**Aff Case Lay**

### 

### Argument 1: Innovation

#### The U.S. energy sector is at a crossroads – as demand rises, Turner ‘25 reports that

**Turner 25** -- Daniel Turner, 3-20-2025, "The Golden Age of Nuclear Energy Is Here," RealClearEnergy, DOA: 3-29-2025, <https://www.realclearenergy.org/articles/2025/03/20/the_golden_age_of_nuclear_energy_is_here_1098838.html> //smb🥰

The Biden Administration spent hundreds of billions of dollars to push renewables, and the result was a 30% increase in national utility prices. And yet, despite producing, (intermittent and expensive) electricity, no amount of wind and solar can make rubber or plastic or the millions of products we use, nor can they forge steel or produce cement. Yes, we need more electricity, but the Biden team was determined to be anti-fossil fuels in their push for more electricity, why was nuclear technology left out of the conversation? There is no imminent replacement for fossil fuels in the production of petrochemical products, but for electricity needs, **America stands on the brink of a nuclear energy revolution**. Advanced nuclear technology and small modular reactors (SMRs) are proving to be game changers. Similar to the war on coal and the ongoing attacks on oil and gas, nuclear has the same set of radical activists looking to thwart America’s advancement. President Obama’s former Nuclear Regulatory Commission (NRC) Chairman Gregory Jaczko, famously anti-nuclear, at a recent CERAweek conference, was presented as an objective expert on these future technologies, like having a beef panel moderated by vegans. As NRC Chairman, Jaczko made it his mission to shut down nuclear innovation at every turn. He voted against opening any new nuclear power plants and famously went so far as to call for a global ban on nuclear power. It is frustrating enough Jaczko had the power to curtail nuclear power in America. Giving him a platform to continue to promote his extreme views is baffling. Fortunately, America has an opportunity to turn the page on this anti-energy agenda and fully embrace a new era of nuclear power. In President Donald J. Trump’s first term, he laid the groundwork for innovation-friendly policies that encourage the development of next-generation nuclear technologies. Now, we have the chance to break free from the bureaucratic roadblocks of the past and usher in a golden age of nuclear energy. Oklo, a company out of California, has signed agreements to deploy SMRs to operate data centers so America continues to lead the world on AI and not cede ground to China. We need greater electricity production for manufacturing and industrialization, for expanded housing in cities and suburbs, for commercial, farm, and residential use. The only thing standing in the way? Outdated regulations, bureaucratic inertia, and the ideological opposition of people like Jaczko. We’ve seen this playbook before. The same activists who falsely claim to support “green energy” are actually lobbyists promoting unreliable wind and solar as the only acceptable energy options—ignoring their massive land use, supply chain problems, and dependency on rare earth minerals from adversarial nations like China. Nuclear power, on the other hand, provides a stable energy source with a far smaller environmental footprint, and we have all the raw materials here in America. President Trump has a chance to champion this cause once again, cutting through the red tape that has long plagued nuclear development. **By** prioritizing streamlined regulatory approvals, **supporting research into next-generation reactors**, and pushing back against fear mongering anti-nuclear activists, his **administration can unleash the full potential of American energy innovation.** Nuclear needs American raw materials and an American workforce. Nuclear expansion, along with President Trump’s call to reopen natural gas and clean coal plants, will bring electricity costs back down to inexpensive levels after four years of disastrous Biden energy policies. The future of nuclear power is bright, but only if we allow progress to happen. It’s time to reject the failed policies of the past and embrace the energy solutions that will power our future. The golden age of nuclear energy is here—if we’re willing to seize it.

#### Competition with China and Russia in high energy sectors like national security and AI has highlighted America’s inability to keep up.

**Rickards 25** [Ex-Cia Jim Rickards, 3-18-2025, "CIA Insider: The U.S. Is Losing the Global Energy War—And AI Could Be the First Casualty," GlobeNewswire News Room, <https://www.globenewswire.com/news-release/2025/03/18/3045028/0/en/CIA-Insider-The-U-S-Is-Losing-the-Global-Energy-War-And-AI-Could-Be-the-First-Casualty.html>] doa 3-21-2025 //🇫🇷s

New York, NY, March 18, 2025 (GLOBE NEWSWIRE) **-- Jim Rickards, a former CIA advisor, warns that the United States is falling behind in what he calls “the new arms race of energy dominance.**” **As global superpowers compete for control over the most critical resource of the 21st century—electricity—Rickards believes the U.S. is dangerously unprepared to meet the surging energy demands of artificial intelligence (AI), national security, and financial markets.** "We are now entering a new kind of war, one not fought with missiles or soldiers, but with energy," Rickards states. "And right now, America is losing".

#### Luckily, nuclear investment would revolutionize energy production in three key ways.

#### 

#### First, funding the implementation of Small Modular Reactors.

**CC 25** [Carbon Credits, 2-18-2025, "What is SMR? The Ultimate Guide to Small Modular Reactors," Carbon Credits, <https://carboncredits.com/the-ultimate-guide-to-small-modular-reactors/> ] doa 3-22-2025 //🇫🇷s

Scalability and Grid Flexibility. One major selling point of **SMRs** is scalability. In**stead of committing to a massive reactor from day one, utilities can build capacity module by module.** This flexibility suits: Remote or Island Grids: Places relying on expensive diesel shipments can switch to SMRs for long-term reliability. Growing Economies: Rapidly expanding regions can add SMR modules to match rising demand. Distributed Power: Several smaller reactors scattered throughout a region can help balance the grid, reducing transmission bottlenecks. SMRs work well in remote areas, but some can be used in cities too. They come with added safety features, like placing reactors underground. For example, Holtec International plans to set up its first two SMR-300 reactors at the Palisades Nuclear Generating Station in Michigan. This shows that SMRs can be used in different settings. Enhanced Safety Profile and Efficiency **New nuclear technology uses passive safety systems,** simpler designs, **and smaller cores.** These features **lower the risk of severe accidents**. This generation aims **to ease public fears from** past disasters like **Chernobyl and Fukushima.** Notably, most **SMRs require refueling every 3–7 years, compared to every 1–2 years for large reactors.** Some designs promise up to 20 years of continuous operation without refueling. This extended refueling interval enhances SMR’s operational efficiency. Cost-Effective Deployment Traditional nuclear plants often exceed **$10 billion in construction costs and can take more than a decade to build. In contrast, SMRs range from $300 million to $2 billion per unit.** The levelized cost of electricity (LCOE) for SMRs is about $50–$100/MWh. This is a bit higher than large reactors. However**, SMRs are competitive because they can scale well and have lower financial risks.**  Moreover, traditional reactors take 8–15 years, whereas **SMRs can be built in 3–5 years due to modular assembly.** The modular construction approach allows for faster SMR deployment than traditional units. SMRs have a lifespan of 40–60 years. **Standardized reactor components let developers cut SMR construction costs by 30-50%.** The modular nature of SMRs facilitates easier decommissioning processes. Thus, SMRs aim to: Lower capital costs by standardizing reactor components. Speed up on-site assembly with fewer labor-intensive processes. **Reduce financial risk for investors, as smaller reactors mean smaller upfront loans.**

#### Second, with innovation in nuclear recycling technology,

**Kramer 24** [David Kramer, 2-1-2024, "US takes another look at recycling nuclear fuel," AIP Publishing, <https://pubs.aip.org/physicstoday/article/77/2/22/3230671/US-takes-another-look-at-recycling-nuclear> ] doa 3-22-2025 //🇫🇷s

**Fast reactors and reprocessing could reduce by 90% the volume of nuclear waste** that will need to be **stored in a geological repository** for tens of thousands of years, according to Huff. **It could cut by a similar fraction the amount of long-term radiation from the spent fuel by transmuting the actinides**. But a 1996 report from the National Research Council concluded that the rate at which actinides can be fissioned is so slow that it could take hundreds or even thousands of years of continuous reprocessing and recycling to make a meaningful reduction in the total amount of waste.

#### Finally, research into nuclear fusion lacks significant funding.

**GAO 23** [No Author, 3-30-2023, "Fusion Energy: Potentially Transformative Technology Still Faces Fundamental Challenges," No Publication, <https://www.gao.gov/products/gao-23-105813> ] doa 3-22-2025 //🇫🇷s

**Nuclear fusion could produce electricity without carbon emissions or long-lasting nuclear waste. A 2022 experiment achieved a key milestone on the path to viable fusion energy:** it was the first experiment in which the fusion reaction produced more energy than the energy injected into it. **However, this technology faces challenges before it can produce commercial electricity.** For example, **new materials will need to be developed** that can withstand the extreme conditions expected inside a power plant using fusion energy. In this technology assessment, we've developed **policy options** that **could help address such challenges.** What GAO Found Nuclear fusion, the process that powers the sun and other stars, could produce electric power without carbon emissions, long-lived nuclear waste, or risk of meltdowns. **Researchers** and companies **are pursuing many different concepts for fusion energy and have reported recent progress**, such as the development of high-temperature superconducting magnets that could make fusion devices much more compact. Also, in 2022, an experiment at the National Ignition Facility achieved a key scientific milestone, generating more energy from a fusion reaction than the amount of direct energy spent to start the reaction. National Ignition Facility However, several challenges must be overcome to achieve commercial fusion, and **stakeholders’ projections of this timeline range from 10 years to several decades.** One key scientific challenge is in the physics of plasmas, the state of matter needed for fusion. Researchers do not fully understand the behavior of burning plasmas, those whose main source of heat is from the fusion reaction itself rather than an external source. Researchers have made advancements in this area but lack sufficient experimental data to validate their simulations. One key engineering challenge is the development of materials that can withstand fusion conditions for decades, such as extreme heat and neutron damage, and no facility exists where materials can be fully tested. More generally, the task of extracting energy from fusion to provide an economical source of electric power presents several complex systems engineering problems that have yet to be solved.

#### Innovations like these require government investment. Indeed,

**IEA 25** [IEA, 1-16-2025, "A new era for nuclear energy beckons as projects, policies and investments increase," <https://www.iea.org/news/a-new-era-for-nuclear-energy-beckons-as-projects-policies-and-investments-increase> ] doa 3-22-2025 //🇫🇷s

“It’s clear today that the strong comeback for nuclear energy that the IEA predicted several years ago is well underway, with **nuclear set to generate a record level of electricity in 2025**,” said IEA Executive Director Fatih Birol. “In addition to this, more than 70 gigawatts of new nuclear capacity is under construction globally, one of the highest levels in the last 30 years, and more than 40 countries around the world have plans to expand nuclear’s role in their energy systems. SMRs in particular offer exciting growth potential. However, **governments and industry must still overcome some significant hurdles on the path to a new era for nuclear energy**, starting with delivering new projects on time and on budget – but also **in terms of financing and supply chains.**” As the world’s second-largest source of low-emissions electricity after hydropower, nuclear power today produces just under 10% of global electricity supply. **The increasing use of electricity** – to power everything from industry and air conditioning to electric vehicles and data centres amid the rise of artificial intelligence – **is accelerating the growth in power** demand, which is set to rise six times as fast as overall energy consumption in the coming decades, based on today’s policy settings. New generation capacity from a range of technologies will be needed to keep pace with the rapid demand growth, including those that can provide firm and flexible output such as nuclear. **Most of the existing nuclear power fleet today is in advanced economies,** but many of those plants were **built decades ago.** Meanwhile**, the global map for nuclear is changing,** with the **majority of projects under construction in China,** which i**s on course to overtake both the United States and Europ**e in installed nuclear capacity **by 2030. Russia is also a major player** in the nuclear technology landscape. **Of the 52 reactors that have started construction worldwide since 2017, 25 are of Chinese design and another 23 are of Russian design.** Similarly, the report shows how the production and enrichment of uranium, the fuel that goes into nuclear reactors, are highly concentrated. “Today, more than 99% of the enrichment capacity takes place in four supplier countries, with Russia accounting for 40% of global capacity, the single largest share,” Dr Birol said. “Highly concentrated markets for nuclear technologies, as well as for uranium production and enrichment, represent a risk factor for the future and underscore the need for greater diversity in supply chains.” **Innovations in nuclear technologies are helping to drive momentum behind new projects**, the report finds. **SMRs, a type of smaller scale nuclear power plants that are quicker to build with greater scope for cost reductions, are drawing increasing interest from the private sector. T**he report highlights how the introduction of SMRs could lead to lower financing costs. **With the right support**, SMR installations could reach 80 GW by 2040, accounting for 10% of overall nuclear capacity globally. However,the success of the technology and speed of adoption will hinge on the industry’s ability to bring down costs by 2040 to a similar level to those of large-scale hydropower and offshore wind projects. **A new era for nuclear energy will require a lot of investment. In a rapid growth scenario for nuclear, annual investment would need to double to USD 120 billion already by 2030.** Given the scale of the infrastructure investment required, the rollout of new nuclear projects cannot rely exclusively on public finances. IEA analysis shows that ensuring the predictability of future cash flows is key to bringing down financing costs and attracting private capital to the nuclear sector. The report highlights that the private sector is increasingly viewing nuclear energy as an investible energy source with the promise of firm, competitive, clean power that can serve energy-intensive operations 24/7. Notably, big names in the technology sector are signing power purchase agreements with developers to provide electricity for data centres and artificial intelligence.

#### Lagging in nuclear development has massive economic and national security risks.

**DOE 22** [Energy.gov, 6-6-2022, "President Biden Invokes Defense Production Act to Accelerate Domestic Manufacturing of Clean Energy," <https://www.energy.gov/articles/president-biden-invokes-defense-production-act-accelerate-domestic-manufacturing-clean>] doa 3-22-2025 //🇫🇷s

“President Biden has invoked the Defense Production Act so that the U.S. can take ownership of its clean energy independence,” said **U.S**. Secretary of Energy Jennifer M. Granholm. “**For too long the nation’s clean energy supply chain has been over-reliant on foreign sources and adversarial nations.** With the new DPA authority, DOE can help strengthen domestic solar, heat pump and grid manufacturing industries while fortifying America’s economic security and creating good-paying jobs, and lowering utility costs along the way.” “**Reducing America’s dependence on gas and oil is critical to U.S. national security,**” said Deputy Secretary of Defense Dr. Kathleen Hicks. “**In conflict, fossil fuel supply lines are especially vulnerable.** The actions President Biden announced today will help strengthen our supply chains and ensure that the United States is a leader in producing the energy technologies that are essential to our future success. They will also help accelerate DoD’s transition toward clean energy technologies that can help strengthen military capability while creating good jobs for American workers.” **Demand for clean energy technologies** such as solar panels, heat pumps, and electrolyzers for hydrogen **has increased significantly** as the costs of these technologies have plummeted over the last decade. As the world transitions to a clean energy economy, global demand for these essential products and components is set to skyrocket by 400-600% over the next several decades. **Unless the U.S. expands new manufacturing**, processing, and installation **capacity, we will be forced to continue to rely on clean energy imports—exposing the nation to supply chain vulnerabilities, while simultaneously missing out on the enormous job opportunities associated with the energy transition.**

**Saha 22** [September 14, 2022 By Devashree Saha, Rajat Shrestha and Phil Jordan Cover Image By, 9-14-2022, "How a Clean Energy Economy Can Create Millions of Jobs in the US," World Resources Institute, <https://www.wri.org/insights/us-jobs-clean-energy-growth>] doa 3-22-2025 //🇫🇷s

Research from WRI, with analytical support from BW Research, finds that achieving the goals of the IRA — and going beyond them — can create millions of new jobs in the United States. In fact:The study finds that **federal policies relying on a combination of tax credits for low-carbon technologies (as included in IRA) and infrastructure investments (as included in the Bipartisan Infrastructure Law (BIL)) can generate an additional 900,000 net jobs by 2035, compared to a reference scenario without these laws. Additional federal policies that bring U.S. emissions down to net-zero by 2050 can create an extra 2.3 million net jobs by 2035, compared to the reference scenario. Manufacturing clean energy technologies domestically can provide even greater job benefits--up to 5.7 million additional net jobs by 2035 under a net-zero emissions pathway.** While not all sectors and regions will reap the benefits of these jobs, federal policies — including provisions in the IRA — can ensure that the clean energy transition does not come at the expense of some workers and communities.

#### Worse, with overdependence on energy imports, America risks losing geopolitical influence.

**Allan 25** [Bentley Allan, Carnegie Endowment for International Peace, 2-26-2025, "Regaining Geopolitical Advantage: How to Focus U.S. Foreign Policy for Clean Energy," <https://carnegieendowment.org/research/2025/02/regaining-geopolitical-advantage-how-to-focus-us-foreign-policy-for-clean-energy?lang=en>] doa 3-22-2025 //🇫🇷s

**Today, China is seizing geopolitical advantage in three ways.** First, its control over **clean energy** and critical minerals supply chains means that it can threaten the United States and its allies with retaliatory export controls on gallium, germanium, graphite, and rare earths. Second, its foreign financing has built up goodwill all over the developing world. Third, China’s story as a developing country that became a leading technological power is an inspiration and magnetic force. At the 2024 G20 summit in Brazil, Chinese President Xi Jinping articulated Beijing’s vision for common development via “inclusive economic globalization.”3 China is offering the countries in the Global South “**new technologies, new industries and new business forms” that promise “digital, smart and green development.**” The **United States cannot ignore these arguments** as mere rhetoric because they are backed by the example of China itself, which is powerful throughout the developing world. At the same time, developing countries are not naive: they know there is a quid pro quo with China. China makes investments in other countries to create access for its firms and generate demand for its exports. Nonetheless, it is easy to conclude that the technology pathways that China offers are cheaper and more likely to fuel development than continued dependence on coal, oil, and natural gas.4 **The U**nited **S**tates **cannot afford to cede the technologies of the future to China. To rebuild geopolitical advantage, the United States can and must lead an international coalition for technology leadership. It should compete selectively and strategically while remaining engaged in building and securing clean energy supply chains—even if only to reduce China’s leverage and undercut China’s advantages. In doing so, it can build on successful domestic and international policy by both previous administrations.**

#### 

### Argument 2: Climate Catastrophe

#### Climate change is the greatest threat to our planet. Rising temperatures are already causing extreme weather, natural disasters, and biodiversity loss.

**Yale 24** [Dana Nuccitelli, 10-6-2024, "The planet is ‘on the brink of an irreversible climate disaster,’ scientists warn » Yale Climate Connections," Yale Climate Connections, <https://yaleclimateconnections.org/2024/10/the-planet-is-on-the-brink-of-an-irreversible-climate-disaster-scientists-warn/>] doa 3-21-2025 //🇫🇷s

**Earth’s climate in 2024 is “in a major crisis with worse to come if we continue with business as usual**,” **a team of** 14 **climate scientists warned** in “The 2024 state of the climate report: Perilous times on planet Earth.” The report did not sugarcoat their view of the dangers humanity is facing. “**We are on the brink of an irreversible climate disaster**,” the report begins. “**This is a global emergency beyond any doubt**. **Much of the very fabric of life on Earth is imperiled. We are stepping into a critical and unpredictable new phase of the climate crisis.**” The report is the latest such annual peer-reviewed paper published in the journal BioScience by an international team of scientists led by Oregon State ecologist William Ripple. The authors found that 25 of 35 “planetary vital signs” reached record levels last year, including global temperatures, human climate pollution, **fossil fuel subsidies,** heat-related mortality rates, meat production, and loss of forest cover. After decades of warnings from climate scientists and efforts by some policymakers and activists, “**the world has made only very minor headway on climate change, in part because of stiff resistance from those benefiting financially from** the current **fossil-fuel**-based system,” it says. “**We are currently going in the wrong direction** and **our increasing fossil-fuel consumption** and greenhouse gas emissions **are driving us toward** a climate catastrophe. We fear the **danger** of climate breakdown.” They did note a few positive indicators like clean energy production. “Of course, the situation is not hopeless,” wrote Harvard science historian and study co-author Naomi Oreskes via email. “What we want people to understand is that, while there has been progress – particularly in the price and deployment of **renewables** – **i**t**’s not nearly enough.** And the atmosphere does not respond to our intentions. It responds to chemistry.”  **The report calls for “rapidly phasing down fossil fuel use”** by ratcheting up the carbon price in wealthy countries and using some of the proceeds to fund policies to stop climate change and adaptation programs to reduce damage from climate disasters. It also urges sharp reductions in emissions of methane, a potent heat-trapping gas, to “slow the near-term rate of global warming, helping to avoid tipping points and extreme climate impacts.” **Without a course correction, the report warned, “climate change could cause many millions of additional deaths by 2050.”**

#### Still, American reliance on fossil fuels is getting worse

**University of Michigan 24** [Center for Sustainable Systems, 2024, "U.S. Energy System Factsheet," <https://css.umich.edu/publications/factsheets/energy/us-energy-system-factsheet>] doa 3-17-2025 //🇫🇷s

**Each day, U.S. per capita energy consumption includes 2.5 gal oil, 6.82 lbs coal, and 260 cf natural gas.3, 4** Residential per capita electricity consumption is 12 kWh/d.3,4 In 2023, total U.S. energy consumption decreased 4% from 2018 peak levels.3 **Potential energy efficiency gains in all sectors may be offset by increases in use**, a phenomenon called **the rebound effect.**6 **U.S. DOE estimates 66% of U.S. energy will come from fossil fuels in 2050, which is inconsistent with meeting IPCC carbon reduction goals**. Renewable energy use is projected to grow by an average of 3.1% annually from 2022 to 2050, compared to a 0.2% growth in total energy use.8 At these rates, renewables would provide 29% of U.S. energy use in 2050.8

#### 

#### Nuclear power is the only reliable way to replace fossil fuels while maintaining a stable energy grid. Unlike renewables, which rely on weather,

**Department of Energy** [U.S. Department of Energy, 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, DOA: 3-18-2025] serena

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. Why Are Nuclear Power Plants More Reliable? 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.Why Does This Matter? 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.

#### That means wind and solar farms remain reliant on fossil fuels to fill their natural energy gaps, while nuclear generatespower steadily.

#### Independently, nuclear power could replace fossil fuels in these energy gaps.

Thor Lindskog, 1-4-2022, "Intermittency and the Appeal of Nuclear Energy," NordSip | Nordic Sustainable Investment Platform, https://nordsip.com/2022/01/04/intermittency-and-the-appeal-of-nuclear-energy/, accessed: 7-1-2024 //ZD

According to the International Energy Agency (IEA), nuclear power is the second-largest source of low-carbon electricity. It provided 10% of the global electricity supply in 2018, including 30% of total low-carbon electricity. Over the last 50 years, nuclear power has provided half of all low-carbon electricity in advanced economies, according to the same source. **Unlike other renewable energy sources, such as wind and solar, nuclear energy supply is not intermittent, meaning that it is not dependent on the wind blowing or the sun shining. I**nstead, **NPPs can generate energy at a constant rate. As a result, nuclear power is a more reliable source of electricity than other renewable**s. NPPs also require much less physical space than other renewable power plants, while producing small amounts of CO2 during operations. **A 2 GW capacity NPP only occupies about 200 hectares of land (including support functions) and have a significantly better base-load capacity.** Meanwhile, **a solar farm close to the equator requires 100 hectares to produce 100 MW and only supports roughly 25% of the load factor compared to a nuclear plant,** according to the IEA. Finally, Project Drawdown estimates that between 2020 and 2050 nuclear could reduce CO2 emissions by 2.65 – 3.23 gigatons. The Intermittency and Flexibility Problem The intermittent nature of renewable energy such as solar and wind undermines their appeal as replacements for fossil fuels. **Solar and wind farms vary in their output throughout the day, because they rely on the sun to shine and the wind to blow. This creates capacity issues,** which must be managed **to allow supply to match demand** in a timely manner. According to a report from the International Atomic Energy Agency (IAEA), **as shares of intermittent energy production increase in the electricity grid, the residual demand will become more volatile** (i.e. suffer from extreme load variations and unpredictability). The more intermittent issues a renewable energy source creates, **the greater the costs and difficulties in reaching supply-and-demand equilibrium**. **If left unaddressed, the issue of intermittency can undermine the electricity system**, putting hospitals, offices, residential areas, at risk of blackouts. Unfortunately, a**t the moment, fossil fuels are making up for the majority of intermittency energy gaps. However, NPPs have already demonstrated their ability to compensate for renewables’ intermittency**. The IAEA explains that “in France, for example, NPPs are routinely ramped up and down between 100% and 20% of nominal power twice per day. The total nominal flexible capacity of nuclear units in France is reported to be 15 000 MW, which is sufficient to balance VRE [Variable Renewable Energy] intermittency until 2030.”  **In other words, NPPs can increase electricity outputs when renewable sources are insufficient or decrease outputs when renewables are producing enough electricity on their own.**

#### 

#### Right now is a uniquely good time for nuclear investment.

**Brown 25** [David Brown, 1-17-2025, "The federal government steps up support for nuclear power," No Publication, <https://www.woodmac.com/blogs/energy-pulse/federal-government-steps-up-support-nuclear/> ] doa 3-18-2025 //🇫🇷s

**Today’s market conditions are lining up to support 24/7 zero-carbon power from nuclear.**  **In our** base case **outlook for US power, electricity demand growth expands rapidly**. On average, across all major power regions, **demand increases by 15% between 2025 and 2035.** Data centres, advanced manufacturing and vehicle electrification are the primary load drivers. Reduced public policy support for infrastructure reform and higher tariffs could slow down other forms of zero-carbon power. **In our delayed transition scenario for the US, these power generation tech**nologies are **135 GW lower than our base case by 2035.** Dispatchable capacity is becoming more valuable. Markets are paying a premium for reliability and the 10-year outlook for capacity prices is bullish. By 2035, we expect capacity prices in the Midcontinent Independent Service Operator (MISO) region to reach 122 US$/kW – more than 10x from today’s levels. In these conditions, **extending the operating licenses of the US nuclear fleet will be required. In 2024, nuclear supplied around 20% of total electricity generation in the US.** The production tax credit (PTC) under the Inflation Reduction Act (IRA), bilateral contracts and bipartisan support for nuclear power are all reasons why we think operators will apply for extensions. The only retirement we expect in our base case in the next 20 years is Diablo Canyon in California. Despite that, **we expect around 96 GW of nuclear power generation in 2035, just 1.5% lower than today.**

#### 

#### With international bodies turning to nuclear and new technology expediting the energy scaling process, it is imperative that we invest now.

**UN 24** [UN, 6-13-2024, "‘Without nuclear, it will be almost impossible to decarbonize by 2050’, UN atomic energy chief," UN News, <https://news.un.org/en/interview/2024/06/1151006> ] doa 3-21-2025 //🇫🇷s

The fact the nuclear energy was included alongside renewables at the 2023 Dubai conference was a major step**. A number of important countries pledged to triple their own percentage of nuclear in their energy mix. I don’t think that this a renaissance of nuclear, but a return to realism**. **The International Panel on Climate Change, which is a gathering of the greatest and the brightest scientists from all over the world studying climate issues, has recognized that, without nuclear energy, it will be** almost **impossible to decarbonize by 2050.** So, there will be more nuclear power and the IAEA, along with the UN System in general, will make sure this happens in a safe and secure way, and does not lead to the proliferation of nuclear weapons.

#### The impact is deadly, and the crisis is coming sooner than we think.

**Yale 24** [Dana Nuccitelli, 10-6-2024, "The planet is ‘on the brink of an irreversible climate disaster,’ scientists warn » Yale Climate Connections," Yale Climate Connections, <https://yaleclimateconnections.org/2024/10/the-planet-is-on-the-brink-of-an-irreversible-climate-disaster-scientists-warn/>] doa 3-21-2025 //🇫🇷s

They did note a few positive indicators like clean energy production. “Of course, the situation is not hopeless,” wrote Harvard science historian and study co-author Naomi Oreskes via email. “What we want people to understand is that, while there has been progress – particularly in the price and deployment of **renewables** – **i**t**’s not nearly enough.** And the atmosphere does not respond to our intentions. It responds to chemistry.”  **The report calls for “rapidly phasing down fossil fuel use”** by ratcheting up the carbon price in wealthy countries and using some of the proceeds to fund policies to stop climate change and adaptation programs to reduce damage from climate disasters. It also urges sharp reductions in emissions of methane, a potent heat-trapping gas, to “slow the near-term rate of global warming, helping to avoid tipping points and extreme climate impacts.” **Without a course correction, the report warned, “climate change could cause many millions of additional deaths by 2050.”**

#### 