanced reactor concepts 2020 (ARC 20), which will support innovative and diverse designs with potential to commercialize in the mid-2030s; or 3) risk reduction for future demonstrations.107 In total, DOE is supporting 10 U.S. advanced reactor designs to help mature and demonstrate its technologies.108 **There are many promising potential U.S. nuclear power innovators**. For instance, **Bellevue, Washington, and Bill Gates-backed TerraPower is developing a sodium fast reactor combined with a molten salt energy storage system and X-energy is developing a Gen-IV High-Temperature Gas-Cooled reactor**. (Bechtel is the engineering, procurement, and construction provider for TerraPower in deploying its Natrium technology.)109 In June 2024, TerraPower announced it was commencing construction in Wyoming on its advanced nuclear reactor, with an expected launch date of 2030.110 Elsewhere, NuScale seeks to launch a scaled-down light water reactor (LWR) and Westinghouse is developing the AP300, its own scaled-down LWR.111 Yet, **none of these are expected to enter even the demonstration stage until 2030, at the earliest, which means China has opened a significant lead over the United States in the development of fourth-generation nuclear technology**. And **even considering the prior generation of reactors, notably the Westinghouse AP1000, China was deploying their versions of them as early as 2017, while as noted the Vogtle Unit 4 has just now come online, meaning that China is years ahead of the United States in**

even deploying our country's own technologies. Policymakers will also need to support the economics of new nuclear technologies. DOE estimates that nuclear reactors will need to cost about $3,600 per kilowatt to be built quickly and scaled around the country, but first-of-their-kind reactors are costing anywhere from $6,000 to $10,000 per kilowatt.[112] **The United States will also need to work to develop domestic fuel enrichment capacity for these projects. For instance, DOE is currently trying to enable domestic high-assay low-enriched uranium** (HALEU) **production capabilities** via the HALEU Availability Program, through which DOE will acquire HALEU through purchase agreements with domestic industry partners and produce limited initial amounts of material from DOE-owned assets.[113] Of course, production at scale can reduce per-unit costs, but this requires a sustained commitment to comprehensive buildout. Another challenge pertains to skills: DOE estimates that if the United States is to meet the aforementioned 2050 target of tripling nuclear energy production, America would need an additional 375,000 skilled engineers, technicians, and construction personnel in the sector to support such a buildout.[114] As such, the United States needs to revamp its approach to supporting next-generation nuclear initiatives. Notably, both ARDP and the Nuclear Regulatory Commission (NRC) need more resources, in terms of funding and manpower, in part so they can pay market rates to the staff that will be needed to evaluate the wider variety of proposed nuclear designs to come. ARDP also needs a better down-selection process for the demonstration projects it's currently funding. In particular, it appears that the current DOE approach envisions going from start-up to commercialization immediately; instead, DOE should have grant recipients produce a pilot-scale demo, such as in the 5–10 MW range, as part of the down-selection process, before going full commercial. If nuclear energy is going to become a considerable export product for the United States again, then U.S. companies well need to be better supported in their efforts to sell into global markets. The United States should develop a "one-stop-shop" approach, including the U.S. Export-Import Bank (EXIM), U.S. State Department, and other relevant agencies so that foreign buyers of U.S. nuclear exports can deal with a single entity rather than multiple agencies to complete deals (as Russia's Rosatom does). It should also be made clear that nuclear is a qualifying technology for the EXIM's China and Transformational Exports Program (CTEP), whose intent is to assist U.S. exporters facing competition from China and which makes qualifying companies in the program eligible for reduced fees, extended repayment terms, exemptions to EXIM policy requirements, and other benefits.[115] To its credit, America's State Department has established partnerships with more than a dozen countries to help them fund and develop nuclear-energy programs and, eventually, SMRs.[116] Here, **the United States could also expand the Foundational Infrastructure for Responsible Use of Small Modular Reactor Technology** (FIRST) **program, a multiagency U.S. government initiative that provides capacity building support to help partner countries safely and responsibly build an SMR or other advanced reactor program, to include more countries.**[117] The United States also has to negotiate civil nuclear cooperation agreements with foreign governments (Section 123 agreements) and has been quite slow in doing this; enhanced staffing at DOE and the State Department could better support this, along with making a list of priority countries in the Global South with which to promote U.S. nuclear technology exports. The United States has historically been a leader in nuclear fusion research, most notably with regard to the National Ignition Facility achieving the first net-energy gain nuclear fusion reaction in December 2022.[118] Still, **the United States needs to build a comprehensive nuclear fusion strategy and strengthen investments therein**: While the federal government will invest $790 million in fusion science programs in 2024, advocates had sought for at least $1 billion in investment.[119] Moreover, as one commentator observed, "The Biden administration has taken steps in the right direction with its development of a Bold Decadal Vision, recognizing the technology's potential as a clean energy source, but has not translated this into a large-scale push."[120] U.S. policy should work to more strongly coordinate government, academic, and private sector efforts in nuclear fusion and empower DOE with a mandate to achieve commercial fusion power as soon as possible.[121] A comprehensive strategy and sustained investment will be needed, for nuclear fusion represents yet one more arena where the technical, scientific, and commercial competition will be fierce between China and the United States in the years ahead. For this reason, recent administrations have clamped down on the transfer or export of nuclear technologies to China. In January 2019, the Trump administration scuttled a 2015 agreement TerraPower had signed with CNNC to build a prototype 600 MW reactor at Xiapu in Fujian province.[122] Further, in August 2019, the United States placed China General Nuclear Power Group and three of its subsidiaries on its Entity List because they had "engaged in or enabled efforts to acquire advanced U.S. nuclear technology and material for diversion to military uses in China."[123] And in August 2023, the Biden administration further tightened controls on the export of materials and components for nuclear power plants to China.[124] China has become America's leading geostrategic competitor, and America needs to completely cease any sharing of its nuclear technologies with the country. Lastly, the United States needs to be working more closely with its own allies, including France, Germany, Japan, South Korea, and Sweden (among others), to collaborate on R&D for advanced nuclear technologies and to help promote nuclear exports from techno-democracies to third-party markets. Indeed, considerable collaboration could be achieved in the regulatory, procurement, and contracting spaces. For instance, the United States could allow foreign companies in allied countries to own reactor licenses in the United States in order to promote foreign investment and accelerate domestic deployment. Further, the United States could lean into international efforts to standardize and harmonize design and testing standards, such as those embodied in IAEA's SMR Platform and Nuclear Harmonization and Standardization Initiative.[125] NRC should provide limited endorsement of internationally recognized quality assurance standards, testing standards, design methodologies, and safety analysis methodologies for advanced reactors. That would allow U.S. suppliers to learn and assess what allied countries are doing without reinventing the wheel in the United States and open the door for more international collaboration while limiting redundant qualification work. The United States could also further relax import or export control of non-fuel or non-nuclear safety-related components (e.g., vessels, piping, testing services, etc.) to and from allied nations. This could include limited authorizations to be exempt from domestic sourcing on the procurement of systems, subsystems, and components related to advanced reactors from specific allied countries. Further, DOE could forge more bilateral agreements with allied R&D centers (e.g., the French Alternative Energies and Atomic Energy Commission (CEA), the UK Atomic Energy Authority (UKAEA), and the Korea Atomic Energy Research Institute (KAERI)) to provide funding to advance joint small R&D projects and data sharing. The United States could also explore joint financing of projects among allies; for instance, a foreign firm might be the prime contractor on a project, but firms from other countries could be involved too. That matters, for, ultimately, **every nuclear project America**, France, Germany, Japan, South Korea, or Sweden (or other allied countries) **completes instead of China and Russia in developing countries or other third-party markets represents a win for democratic, free-market economies.**

The time is now

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In addition, the current U.S. nuclear fleet is aging. The vast majority of American nuclear capacity was built between 1970 and 1990, with the country's newest plant (Plant Vogtle's AP1000 reactor in Georgia) completed in 2024.[28] **The United States should not wait decades to commission its next nuclear power plant; it is down from its peak of 112 reactors in 1990 to ninety-four operating today.29 Moreover, now is the time to double down on U.S. nuclear development and leverage a domestic workforce that has recently absorbed the know-how of nuclear reactor construction from**

Vogtle—what economists call diffusion of knowledge, which is essential for economic dynamism and innovation.30 **The longer the United States waits to construct a reactor, the more it risks a brain drain of the first batch of expertise gained in decades: some 14,000 workers (including engineers, welders, masons, electricians, mechanics, and support staff) helped to construct the Vogtle plant and could be deployed to build another AP1000 as quickly as possible to keep domestic know-how alive and to maintain nuclear power momentum.31** Meanwhile, China is taking the same approach with nuclear that it took with other forms of green energy: establish and subsidize domestic capacity as a foundation for competitive reactor exports. Beijing's "dual circulation" strategy to keep its economy from being reliant on imports, particularly from the West, was even enshrined in its constitution.32 It has successfully created Chinese dominance in mineral processing and overcapacity in clean tech, which are killing many domestic producers, not just those in the United States.33 China also got a great deal of help from the United States: one of the main U.S. nuclear firms, Westinghouse, agreed to license its tech to China over several years, even agreeing to allow China to export its technology—which seems like unwise policy in retrospect.34 Beyond that voluntary tech transfer, China's military also hacked Westinghouse and stole its "confidential and proprietary technical and design specifications for pipes, pipe supports, and pipe routing within the AP1000 plant buildings," as well as sensitive emails, according to the U.S. Department of Justice indictment.35 (Russia has also been charged with hacking Westinghouse in an effort to steal the company's IP.)36 **If the United States aims to avoid falling behind China on nuclear power, it will have to make producing energy within its own borders easier. That starts with making it easier to mine and build.** The Need for Permitting and Other Reforms to Enhance U.S. Energy Supplies **It's time to get moving. The United States must accelerate project timelines and streamline processes so developers can get more certainty from regulatory agencies at all levels (federal, state, and local). Costs would come down with increased system efficiency, which would make projects more viable financially from the get-go, and those savings could be passed on to consumers. Permitting reform would also improve investor confidence, particularly in newer, riskier technologies. And of course, permitting reform would allow the United States to be less dependent on foreign sources of energy such as China, which has shown that it is willing to use its economic dominance to punish countries that stand up against it. For example, after Australia called for an international investigation of the origins of COVID-19 in 2020, China banned imports of Australian coal for two years, as well as placing high tariffs on Australia's agricultural exports.37 China has been able to exert major economic influence thanks to its policy of creating state-owned enterprises that are given various subsidies, tax, and labor advantages, allowing them to dominate global strategic sectors—known as brute force economics.38 It would be a mistake for the United States, which reached full energy independence in 2019, to trade dependence on the Middle East's oil fields for dependence on China's energy supply chain.**39 On the nuclear side of the energy ledger, the Accelerating Deployment of Versatile Advanced Nuclear for Clean Energy (ADVANCE) Act, signed into law in July 2024, is a sign of progress toward making it easier to produce energy in the United States.40 The law will help **push forward more advanced nuclear projects by improving the regulatory regime, lowering licensing fees (with special incentives for next-generation SMRs), and giving the Nuclear Regulatory Commission more flexibility; it also strengthens international coordination.41 The United States needs to mine its own uranium for its nuclear plants, for which it also needs permitting reform. The country has 48,000 metric tons of identified recoverable uranium resources, yet only mined 6 tons, or 0.1 percent, in 2020.42 The United States has successfully mined uranium in the past—as recently as 2014, when U.S. production was 319 times higher at 1,919 metric tons.**43 While the new ban on Russian uranium imports will help, the United States also gets one-quarter of its uranium from Kazakhstan, making it the second-largest source of supply to the United States after Canada.44 Recently, Kazakhstani company Kazatomprom, the world's largest uranium producer, announced a 17 percent production cut, potentially signaling a closer alliance between Russia and Kazakhstan.45 Amending the National Environmental Policy Act (NEPA) and minimizing red-tape bureaucracy would be a boon for the United States in developing these resources at home, especially the enriched HALEU fuels needed for SMRs, which today are only produced by Russia's state-owned nuclear firm, Rosatom.

This is key 2 heg

Hiltibran et al 24 (Christel Hiltibran, Director of International Policy, Climate and Energy Program, Rowen Price, Policy Advisor for Nuclear Energy, Ryan Norman, Senior Policy Advisor for Clean Energy Finance, Climate and Energy Program, Alan Ahn, Deputy Director for Nuclear, 31 January 2025, "Trump Has Been a China Hawk on Nuclear Energy. But Congress Could Compromise That During Reconciliation.", Third Way, https://www.thirdway.org/memo/trump-has-been-a-china-hawk-on-nuclear-energy-but-congress-couldcompromise-that-during-reconciliation#:~:text=A%20strong%20US%20nuclear%20energy,valuable%20hundred%2Dyear%20geopolitical%20relationships., DOA 3/1/2025) ESR

President **Trump has long considered himself a China hawk,** stoking a trade war with the country, supporting ever-increasing tariffs on its goods, and using aggressive rhetoric to combat its growing global influence. **But his approach has a blind spot, failing to mitigate China's increasing dominance in the energy sector, especially in nuclear energy development and deployment**. Until we confront China's rising role in global energy markets, **the US will continue to cede market share and lose geopolitical influence, threatening national security both in the US and among our allied nations**. The US needs a synchronized foreign policy to counter Chinese attacks on American hegemony. But since the election, **the incoming administration and Congress have signaled misaligned approaches to foreign energy policy**. The Trump Administration's Day 1 executive orders reaffirmed the President's commitment to domestic energy production—now it's up to Congress to ensure legislation is going to support energy goals. Nuclear Energy Must Be a Foreign Policy Priority Beyond bilateral trade barriers, the US must also dominate critical global industries to remain competitive. **There is broad consensus that investments in national defense, space, artificial intelligence, and quantum computing will help make America more secure and more prosperous. The same is true of investments in nuclear energy. A robust domestic nuclear supply chain has corollary benefits, including reliable energy supply, that are foundational to our defense and technology sectors**. Moreover, **the strength of our nuclear industry directly supports our competitiveness abroad, which in turn affects our ability to uphold the highest global norms in nuclear security and nonproliferation. Failure to compete overseas will enable China, Russia, and other rivals to erode our influence on these international standards and cement century-long geostrategic partnerships around the world. Putting the US at the forefront of global civil nuclear markets will make us stronger, more secure, and more influential on the global stage**. Our adversaries understand the stakes. **China and Russia have state-owned, heavily subsidized nuclear industries that are a key part of their efforts to gain allies and influence throughout the developing world.** China and Russia view nuclear exports as a way to develop century long partnerships in Africa, Asia, and Eastern Europe. Their interest in advanced nuclear power is less about economics, and more about influence. The competition is well underway and the United States is losing. According to the International Atomic Energy Agency, **85% of all new reactors currently under construction in 2024 are Russian or PRC designs; 0% are US designs.** This year, President Trump and the new Republican Congress have an opportunity to do just that—through budget reconciliation. Trump Could Cede Critical Geopolitical "Energy Dominance" to China in His First 100 Days by Compromising America's Nuclear Industry—But It's Not Too Late Put simply, **if we want to outcompete China, Congress needs to continue to prioritize clean energy.** The incoming Trump administration has made no secret of its hostility to the Inflation Reduction Act (IRA) and its clean energy provisions, especially its investments in wind and solar. But despite recent bipartisan alignment in support of nuclear energy, **Trump's agenda not only targets renewables but may also incidentally deal a significant blow to programs supporting nuclear development and demonstration in the US.** During the 117th Congress, **IRA and the Bipartisan Infrastructure Law (BIL) created tax credits, grants, and loan programs to finance the research, development, demonstration, and even the deployment of**

emerging clean energy technologies, including nuclear. In a flurry of signals issued during the lame-duck period, the incoming administration and Republican Congressional leadership have made clear **that many of these programs are on the chopping block in the first 100 days of the second Trump administration**. In competition with state-backed civil nuclear programs such as China**, the US needs to bolster its federal government funding for nuclear, not decrease it. China is churning out large reactors at home, demonstrating** (i.e., building and operating) **advanced reactor technologies, and marketing advanced reactors cheaply along its "Belt and Road."** To stay relevant in this race for international market share, **the US must rapidly finance the demonstration and subsequent commercialization of US nuclear small modular reactors** (SMRs) **and advanced nuclear reactors. The time is now, in the 2025 reconciliation process, to save this critical sector from opening its global market to China.** Why? **The decisions the US government makes this year will dictate whether US nuclear developers have the resources they need to keep pace and ground test these technologies. In the interest of national security and to ensure US competitiveness, Congress must robustly appropriate funding for advanced nuclear demonstrations and maintain federal programs critical to the scale-up of these technologies**. The following programs are all essential to preserve or expand during budget reconciliation.

Nuclear energy is increasingly geopolitically significant

Baker et al 17 (Suzanne Hobbs Baker: Former Visiting Fellow for Nuclear Security. Ryan Fitzpatrick: Senior Director of Domestic Policy, Climate and Energy Program. Matt Goldberg: Fellow, Clean Energy Program. 1/10/17, "Getting Back in the Game: A Strategy to Boost American Nuclear Exports", Third Way, https://www.thirdway.org/report/getting-back-in-the-game-a-strategy-to-boost-american-nuclear-exports //. DOA: 3/16/25)JDE

BACKGROUND Competing in the global civilian nuclear energy market should be a top economic priority for the U.S. **The Department of Commerce predicts that global demand for nuclear energy technology will total $500-$740 billion over the next decade**.1 And that's just the beginning. Leading authorities including the International Energy Agency **expect the world's nuclear capacity to double by 2050**,2 as developing economies try to keep pace with growing energy demand and most nations turn increasingly to low-carbon sources to meet emissions targets.3 **Capturing even a portion of a market this size would produce enormous rewards for American businesses and workers.** Also of interest for the United States, **nuclear deals create strong geopolitical ties between the selling country and the host country—a commitment lasting as long as the life of the project (between 50 and 100 years).** In essence, where you have civilian nuclear power deals, you have **long-term partnerships and greater chances for international cooperation. The U.S. was the dominant force in the global civilian nuclear trade for decades, enjoying both the rewards and responsibilities that come along with that**. As pioneers in nuclear energy innovation, the U.S. was able to develop world-class products and establish a successful export regime in the 1970's and 1980's. We are still making profits off of some of those earliest deals. Today, America has a multi-billion dollar nuclear energy industry that employs a domestic workforce of more than 100,000 people.4 At the same time, the U.S. has used its commercial leadership to establish global security standards. We have long been the largest contributor to the International Atomic Energy Agency, the United Nations' nuclear non-proliferation watchdog.5 The U.S. government also helps other nations with regulatory, safety, security, and innovation needs—even when there is no commercial benefit involved. We consistently put the safety and security interests of the global community first. This is what being a responsible world leader looks like. **In recent decades, however, the U.S. has lost its edge as a global exporter. Our products have a harder time competing with all-inclusive deals offered by Russia's state-supported industry and may soon face additional challenges like lower-cost Chinese reproductions.**6 **Losing this market** share hurts more than just the bottom line for our producers and workers. It **limits our ability to**

influence global standards. It also allows our competitors to lock-in long term, influential alliances with countries that are important to American foreign policy strategy. To help our domestic industry adapt to the realities of today's market and regain global leadership, the U.S. needs a new policy strategy.

Energy is specifically key

Hale 02 (Hale, Cameron Edward (The University of Wisconsin - Madison). 2002, "Energy and hegemonic power", Ads, https://ui.adsabs.harvard.edu/abs/2002PhDT.....127H/abstract, DOA 3/11/25) RK

Current theories of hegemony have, for the most part, ignored energy as a factor. It is argued here, however, that **there are three reasons to expect energy to be a factor in the rise of nations to hegemonic power. First, societies require flow-throughs of energy, material, and information in order to maintain themselves, grow, and develop. Second, the types of energy systems used by a society set somewhat predictable limits on what humans can do and on how they will be organized. And third, since different energy sources and their associated technologies exhibit different capabilities and limitations, advantages may be conferred on one society over another based on the energy sources used by those societies. Case studies of the economic, military, and energy systems of the four nations that have achieved hegemony---Portugal, the Netherlands, the United Kingdom, and the United States---found that changes in energy systems were a significant factor in each instance of hegemony.** Also examined was the premise that the rise and decline of hegemonic powers may reflect the movement away from, and subsequent return to, a condition of steady-state---where a society's energy systems, and those parts of the society that respond to changes in energy factors, change very slowly over time. It was postulated that an extended period of stable energy conditions in conjunction with the diffusion of technology would erode any energy-based differences in power among nations. While, on the other hand, the movement away from a condition of steady-state brought on by changes in a society's energy systems might provide that society with enough advantages that it could seek hegemony. Evidence for an association between the movement from one steady-state to another and the rise and decline of hegemony was found in only two of the four cases.

The impact is Chinese power

China's rise will cause conflict

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US hegemony over the last seven decades or so has recently been challenged by China's rise. Since the economic reforms launched in December 1978, China has achieved a remarkable economic development. China's real-Gross Domestic Product (GDP) growth rate over the last four decades is about 10 percent on average (World Bank, 2018; also see Kim, 2016b, p. 707). While the size of China's economy (in terms of GDP) is currently the number two in the world only after the USA, China already became the world's largest exporter in 2010. In 2011, China ranked as the world's first destination for inward foreign direct investment (FDI) and the world's first investor for outward FDI among developing countries[4]. Also, in 2013, China became the world's largest trading country in goods, overtaking the USA (Anderlini and Hornby, 2014). Moreover, measured on a purchasing power parity basis that adjusts for price differences, China ranked in 2017 as the world's number one (Central Intelligence Agency, 2018). Given that China's size of GDP on a PPP basis in 1980 was one-tenth that of the USA, China's economic growth is truly remarkable (International Monetary Fund, 2018). **China's rapid ascendance as an alternative hegemonic power poses a significant challenge to US hegemony in the world.** As a matter of fact, competing with the USA in many areas, China has quickly strengthened its economic, technological and military power and as a consequence has started to threaten US global hegemony. Accordingly, many scholars now often talk about a declining US hegemony and a forthcoming Chinese hegemony (see, for instance, Layne 2018, 2012). Some of them even predict a hegemonic war between the USA and China during the hegemonic transition period (see, e.g., Liff and Ikenberry, 2014; Mearsheimer, 2014; Friedberg, 2005). Underlying these arguments for an inevitable war between the two superpowers is PTT. PTT originally formulated by Organski (1958) posits that war is likely when the power of the dominant state in the international system (i.e. hegemon) is declining and that a dissatisfied rising challenger substantially reduces the power gap between the hegemon and itself. Unlike balance of power theory, PTT argues that the war is most likely when there is near power parity between a dominant state and a rising and dissatisfied challenger (Organski and Kugler, 1980, pp. 19-20)[5]. A rising power here is generally dissatisfied with the existing international order and initiates war against a declining hegemon in order to impose orders that are more favorable to itself (Organski 1958, pp. 364-367). Layne (2018, p. 110) put these power transition dynamics quite succinctly as follows: "Over time, however, the relative power of states changes, and eventually the international order no longer reflects the actual distribution of power between or among the leading Great Powers. When that happens, the legitimacy of the prevailing order is called into question, and it will be challenged by the rising power(s)." And when the balance of power between a dominant state and a rising challenger changes sufficiently, a new order replaces an old one typically by a hegemonic war (2018, p. 104). Paying close attention to the growing Sino–US competition over hegemony in the twenty-first century, therefore, Shirk (2007, p. 4), China specialist, argues that "history teaches us that rising powers are likely to provoke war."

On the other hand, scholars like Gilpin (1981) contend that the power transition war between great powers is likely to occur when a hegemonic state whose power is declining due to imperial overstretch[6] views "preventive war as the most attractive means of eliminating the threat posed by challengers" (Ned Lebow and Valentino, 2009, p. 391), although they do acknowledge that there might be some "ways to prolong the period of its power preponderance vis-à-vis the rising challenger, so that the rapidly rising power will not dare to challenge the hegemonic leadership" (Kim and Gates, 2015, p. 221). **In this case, the initiator of war is a declining hegemon, rather than a rising challenger. The declining hegemon who fears a rising challenger's overtaking its power in the near future sees war as a better option than other options of maintaining its hegemony such as reducing its commitments abroad and appeasing a rising challenger.** In light of the power transition perspective, **the three most recent examples of China's challenges to US hegemony in the world are the Belt and Road Initiative (BRI), the creation of the AIIB, and Beijing's plan for "Made in China 2025."** First of all, China's BRI, which is also called the "One Belt, One Road" Initiative or the Initiative of "the Silk Road Economic Belt and the 21st-Century Maritime Silk Road," is Chinese President Xi Jinping's signature project. The BRI was first announced in 2013 when Xi visited Central and Southeast Asia. It seeks to connect Asia, Africa and Europe to promote regional economic cooperation, infrastructure construction, and world peace. It was motivated by "the Silk Road Spirit" (i.e. peace and cooperation, openness and inclusiveness, mutual learning and mutual benefit) of more than two millennia ago that is, China claims, "a historic and cultural heritage shared by all countries around the world" (The State Council of the Republic of China, 2015). According to the "Action Plan on the Belt and Road Initiative" published jointly by the National Development and Reform Commission, the Ministry of Foreign Affairs, and the Ministry of Commerce (MOFCOM), accelerating the construction of the BRI "can help promote the economic prosperity of the countries along the Belt and Road and regional economic cooperation, strengthen exchanges and mutual learning between different civilizations, and promote world peace and development" (The State Council of the Republic of China, 2015). Hence, Beijing contends that BRI "is a great undertaking that will benefit people around the world" (The State Council of the Republic of China, 2015). The BRI currently includes about 70 countries that accounts for 70 percent of the world's population, 55 percent of the world's Gross National Product and 75 percent of global energy reserves (Cavanna, 2018). Many countries in the world (e.g. "from Panama to Madagascar, South Africa to New Zealand" (Kuo and Kommenda, 2018)) have officially pledged support for the BRI. Second, the AIIB is a China-led multilateral development bank, which was originally launched by Chinese President Xi in 2013. Among others, Beijing's frustration with the slow reform process of economic governance in the aftermath of the global financial crisis in 2008, its intention to popularize the Renminbi (China's currency) as a global reserve currency, and its hope to increase its voice in global financial institutions were the important motivations of the creation of the AIIB. With $100bn of initial capital, the AIIB, headquartered in Beijing, officially came into operation in January 2016. The stated main goal of the AIIB was to "improve social and economic outcomes in Asia" (AIIB, 2018a) by providing finance to the various infrastructure projects of the region's developing countries. Beijing claims that AIIB-funded projects will better connect people, markets and services to promote sustainable growth, development, and prosperity (AIIB, 2018b). Along with the New Development Bank (NDB),[7] which is formally called the BRICS (Brasil, Russia, India, China, South Africa) Development Bank headquartered in Shanghai, and Chinese lending institutions such as the Silk Road Fund and Chinese policy banks, the launch of the AIIB represents China's major financial initiatives that could rival US-led multilateral institutions. As of October 2018, the AIIB has 87 approved members (68 members and 19 prospective members) around the world and its total investment amounts up to $6.4bn. As Tokdar (2017, p. 375) notes, although the AIIB has no official link to the BRI, a primary motivation of its creation was to fund projects in BRI partner countries. As an emerging economic hegemon, which is dissatisfied with the global economic governance in which its voting share in the existing multilateral institutions like the IMF, the World Bank, the Asian Development Bank does not match its economic power as the world's second largest economy and the world's biggest trading nation, China's initiatives of the BRI, the AIIB and the NDB demonstrate its long-term goal of reshaping the global economic order. Third, "Made in China 2025" is Beijing's ten-year industrial development plan. First, announced and approved by China's State Council in 2015, it is "a blueprint for Beijing's plan to transform the country into a high-tech powerhouse that dominates advanced industries like robotics, advanced information technology, aviation, and new energy vehicles" (Laskai , 2018). By enhancing Chinese industries' competitiveness and innovation and reducing China's dependence on foreign technology through achieving 40 percent of domestically manufactured basic components and basic materials by 2020 and 70 percent of self-sufficiency in core components and basic materials in industries like aerospace equipment and telecommunication equipment by 2025 (Morrison, 2018, p. 47; Laskai, 2018), its goal is to make China a manufacturing superpower that dominates the world market in future high-tech industries. Indeed, while the term "Made in China" has typically meant cheap products such as clothing, shoes and consumer electronics with low quality, "Made in China 2025" intends to turn China into an independent and cutting-edge technology-driven economy. Beijing believes that by moving toward higher value-added high-tech industries, they could escape the so-called "middle-income trap that has plagued many developing countries" (Hopewell, 2018) with the problems of increased wages and low productivity. China's initiatives of the BRI, the AIIB and Made in China 2025 certainly threaten the global hegemony of the USA, which is now over seven decades. Layne (2018, p. 96) points out that "Since the onset of the Great Recession,[8] China has successively taken top position in the world in exports (passing Germany); in trade (passing the USA); and in manufacturing (claiming a title the USA had held for a century." Based on these facts, he argues that the **Great Recession and the rapid rise of China as a leading economic power have demonstrated the reality of American decline – i.e. the end of the unipolar era or Pax Americana**[9] (Layne, 2012, p. 204). **Although China repeatedly claims that it does not seek to replace US hegemony in the world, its behavior revealed by the initiatives of the BRI, the AIIB and Made in China 2015 illustrates that its ultimate goal is to be a global hegemon**[10]. This is not surprising because all the rising powers in history invariably sought to first dominate the region they are situated (Mearsheimer, 2011, 2014) and expand their power globally (Gilpin, 1981). **Given that "it is more difficult for the leaders of a declining hegemon to accept the reality or prospect of their country's diminished influence and status"** (Chen, 2008, p. 50), **the USA has every reason to prolong its hegemony in the post-1945 world, which has served its own interests** (Layne, 2018, p. 105). **These efforts to maintain US hegemony are well observed in the case of American actions against China's initiatives of the BRI, the AIIB and Made in China 2015.** First of all, **despite China's claim that the BRI aims to promote world peace and development, many analysts in Washington view it as a Chinese version of Marshall Plan that seeks to boost Chinese investment around the world for global dominance. They think that as "a top-level design for which the central government has mobilized the country's political, diplomatic, intellectual, economic and financial resources"** (Rolland, 2018), the BRI is Beijing's "attempt to remake global commerce on China's terms and project Chinese power far and wide" (Chellaney, 2018). **As the BRI expands in scope, it could give China too much leverage and control over other countries, especially those that are small and poor** (Kuo and Kommenda, 2018). Also, by making China a major hub of global investment, trade, and finance, the BRI contributes to build a Chinese version of hub-and-spoke network system. **Thus, Harry Harris, head of US Pacific Command Admiral, argued in early 2018 that the BRI is "a concerted, strategic endeavor by China to gain a foothold and displace the USA and our allies and partners in the region"** (Harris, 2018). Moreover, given "almost all the ports and other transport infrastructure being built can be dual-use for commercial and military purposes" the BRI is regarded not simply as China's plan to build roads and railways across Eurasia and Africa or the Indo-Pacific, but as Beijing's grand strategy for the next decades and its vehicle to write new rules that reflect Chinese interests (Kuo and Kommenda, 2018). Indeed, Beijing has made a link between the BRI and the concept of China's core national security interests. For example, Wei Fenghe, China's Defense Minister, told Pakistan's Navy chief in 2018 that "China was ready to provide security guarantees for the One Belt, One Road project" (Smith, 2018). Therefore, Eisenman contends that with no exact definition of its scope and contents, the BRI is China's attempt to "create a new Sinocentric era of globalization using both traditional tools of Chinese statecraft as well as new types of economic incentives and debt financing arrangements" (Eisenman, 2018). In other words, the BRI reflects China's increasing relative power in the world as well as growing Beijing's ambitions to shape global economic governance (Tekdal, 2017, p. 378). It "exemplifies how China is flaunting its global ambitions" (Chellaney, 2018). As the BRI is increasingly seen as a major source of China's political and economic influence of the world, US policy makers have expressed their concerns[11] and have begun to take some measures against it. For example, the USA, along with Japan and India, have discussed trilateral efforts to foster infrastructure development in the Indo-Pacific region since 2015. In particular, the Trump Administration has sought to create a development finance mechanism, which is designed to counter the negative effects of the BRI. It has also begun to explore ways to become more proactive in promoting regional connectivity and infrastructure initiatives in partnership with Japan. Moreover, reviving their Quadrilateral Strategic Dialogue in November 2017, the USA, together with Japan, Australia and India, discussed not only the need to foster a new vision for regional infrastructure but also the need to further support the Asian Development Bank and the World Bank in order to enhance lending for infrastructure projects in the region. Furthermore, the joint statement released after the meeting between the US President Trump and India's Prime Minister Modi at the White House in June 2017 made it clear that the two countries agreed to promote a vision for regional ties by strengthening "regional economic connectivity through the transparent development of infrastructure and the use of responsible debt financing practices, while ensuring respect for sovereignty and territorial integrity, the rule of law, and the environment" (The White House, 2017). This is, in fact, an announcement by the leaders of the two countries of the vision, which is completely at odds with the BRI. In addition, drawing careful attention to the "neo-colonialist characteristics"[12] of the BRI, the US–Japan Business Council and the US–India Business Council jointly launched in May 2018 a new private-sector initiative, called the Indo-Pacific Infrastructure Trilateral Forum, which aims to insulate sovereign states from external coercion, support good governance and liberty, promote market-based economics, and help support quality and sustainable infrastructure development in the Indo-Pacific region (Smith, 2018). **Likewise, the USA sought hard to prevent the creation of the AIIB.** Despite its stated goal of helping to finance the various infrastructure projects of the developing countries in Asia, the USA viewed the AIIB as China's efforts to weaken existing financial institutions such as the World Bank, the IMF and the Asian Development Bank, which are largely under the influence of the USA and its close ally, Japan (Kim, 2018, p. 618; Kim, 2016c, p. 69). Hence, the USA strongly lobbied against the creation of the AIIB. Washington even pressured its allies not to agree to the AIIB's creation. Although US opposition to the AIIB was reportedly due to US doubts that the AIIB would stick to the same level of transparency and governance structure as the IMF, the World Bank and the Asian Development Bank, the real reason was Washington's concerns about the shifting balance of power between the USA and China (Layne, 2018, p. 103). In any case, US efforts to prevent a China-led financial institution in Asia miserably failed. Indeed, despite USA's strong resistance and pressures, the AIIB was successfully launched and most US allies except Japan (e.g. Germany, Great Britain, France, Italy, Australia, Israel, South Korea, etc.) joined the AIIB as its founding members. In total, 57 countries all over the world participated in the AIIB as its founding members. After all, China's ability to attract widespread support for the creation of the AIIB was seen by Washington as a significant threat to America's global economic leadership (Layne, 2018, p. 102). By showing that Washington was not able to keep its allies beside in the face of Beijing's growing power, the establishment of the AIIB illustrated that US economic power in the world is declining whereas China's economic influence is increasing. To some observers, China's AIIB initiative and US failure to prevent its creation signaled that "the Sino-American balance of power now is tilting towards Beijing" (Layne, 2018, p. 103). **By the same token, Washington views China's initiative of "Made in China 2015" as a very serious challenge to US hegemony in the world. Since Made in China 2015 calls for achieving China's self-sufficiency through technology substitution and aims to transform China into a high-tech powerhouse that dominates advanced industries, the USA views it as a real threat to US technological leadership in the world** (Laskai, 2018). According to the US President Trump, the Made in China 2025 program unfairly disadvantages US companies because it involves Chinese government's subsidies and heavy investments in innovation and research as well as Beijing's policies to promote the forced technology transfer of US companies in exchange for obtaining access to the lucrative Chinese market (Hopewell, 2018). Therefore, he contends that "Made in China 2025" must be stopped (Landler, 2018). Although the Trump Administration's policy of imposing tariffs on foreign steel affects not only China but also US allies like South Korea, its main goal is to fight China's industrial policy in high-tech manufacturing sectors such as artificial intelligence, aerospace, robotics, and energy-saving vehicles. As China's persistent economic growth brings it into direct competition with the USA, Trump has explicitly stated that the proposed US tariffs are indeed designed to impede the program of Made in China 2025 (Hopewell, 2018). Seen from Beijing, this sort of US policy appears as if

Washington aimed to "prevent China (from) moving into the industries of the future so as to ensure continued American dominance of the most profitable sectors of the global economy, and the most strategically-significant technologies" (Rachman, 2018). Given that China is the most serious competitor to the USA in the twenty-first century, the contest over future industries and technologies underscores the fact that the Sino–US trade rivalry has important strategic implications (Rachman, 2018). **Since the end of the Second World War, the USA has undoubtedly been a global hegemon. With its preponderant military and economic strength, it has created a liberal international economic order and maintained it by promoting global free trade.** USA sudden turn to protectionism under the banner of "America First" in the Trump administration illustrates **"US fear" that its hegemony or Pax Americana is declining vis-à-vis China's growing power. It also demonstrates that the USA now seeks to deter China from overtaking its hegemony so as to keep US hegemony as long as possible.** Currently, the USA and China are waging a trade war. What is important to note here is that the driving force of the trade war between the world's two largest economies is more political than economic. That is to say**, as China's economic and political influence in the world vis-à-vis that of the USA increases, US fear about China's power also grows. Under these circumstances, Washington makes every effort to assert its global dominance by deterring China's challenge to its hegemony[13]. It is this sort of "US fear" about hegemonic power transition from Washington to Beijing that brought about US policies against the BRI, the AIIB, and Made in China 2015. The fear of hegemonic power transition is indeed a driving force for the US-launched trade war.** Understood this way**, the trade war between the USA and China may be a harbinger of a much larger-scale conflict between the two parties, since as PTT predicts, war is more likely to occur when the power gap between a declining hegemon and a rising challenger is getting closed. As China's economic, technological, military and political rise continues down the road, the USA will try to contain it in order to maintain its global hegemony. The obvious consequence of this seesaw game is the intensification of the Sino–US competition over global hegemony. The USA and China, the two most powerful states in the world, appear as if they were on a collision course. What this means is that so long as US fear about China's overtaking US hegemony persists, a similar type of conflict between the two hegemonic powers is likely to occur in the future even if the current trade war is over.**

This goes nuclear

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China is a different country today than it was in the time of Mao Zedong, and its arsenal is now better developed, which should induce caution in efforts to discern lessons from the earlier era. Nevertheless, this episode highlights several points with enduring relevance regarding the nuclear implications of conventional wars. China initiated a war in which it believed nuclear weapons would be irrelevant, despite the vast nuclear asymmetry between itself and its opponent. China then radically updated its assessment of the possibility of nuclear [End Page 89] attack to a degree bordering on paranoia once the conventional war did not go as expected. Everything the Soviets did—even sending representatives to negotiate, or not launching a nuclear strike on a day that the Chinese expected it—only fed the narrative among Chinese leaders that a nuclear attack was imminent, even though archival evidence now suggests that the Soviets never intended to follow through on their threat.132 Most worryingly, China prepared to use its nuclear weapons, even though it had to expect devastating retaliation and that merely the preparations to launch raised serious risks of accidental or unauthorized use. Fortunately, China's fears in this case eventually led it to de-escalate the crisis. It is an open question whether a similarly uneventful denouement would occur today in the event of a much larger-scale conventional war involving actual destruction of components of the country's nuclear arsenal and stakes radically more significant than uninhabited islands in the Ussuri River. //// Conclusion **Chinese nuclear escalation in the event of a conventional war with the United States is a significant risk,** although for reasons not fully surfaced in the existing debate. A U.S. conventional campaign would indeed pose a large, though not total, threat to China's nuclear arsenal. More important than the purely military-technical implications of the U.S. campaign, however, is what China is likely to believe the campaign signals about U.S. intentions in a world where conventional deterrence has just failed. **Reasonable Chinese fears that the United States might be attempting conventional counterforce, or considering or preparing for nuclear counterforce, could lead China to engage in**

limited nuclear escalation to gain military advantage or coercive leverage—**despite China's no-first-use policy.**

Causes extinction

Arbatov 20(Alexey Arbatov, head of the Center for International Security at the Primakov National Research Institute of World Economy and International Relations, 12-4-2020, "Nuclear Deterrence: A Guarantee for or Threat to Strategic Stability?," SpringerLink, https://link.springer.com/chapter/10.1007/978-94-6265-419-8_5, DOA: 7/12/21)ET

Nevertheless, these concepts, their dynamics, and their dialectical interrelationship create new problems time and again. They give rise to paradoxes that, were it not a life-and-death matter for modern civilization, could be considered intellectually fascinating. But, unfortunately, these concepts concern actual matters of life and death. **In the current military and political environment, it is no longer inconceivable that war between the United States and Russia could break out in just a few days in the event of a crisis. Such a conflict might culminate with an exchange of nuclear strikes taking as long as just a few hours. During those hours, hundreds of millions of people in the northern ehemisphere would be killed, and everything created by human civilization in the last thousand years would be destroyed. The direct effects would be irreversible, and the secondary effects would likely kill the rest of the world's population within a number of years, or at least send the remaining population back into a prehistoric existence. The prevention of nuclear war is an indispensable condition for the survival of human civilization, and it is inextricably linked to the concepts of nuclear deterrence, strategic stability, nuclear disarmament, and non-proliferation.** It might seem that all of the above goes without saying, and that all of this has long been accepted both in theory and practice by politicians, military leaders, civilian experts, and the enlightened public of the world's advanced nations. Over the past three decades, the nuclear arsenals of Russia and the United States have been reduced substantially—both in terms of the number of warheads and in terms total of destructive power. Yet despite all of this, **the danger of nuclear war is today much greater than it was in the late 1980s.**