1NC: R1 NDCA OS

2NC

NU: Emissions down

Gaffney et al 25 (Michael Gaffney: research analyst with Rhodium Group's Energy and Climate practice, attended UC San Diego School of Global Policy and Strategy where he earned a Master of Public Policy specializing in energy and environmental policy. He holds a bachelor's degree in political economy from UC Berkely. Ben King: associate director with Rhodium Group's Energy and Climate practice, focusing on the effects of policy and economic changes to the US energy system. He previously worked for the US Department of Energy in the Office of Energy Efficiency and Renewable Energy. John Larsen: partner at Rhodium group where he leads the firm's US energy system and climate policy research, a non-resident Senior Associate at the Energy and National Security program at CSIS. He has lectured at Johns Hopkins and Amherst College. He holds a master's degree in Environmental Policy and Planning from Tufts University. January 9, 2025, "Preliminary US Greenhouse Gas Emissions Estimates for 2024", Rhodium Group, https://rhg.com/research/preliminary-us-greenhouse-gas-estimates-for-2024/ . DOA March 17, 2025) CLS

Since peaking in 2004, emissions have trended downward in a bumpy fashion. But after a significant decline in 2023, we estimate that 2024 emissions were down by just 0.2% year-on-year while the economy grew by 2.7%, continuing a decoupling of emissions and economic activity. Emissions are still below pre-pandemic levels and remain about 20% below 2005 levels, the benchmark for US commitments under the Paris Agreement. Lower manufacturing output drove the overall decrease in 2024 emissions, with industrial sector emissions falling by 1.8%. In the oil and gas sector, continued reductions in methane emissions intensity led to a 3.7% drop in emissions. Increased air and road travel partially offset these reductions, which drove up transportation sector emissions by 0.8%. Demand for electricity—led by the residential sector—also rose by 3% and was met by higher natural gas, wind, and solar generation, while coal generation saw just a slight decline. For the first time, combined solar and wind generation surpassed coal, although overall power sector emissions increased by a slight 0.2%. In the buildings sector, emissions crept up 0.4% due to slightly elevated fuel use. The modest 2024 decline underscores the urgency of accelerating decarbonization in all sectors. To meet its Paris Agreement target of a 50-52%

reduction in emissions by 2030, the US must sustain an ambitious 7.6% annual drop in emissions from 2025 to 2030, a level the US has not seen outside of a recession in recent memory. Economic growth and slightly lower emissions in 2024 Economic growth is one of the major determinants of GHG emissions, and in 2024, the US gross domestic product (GDP) expanded at a projected annual rate of 2.7%. This growth was driven by strong consumer spending as well as public and private investment, despite persistent inflation, high interest rates, and elevated labor and materials costs. Clean technology played a significant role. Record-high investment in the manufacturing and deployment of clean technologies accounted for 5% of total private investment in structures, equipment, and durable consumer goods in Q3, according to the latest data from the Clean Investment Monitor, a joint effort between Rhodium Group and MIT's Center for Energy and Environmental Policy Research (CEEPR). While the economy grew, we estimate that US GHG emissions fell slightly in 2024. The US will get its final GHG report card for 2024 when the EPA finalizes its annual GHG inventory in spring 2026. However, using preliminary economic and energy activity data, we project that economy-wide emissions declined by just 0.2% in 2024 (Figure 1). This puts US emissions at about 20% below 2005 levels, and down by 8% from pre-pandemic levels.

OV:

Tariffs Mean Nuclear Energy is Screwed, the aff literally can't solve

Pomper 25 [Miles A. Pomper, Yanliang Pan, 3-10-2025**,** Miles Pomper is a **Senior Fellow** in the Washington DC office of CNS. His work focuses on nuclear energy, nuclear nonproliferation, nuclear security, and nuclear arms control. He holds a master's degree in international affairs from Columbia University and a master's degree in journalism from Northwestern University. Before joining CNS he served as Editor-in-Chief of *Arms Control Today* from 2003-2009. Previously, he was the lead foreign policy reporter for *CQ Weekly* and *Legi-Slate News Service*, where he covered the full range of national security issues before Congress, and a Foreign Service Officer with the US Information Agency. "Trump's Tariffs on Canada Could Kill the U.S. Nuclear Energy Revival", World Politics Review, https://www.worldpoliticsreview.com/us-nuclear-energy-tariffs/]//dshah

Hopes for a U.S. nuclear energy revival may be **jeopardized by the tariffs that President Donald Trump continues to threaten to impose** on Canada, as well as his plans to similarly target the European Union moving forward.

That's because the **nuclear industry depends on a global supply chain** that can take uranium concentrate from Kazakhstani mines, for instance, convert it to uranium hexafluoride in Canada and enrich the product in France, before finally delivering it to a U.S. fuel fabricator. **Trump's tariffs will make that exceedingly complicated, costly and precarious, to the great detriment of the U.S. nuclear sector.**

Flexible global market mechanisms have allowed the U.S.—a country with negligible uranium mining activities and limited downstream conversion and enrichment capacity—to secure enough fuel to operate the largest fleet of nuclear reactors worldwide, producing some 20 percent of the country's electricity. All that will change if the Trump administration follows through on its threatened 10 percent tariff on uranium imports from Canada, among other products—which were imposed on March 4 but subsequently removed—amid threats of broadening the trade war to the EU. Trump left in place an additional 10 percent tariff he announced on March 4 on Chinese uranium imports, which were already under a 17.5 percent tariff as of Feb. 4.

As of 2023, more than **95 percent of** the **uranium purchased by U.S. utilities was of foreign origin.** Canada accounted for the largest share at just over 25 percent. Further downstream along the supply chain, only around one-third of the uranium conversion and enrichment capacity needed to keep U.S. reactors running are domestically located, with the rest sourced from the EU, Canada, Russia and China. For the U.S. nuclear industry, the tariffs would be all harm and no benefit, not least because

U.S. nuclear fuel buyers will have to swallow much of the costs. Ever since the first Trump administration contemplated tariffs on uranium products in 2019, the Canadian uranium supplier Cameco has included provisions in its fuel contracts to ensure that any future U.S. tariffs would be passed on to the buyer. Nor will the impact on prices be confined to Canada and the EU, for **once tariffs kick in, all suppliers will have an incentive to raise their asking price**. And the **U.S. utilities will have** to pay given their inelastic demand and—in some cases—**limited inventories.**
To make matters worse, the same **uranium material may have to leave the U.S. for conversion,** enrichment and fuel fabrication before re-entering the country, thereby **triggering the tariff a second and even third time**, quickly compounding domestic fuel costs. Fuel prices have already spiked in recent years due to geopolitical turbulence as well as expectations that rising demand for low-carbon fuel sources and electricity—needed to power data centers and electric cars—will spark a nuclear renaissance. Recurring tariffs may further **erode utilities' thin operating margins,** further burdening an industry that is just beginning to recover from its post-Fukushima decline as well as competition with cheap natural gas from fracking.

Will U.S. domestic fuel producers benefit from these tariffs? The answer, for the most part, is no. Mining, conversion and enrichment are capital-intensive industries, and companies wait for long-term price signals when deciding whether to undertake the cumbersome and time-consuming process of restarting or expanding operations. For those companies previously on the verge of such a decision, skyrocketing uranium prices in recent years have already provided the necessary demand signal, and a tariff would make little difference. In conversion and enrichment, meanwhile, **domestic producers** would **lose** foreign **customers** reluctant to pay a tariff on any uranium feed material they ship to U.S. facilities for further processing. And if **reactors** do **shut down** due to higher fuel and operating costs, demand on uranium products and services will fall, thus threatening recent commitments to capacity expansion by U.S.-based fuel producers, which have given the domestic supply chain its first hopes of recovery in more than a decade.

In no small part due to the protests of U.S. utilities and foreign nuclear fuel suppliers alike, the first Trump administration in 2019 decided not to impose trade restrictions on uranium imports following a lengthy investigation into whether they threatened national security. Even the domestic uranium producers that petitioned for trade protection in the first place eventually applauded the "no action" decision as it ended 19 months of market uncertainty.

From a market perspective, the only thing worse than tariffs is arguably the uncertainty over future **tariffs.** Unfortunately, Trump's flip-flopping on the import duties threatened for Canada, combined with those expected for the EU, will likely represent only the **begin**ning of **an uncertain period**. There are still questions, for instance, over how long tariffs on various products that may be imposed will remain in place, given the administration's signals of sector-specific exemptions. Logistically, great uncertainty also remains over how tariffs would apply to book transfers and swaps that are common in the nuclear industry, as well as over how U.S.-origin material stored at foreign warehouses would count versus foreign-origin material at U.S. facilities.

The expectation of tariffs leading into the March 4 announcement had already led to a price premium on uranium held within the United States. Any further tariffs would now risk bifurcating the market between U.S.- and foreign-origin uranium products, with the potential to disrupt supply chains. Uranium traders have not tracked the physical origins of traded material for decades. For an industry accustomed to a globally interconnected open market, a return to the practice of tracking uranium origins all the way through the supply chain could impose unforeseen logistical burdens and supply disruptions, if it can even be done.

Still, the greatest open question is over the retaliatory export restrictions that major nuclear fuel suppliers might impose on the U.S. in response. **The Canadian government has been contemplating retaliatory controls** and taxes on major export commodities bound for the U.S., **including uranium.** If **Canada wants to retaliate in the civil nuclear sector**, it can. **Beyond uranium, the leading U.S.-based vendor of reactor technology, Westinghouse Electric Company, is now Canadian-owned. And U.S.-based companies marketing small modular reactors, from NuScale to GE-Hitachi, have received their first crucial orders from European and Canadian customers. Without these demonstration projects, their reactor designs will remain confined to paper. To complicate matters further, U.S. companies, lacking heavy nuclear manufacturing capacity of their own, must rely on foreign suppliers of large reactor components** for future construction. North America's largest manufacturing facility for commercial reactor equipment, for instance, is the BWXT factory in Ontario, where the pressure vessel for GE-Hitachi's BWRX-300 reactor is

supposed to be fabricated—that is, if the BWRX project is not canceled due to Trump's tariffs and the ensuing retaliatory turmoil.

In 2020, during the first Trump administration, the Department of Energy published a strategy paper titled, "Restoring America's Competitive Nuclear Energy Advantage," highlighting the importance of the industry for national security. Energy assurance is arguably an even bigger priority for Trump during his second term, and judging from his Jan. 20 executive order urging the return of uranium to the critical minerals list, the current White House clearly recognizes the importance of uranium as a strategic resource.

Yet imposing **tariffs** on major uranium-supplying allies is a poor way of guaranteeing the United States' uranium access, as it **risks undermining** the open market and the United States' position within it. Nor is alienating critical reactor development and deployment partners like Canada a winning strategy for restoring the U.S. civil nuclear industry, which already lacks both committed demand and supply capacity, and has for decades struggled to compete with vertically integrated Russian and Chinese state-owned enterprises. Unless the administration begins paying attention to the dangerous effects of its trade policy on the **nuclear industry, the U.S. will keep losing** in that competition.

On Russia

On the uq

NU/T - Rosatom is declining, but Western development allows them to compete.

Bellona 24 [Bellona; News Organization; March 13; "Rosatom's output **dropped** over the last year. We look at three reasons why," https://bellona.org/news/nuclear-issues/2024-03-rosatoms-output-dropped-over-the-last-year-we-look-at-three-reasons-why; DOA: 3-27-2025] tristan

A decrease in output from Russian nuclear power plants is an expected and natural stage in the development of the country's nuclear energy industry, which is experiencing a period of **aging** of a certain part of its nuclear fleet. In recent decades, Rosatom has taken a leading position in the construction of nuclear power plants abroad, but has delayed the construction phase of replacement capacities within the country. Over the next 5 years, there will be a gradual **reorientation** of Rosatom's activities from foreign nuclear power plant construction projects to domestic ones. At the same time, the quality of Russian turbine equipment still leads to periodic technical problems and is mainly used on domestic Russian projects. It is unlikely that the situation will change quickly in the coming years, therefore, in many cases of competitive selection of projects, the success of Rosatom's new export proposals for the construction of nuclear power plants will **depend** on effective cooperation with foreign, primarily Western, partners. And in the future, perhaps even Chinese.

NU: Russia's wartime economy ensures collapse, even if ceasefire – Russian experts agree means we don't win rn

Tetiana **Fedosiuk**, **3-19**-2025, "How to Break Russia's Economic Back", ICDS, https://icds.ee/en/how-to-break-russias-economic-back/ [Tetiana Fedosiuk is an editor, translator, and analyst. She speaks Ukrainian, Russian, English, Italian, and Polish. Tetiana specialises on Russia's propaganda and disinformation in the US, Eastern European and post-Soviet nations, as well as on NATO related topics and defence policies in respective countries.] DOA: 3/23/2025

Emil Wannheden, economic analyst at the Swedish Defence Research Agency (Totalförsvarets forskningsinstitut, FOI): We need to realise that this war is an enormous economic effort for Russia. At the beginning, in 2022, they did not initially spend that much on the war because they hoped it would be short, quick, and easy. But as the war dragged on, they increased military spending. The latest estimate suggests that they will spend almost 9% of GDP on the military budget in 2025—this is a very heavy burden on the Russian economy. Emil Wannheden As to what has changed, there have been many effects, for example, on the labour force. People are being sent to the front and many have emigrated, which contributes to labour shortages in Russia. This, in turn, makes everything more expensive because one needs to pay more money to recruit workers. Thus, wages have gone up, especially in certain sectors connected to the war effort, but so has inflation. Whereas some have been receiving higher wages, others have not. Prices have also been rising, so people who rely on financial support from the government, like pensioners, have been struggling more. The war has changed the structure of the Russian economy, with the military sector becoming the most important, privileged sector because this is where most of the state investment goes to the military. TF: Can one separate Russia's economy from the Russian war effort in 2025? EW: No, one cannot. They are interconnected. The Russian economy has been so militarised that it is becoming more and more difficult to separate the military part from the civilian part. The construction industry, for example, is helping with fortifications and building infrastructure in the occupied regions of Ukraine. Since the civilian part of the economy needs to support the military, the whole economic development of Russia has been very degraded. Russians are paying a very high price for this war, too. TF: For how much longer can the Kremlin afford to sustain its military campaign at a current pace without inflicting irreversible damage to the Russian economy? EW: It is less about economics and more about politics. A state can always choose where to put the money. Yet, in a democracy, it is difficult to invest more resources into the military because people may not accept it and vote the government out of office, whilst in Russia, the situation is different. However, financing the budget is becoming more and more difficult each year for them. Russia has been running out of its financial reserves, which means that it has to borrow more money to sustain military expenditures. That may also become difficult, so they may have to print money, essentially, to continue financing the war effort—one can find ways. **Yet, the longer one does it, the more negative consequences it will have on the rest of the economy.** Russia's economic future is grim, given the decisions Russians have taken, and even more so with every passing month. From that point of view, it's not sustainable. But from the other point of view, **they might continue to prioritise military spending because they think it's too important—and they can do that if they think it is worth it to pay this price**. There's already been **irreversible damage** in many ways. Every ruble that they spend on the military today is a ruble they can't spend on infrastructure, education, healthcare, and so on. **Even Russian demographers admit that demographic effects have been catastrophic: fewer children are being born, the school system is suffering, and health is declining**. All of it is happening at a time when Russia not only needs to maintain the old degrading infrastructure but also to build new one in order to increase trade with China. The longer Russia continues down this path, the more negative irreversible changes there will be. TF: In the event of a ceasefire, what would happen to the Russian economy if Moscow deprioritises military spending and the defence industry? EW: If they deprioritised military spending, it would help to start an economic recovery, of course, which people in Russia admit is necessary. I think it is unlikely that it will happen because even if there is a ceasefire, Russia will probably need to **maintain its military in occupied parts of Ukraine**. Russians also want to reconstitute the armed forces and even have plans to expand them. I think our assumption should be that they will continue with higher military spending. There is another aspect to it: the **defence industry is** now so strong and **so important for the economy** that it is difficult to lower military expenditures and convert to civilian production. **So, there is a lock-in-effect.** It will continue to be militarised even if there is a ceasefire. We shouldn't assume that just because there is a ceasefire or a pause in Ukraine, Russia will demilitarise. TF: How dependent has Russia become on China? Has the Russian economy pivoted to the east? EW: Russia is now entirely dependent on trading with China, whereas before it traded with the west. This dependence is two-fold. First, China buys Russian oil. Russia needs this source of revenue in order to finance the state budget. Second, Russia is reliant on Chinese imports: it imports more consumer goods that it does not produce, such as cars, while mostly exporting natural resources. This economic pivot to the East has happened to a certain degree. Yet bottlenecks persist, for example, in trade: most imported goods are transported from China via railways, while the rail infrastructure capacity in the area is not as big as Russia

needs it to be. Then, there have been problems with payments and the financial system due to sanctions that the US has put in place. It is quite a precarious situation.

On the L

1. Climate brink is 2030, that's 1NC Nourge. It takes like 30 years to build a nuclear plant
2. Assume Rosatom moves at the same pace as it is rn. US is so far behind it physically no way they can catch up
    a. Why would I buy someone with worse fuel than Russia, Russia continues to go forward
3. It takes time to build nuclear plants, the countries already with Rosatom are chilling rn why would they switch

On the IL

1. It's about Russia winning the war, literally no uq read as to why they are

On Leadership

On the uq

1. Literally no uq why China is ahead rn
2. Renewables are increasing
    a. Prefer this we can co-op with other countries over it, if we can barely do it other countries DEFINITELY CAN'T

On the L

1. **1AC Moore kills case, we literally have no reason to compete if China isn't**
2. **No warrant why climate is the key to the battlefield, why does winning with China**
3. **Solar is key to the tech race prefer our ev does the comparison**

John **Atkinson**, 1-23-20**25**, "Solar Microgrids – or "Hypergrids" – Are America's Best Bet to Win the AI Race," John has over 15 years of marketing and policy communications experience in the clean energy industry, with expertise in technologies including solar, energy efficiency, batteries, electric vehicles, and hydrogen. As a marketing writer, he has crafted impactful long-form, short-form, and social media content for industry-leading companies such as Google X, Amazon Web Services, Mosaic, Chargepoint, Nextracker, LONGi, Black & Veatch, and JLL, along with ongoing work for

the sponsored content division of Canary Media (and formerly GTM). As a policy consultant, he has guided successful federal regulatory and legislative initiatives, secured millions of dollars in state grants, and produced numerous reports on clean energy policy and technology issues for Foreign Policy Analytics., https://www.scalemicrogrids.com/blog/solar-microgrids---or-hypergrids---are-americas-best-bet-to-win-the-ai-race , accessed 3-30-2025, /Lexmas

Skyrocketing energy demand for AI data centers is an inescapable topic. Continued leadership in **AI is** critical to America's economic growth and its national security, but its voracious appetite for energy is **straining** the **capacity of** our aging electricity **grids** – and potentially increasing electricity costs and emissions in the process, especially if this new demand is met primarily by reactivating nuclear plants or going all-in on natural gas.

Scale's Duncan Campbell recently worked with collaborators from Stripe and Paces to investigate the potential of off-grid microgrids powered by solar, battery storage, and natural gas for backup **to meet** AI's energy **needs**, and what they found has been making headlines: 90% **solar-powered microgrids** in the U.S. southwest **offer a faster and** more **scalable solution than** existing **nuclear** or natural gas-only **options, with** comparable costs and **lower risk**.

In short, **the surest path for America to win the AI race will harness our world-class solar resources and technology leadership.**

Importantly, thanks to the combination of Scale's modeling expertise and Paces' siting expertise, we know that this opportunity isn't just hypothetical – an incredible 1,200 gigawatts of these primarily solar-powered AI datacenters could be built in the U.S. southwest, enough to meet all projected US datacenter growth through 2030 several times over.

Read on for a summary of their key findings, dig into the team's white paper for an in-depth look into this important research, and reach out to us if you're interested in discussing how to make off-grid solar microgrids for AI data centers a reality.

Why Speed, Scale, and Certainty are Key – And Why Solar Wins

For individual companies and entire countries, the AI race has existential stakes: those who first develop the best models, powered by the biggest "**hyperscale" data centers, could lock in long-term dominance over one of the most strategically important and profitable industries in history.** The urgency of securing this first-mover advantage has led companies to leave aside their usual concerns about power costs or sustainability and instead prioritize the speed of accessing data center power supplies, in tandem with the scale of power that can be accessed – and, relatedly, the certainty that the power will be built at the expected speed and scale.

After 20 years of essentially flat demand, the U.S. utility grid isn't ready to accommodate the speed or scale of this load growth in the timeframe required, leading hyperscalers to either adopt desperate-sounding gambits like Microsoft restarting Three Mile Island (more on that below) or give up on utility power entirely and take matters into their own hands with off-grid solutions, most often with natural gas turbines. But, while gas turbines offer a familiar, tired-and-true approach, it's not the fastest or the most scalable approach in 2025, and it faces supply chain, cost, and permitting risks that create significant uncertainty over its viability.

Here's what we found when we modeled different pathways for the development of a 500 MW data center:

Solar+Storage is Faster to Build: Due primarily to faster procurement times, off-grid **solar**-plus-storage **microgrids** (with gas engines for backup) **can be built sooner than a**n equivalent amount of off-grid gas turbine capacity. Typical deployment times are 2-4 years for solar microgrids, compared to 3-5 years for gas turbines – and innovative construction practices and design choices could accelerate solar's timeline further. For example, AI training data centers with lower uptime requirements could begin operations on solar and storage alone, ahead of the installation of backup gas engines.

Huge Solar Resource and Ample Supply Chain: Paces found vast areas of the U.S. southwest that would be feasible sites for a 500 MW data center cluster, with criteria including proximity to airports and highways to facilitate construction and access to gas pipelines for backup power generators. With over 1,200 GW of suitable sites, this region could easily host enough solar-powered data centers to meet projected U.S. AI demand of 30-300 GW by 2030. Solar and storage supply chains are also already scaling up rapidly, and both have spare capacity well in excess of current demand.

Turbines Face Supply Chain and Permitting Risks: Only a handful of companies around the world (GE, Siemens, Mitsubishi) manufacture utility-scale gas turbines, and booming demand is already beginning to strain their limited manufacturing capacity. Turbine lead times of 3+ years today are thus likely to increase. Moreover, gas-only projects may face air quality permitting issues in some areas, potentially further slowing down timelines and/or limiting their scale of deployment.

Limited Opportunities for Nuclear Restarts: As noted above, Microsoft made headlines with their plans to restart the Three Mile Island nuclear facility, closed in 2019, to power data center operations. This represents a much faster option than **the decade-plus timeline for developing new nuclear power plants in the U.S.**, but it will still take four years (until 2028) to begin operations, **and**

there are relatively **few** similar opportunities for recently-decommissioned **plants that can be quickly and cost-effectively restarted.**

We expect that the massive demand pull of AI data centers will help drive the **commercialization of emerging energy technologies such as** enhanced geothermal, **small modular nuclear reactors, and even nuclear fusion**, and recent news announcements underscore this potential. However, timelines for deploying these pre-commercial technologies **tend to start at 2028 at the most optimistic, and delays** for first-of-a-kind (FOAK) facilities **are** highly **likely, making them too speculative as a first choice for AI companies seeking to secure competitive advantages today.**

Comparing Cost (and Sustainability) of Different Options

Given the absolute importance of securing hyperscale energy supplies ASAP, the cost of power is relatively much less important for AI data centers than for traditional commercial and industrial customers. That said, costs are never irrelevant, and most solutions being given serious consideration have been in the neighborhood of $100 per MWh. For reference, the average price for grid-connected industrial users in the U.S. is a bit over $80 per MWh, and rates are going up in most places due to the growing costs of maintaining our aging utility grids.

To estimate costs, the Scale team worked with viable sites identified by Paces and ran 20-year powerflow models for thousands of microgrid configurations supporting data center load 24/7, and ran these through Lazard's industry-standard Levelized Cost of Energy (LCOE) model.

What we found was surprising, even to us – even including the cost of full backup, solar is quite competitive with natural gas-only solutions at about 50% solar, and remains within an acceptable range (and significantly lower than Three Mile Island-type restarts) at 90% solar.

Natural gas is still cheapest, but with downside risk: We estimate a cost for off-grid natural gas turbine-based solutions as $86 per MWh, which is higher than average industrial rates but is likely the cheapest off-grid option today. However, it's important to note that natural gas generation prices are largely determined by fuel costs, which can go through periods of volatility – most recently following Russia's invasion of Ukraine in 2022. As the U.S. ramps up exports of LNG and becomes increasingly integrated in the higher-priced international market for gas, it is projected to lead to further upward pressure on domestic prices as well.

Solar is cost-competitive, with room to improve: Our model found that **microgrids integrating solar**, battery storage, and natural gas backup **have very competitive costs** with significant upside. For standard designs, this ranges from $93 per MWh for a 44% solar configuration to $109 per MWh to meet 90% of energy needs with solar. These already-competitive costs can be improved further by adopting cost optimizations such as fixed-tilt systems and DC-coupled storage, **which could drop costs to $87 per MWh** for 44% solar – essentially the same price as gas-only – to $97 for 90% solar.

Nuclear remains expensive, even in a restart scenario: Nuclear power has seen its share of the electricity mix fall over the past decade due to its inability to compete with gas and renewables on cost, and the onrush of AI energy demand doesn't change that fact. Even in a case like Three Mile Island with a recently-decommissioned plant, the costs of restarting the plant plus delivering power over the utility grid results in an estimated LCOE of $130 per MWh. And, according to Lazard, the cost of building a new nuclear plant in the U.S. has an estimated LCOE of $190 per MWh.

AI superiority shifts global dominance. Schroeder 25

Schroeder 25, AFCEA International, "The AI Race With China and the Uncertain Future of Truth", 4-1-2025,

https://www.afcea.org/signal-media/cyber-edge/ai-race-china-and-uncertain-future-truth/

Lexmas

Through open-source AI initiatives, China also drives innovation and talent acquisition while positioning itself to dominate global AI development by disrupting the current commercial market dynamics. China seeks to establish itself as an AI leader and shape future AI development by making its AI models and technologies broadly accessible. This strategy is intended to destabilize the existing commercial AI sector.

DeepSeek has shown that advanced performance can be attained with limited resources, regardless of the specific technologies and

circumstances with training R1. This development has significant implications for the AI landscape. It levels the playing field, potentially allowing smaller companies and countries to more effectively enter the AI space and compete.

Geopolitical Implications: New Areas of Competition

The AI competition between the United States and China has major geopolitical ramifications. AI is more than just a technology—it is a powerful instrument to boost economic productivity and military and intelligence capabilities and to shape global norms and standards. China's strategy to attain AI superiority intends to diminish U.S. influence. AI advancements could give China critical advantages across diverse domains, from manufacturing to finance, and defense sectors. If the global balance of power in the AI space shifts toward China, it could lead to rising tensions, instability and potential conflict.

As the world is fractured into separate regulatory and technological domains, there is a risk of escalating tension between the United States and China. This environment raises questions about the interoperability of AI systems, and the risk of a new "digital divide" emerging between nations with varying AI technologies and standards—with some choosing U.S. technologies and others choosing China's AI "Belt and Road."

The widespread adoption of generative AI creates geopolitical challenges for both the United States and its allies. The race to lead in AI increases competition between countries, as governments seek to use AI for economic gain and technological leadership and to influence international standards and norms. Deepfake videos, highly targeted disinformation campaigns and cyber attacks generated by AI systems at scale all present dynamic geopolitical risks that threaten national and global security and trust in democratic institutions.

On the IL

1. Their dominance in East Asia, not South Asia