**Neg Case Lay**

### 

### Argument 1: Climate Conservation

#### Renewable energy is already replacing fossil fuels as the most cost-effective option, drawing public and private investment.

**Reuters 25** [Reuters, February 6, 2025, "Clean energy costs to continue to fall this year, report says," <https://www.reuters.com/sustainability/clean-energy-costs-continue-fall-this-year-report-says-2025-02-06/>] doa 3-22-2025 //🇫🇷s

**The cost of clean power tech**nologies **is expected to fall further by** 2-**11% in 2025**. While trade barriers could stall declines temporarily, BNEF expects the levellized cost of electricity for clean technologies to fall by 22-49% by 2035. "China is exporting green energy tech so cheaply that the rest of the world is thinking about erecting barriers to protect their own industries," said Matthias Kimmel, head of energy economics at BNEF. "But the overall trend in cost reductions is so strong that nobody, not even President Trump, will be able to halt it," he added.

#### The government is funding renewables more than ever.

**DOE 25** [US Dept of Energy, 2025, "A Look Ahead at Clean Energy in 2025," Energy.gov, <https://www.energy.gov/eere/look-ahead-clean-energy-2025>] doa 4-1-2025 //🇫🇷s

**The Office of Energy Efficiency and Renewable Energy (EERE) highlights mission-critical investments to foster a 100% clean energy economy.** EERE is more than a research and development funding vehicle, it is a nucleus of technology innovation and economy-wide cost-reduction and decarbonization efforts. Our **goal is** strengthening the energy workforce and reducing costs to consumers, all **while achieving net-zero carbon emissions by 2050.**  Our requested fiscal year **2025** (FY25**) budget supports this goal with research, development, demonstration, and deployment (RDD&D)** across five program priorities. We work with new partners and communities every day to bridge the innovation gap, scaling up new technologies and ensuring that the clean energy transition leaves no one behind.

**Ember 24** [Global Energy, 5-7-2024, "World passes 30% renewable electricity milestone," Ember, <https://ember-energy.org/latest-updates/world-passes-30-renewable-electricity-milestone/>] doa 3-22-2025 //🇫🇷s

London, 7 May– **Growth in solar and wind pushed the world past 30% renewable electricity for the first time in 2023,** according to a report by global energy think tank Ember. S**ince 2000, renewables have expanded from 19% to more than 30% of global electricit**y, driven by an increase in solar and wind from 0.2% in 2000 to a record 13.4% in 2023.  **As a result, the CO2 intensity of global power generation reached a new record low in 2023, 12% lower than its peak in 2007**.  **The report concludes that the rapid growth in solar and wind has brought the world to a crucial turning point – likely this year – where fossil generation starts to decline at a global level.**

**Even with investment, companies don't have the resources to complete projects.**

#### Utilities have price caps that deter large capital investment.

**Kenton 24** [Will Kenton, 8-13-2024, "Price-Cap Regulation: Definition, How It Works, and Examples," Investopedia, <https://www.investopedia.com/terms/p/price-cap-regulation.asp>] doa 4-3-2025 //🇫🇷s

How Price-Cap Regulation Can Affect Industry Activity T**he presence of a price-cap regulation can compel utility companies to find ways to reduce their costs in order to improve their profit margins.** A favorable case might be made for the efficiencies that are encouraged by the regulations. The upper limits on pricing for the industry mean that **companies have to focus on running their operations with the least amount of disruption at the lowest possible cost** to turn the greatest profit. However, **a price cap may also have the side effect of deterring capital expenditures** (CapEx) **among utility companies, such as investing in infrastructure. Companies under price-cap regulations might also reduce services as they strive to control costs. This creates a risk of erosion of quality and service from utility companies.** A deterrent to reducing service too much for the sake of cutting costs is that such action can create incentives for new entrants to appear in the market. There may also be minimum requirements enforced by regulators to prevent companies from eliminating essential services. For example, a price floor might be established as a way to discourage companies from lowering their rates to anti-competitive levels that severely undercut rivals.

**Government support doesn’t offset the long-term debt.**

**Plummer 25** [Dianne Plummer, 2-11-2025, "Nuclear Vs. Renewables: Which Energy Source Wins The Zero-Carbon Race?," Forbes, <https://www.forbes.com/sites/dianneplummer/2025/02/11/nuclear-vs-renewables-which-energy-source-wins-the-zero-carbon-race/> ] doa 4-3-2025 //🇫🇷s

The Levelized Cost of Energy measures the total cost of generating electricity over a plant’s lifetime, incorporating construction, operation, and maintenance. According to research highlighted in PV Magazine in 2023, LCOE analysis revealed tha**t utility-scale solar and wind have an LCOE of $24–$96** per MWh, **while nuclear (including SMRs) ranges from $141–$221 per MWh**, **making nuclear at least five times more expensive than renewables in many cases**. According to Reuters**, the U.S. Department of Energy allocated $600 million to support** NuScale and other **companies in commercializing** small modular reactor **(SMR) tech**nol**ogy. However, the cost estimates for NuScale’s 462-megawatt (MW) SMR have risen sharply, as reported by the Institute for Energy Economics and Financial Analysis (IEEFA).** Initially, the projected power price was $55 per megawatt-hour (MWh) in 2016, increasing to $58/MWh after reducing the project size from 12 to six reactor modules. **By 2022, the price had surged to $89/MWh, and adjusting for inflation, utilities could pay $102/MWh by 2030.** This **53% price hike since 2021 stems from a 75% increase in construction costs**, now estimated at $9.3 billion, **making the** NuScale **SMR as expensive on a per-kilowatt basis as the over-budget Vogtle nuclear project in Georgia. Despite $4 billion in federal subsidies, including support from the Inflation Reduction Act (IRA), these cost escalations challenge the claim that SMRs offer a low-cost nuclear alternative. Solar and wind, by contrast, require battery storage to ensure grid reliability, especially during peak demand.** **Advances in grid-scale batteries are rapidly improving the feasibility of 24/7 renewable energy solutions.**  According to Renewable Energy World, the U.S. energy storage market is expanding rapidly, with Q3 2024 setting records for new battery installations, driven by falling lithium-ion prices, increased demand for grid-scale storage, and a surge in residential battery adoption. Texas and California led deployments, with Texas adding 1.7 GW and California focusing on longer-duration storage. Battery costs have dropped 20% year-over-year to $115/kWh, thanks to manufacturing overcapacity and the rise of lithium-iron-phosphate batteries. However, challenges such as overcapacity, price pressure on manufacturers, and slowing EV demand pose risks to continued price declines.

#### Investing in nuclear energy would divert funding from faster, cheaper climate solutions.

**University of Michigan 24** [U Michigan, xx-xx-2024, "Nuclear Energy Factsheet," Center for Sustainable Systems, <https://css.umich.edu/publications/factsheets/energy/nuclear-energy-factsheet>] doa 3-22-2025 //🇫🇷s

**Nuclear has a high** levelized **cost of energy** (LCOE)- about twice that of combined cycle NG and **three times that of** utility **solar or** onshore **wind in 2024.**12 Final **construction costs for U.S. nuclear plants have typically been 2 to 3 times original estimates due to construction delays. A survey of plants begun after 1970 shows an average cost overrun of 241%.**13 **There have only been two new U.S. nuclear power projects begun since 1990, both supported by federal government subsidies. The VC Summer dual reactor project in South Carolina was abandoned in 2017 with sunk costs of $9B.13** The first of two Vogtle reactors in Georgia began operation in 2023, and the second reactor went online in 2024,14 7 years behind schedule.13 The total cost of the two Vogtle reactors is now $35B, or 2.5 times the projected cost of $14B.13

#### By the time new reactors come online, key climate tipping points will have passed.

**Dascalu 24** [C.Dascalu,03-19-2024, "Myth buster: Nuclear energy is a dangerous distraction," CAN Europe, <https://caneurope.org/myth-buster-nuclear-energy/> ] doa 3-22-2025 //🇫🇷s

**A rapid transition requires the use of existing technologies and solutions which can most quickly be rolled-out such as renewables, primarily solar and wind,** energy efficiency, and system flexibility. For years, new nuclear energy projects in Europe have been plagued with delays and, coupled with an untrained workforce, are unable to support the speed of decarbonisation necessary. **New nuclear plants typically take 15-20 years for construction,** hence **failing to address immediate decarbonisation needs to 2030. Indicatively, France’s six new reactors are estimated by its network operator to enter into use in 2040-2049, much too late to have any meaningful impact on emissions** reduction needed already now, with a view to pathways to 2040, and beyond, for a sustainable future. The decision to build the UK’s Hinkley Point C nuclear reactor was announced in 2007 with an operational start date of 2017, however it has been delayed several times over, and is now estimated to start in 2031. In France, the Flamanville project is 16 years into construction and hitting new delays, while Finland’s Olkiluoto took a full 18 years to come online. Nuclear power is too expensive When compared to renewables, the latest analysis from World Nuclear Industry Status Report, using the data from Lazard, determines that the levelized **cost of energy (LCOE) for new nuclear plants makes it the most expensive generator**, estimated to be nearly four times more expensive than onshore wind, while unsubsidized solar and wind combined with energy storage (to ensure grid balancing) is always cheaper than new nuclear. Recent European projects in Slovakia, the UK, France, and Finland demonstrate the dramatic rising costs. EDF admitted that the costs for the British nuclear facility Hinkley Point C will skyrocket to 53.8 billion euros for the scheduled 3.2 GW power plant, more than twice as much as scheduled in 2015 when the plant was approved. The French project in Flamanville was originally projected to cost 3.3 billion euros when it began construction in 2007, but has since risen to 13.2 billion euros (16.87 billion euros in today’s money). The Finnish Olkiluoto-3 project 1.6GW reactor cost 3 times more than the original forecast price, reaching 11 billion euros. Slovakia’s second generation reactors Mochovce 3 and 4 ballooned costs to 6.4 billion euros from an initially estimated 2.8 billion. Slovenia’s president announced that a new 1.6GW reactor would cost 11 billion euros, following the Finnish example, demonstrating that these high prices are here to stay. Renewables and energy efficiency are cheaper alternatives When compared against energy savings, analysis by Hungarian NGO Clean Air Action Group highlights that it is more economically efficient to invest in the renovation of households to save energy than in the construction, operation, and decommissioning of a new nuclear reactor. These findings were confirmed by **a** separate **study by Greenpeace France**, that **showed that by investing** 52 billion euros **in a mix of** onshore **wind infrastructure/**photovoltaic **panels on large roofs, it would be possible to avoid four times more CO2 emissions than by investing the same amount in** the construction of **six** EPR2 **nuclear reactors** by 2050, while electricity production triples. **By investing 85 billion euros of government subsidies in energy savings by 2033, it would be possible to avoid six times more cumulative CO2 emissions by 2050 than with the construction program of six EPR 2 reactors. This would also make it possible to lift almost 12 million people out of energy poverty in a decade.**

#### Every dollar spent on nuclear reactors is a dollar not spent on immediate renewable energy.

#### The impact is lives. The climate crisis is time-sensitive, and nuclear energy is too slow and expensive. Critically,

**Dreyer 24** [Caroline Dreyer, 1-4-2024, "The Cost of Inaction," CPI, <https://www.climatepolicyinitiative.org/the-cost-of-inaction/> ] doa 3-22-2025 //🇫🇷s

The longer our home remains aflame, the harder and more expensive it will be to extinguish the fire and repair the damage. **Delaying climate action will inevitably increase the negative impacts that the world will experience due to climate change.** **Continued inaction will make achieving the 1.5°C goal of the Paris Agreement more and more costly,** and eventually, **completely out of reach.**  The Inaction Price Tag **The fact that failing to act on climate change now will create greater costs in the future**, or the cost of inaction, is well understood in climate circles. However, these costs can be difficult to quantify. **Various studies suggest that current policies will lead to warming exceeding 3°C,** causing staggering losses. However, projections of associated costs vary greatly.

#### 

**Jacobson 24** [Mark Z. Jacobson, 10-10-2024, "7 reasons why nuclear energy is not the answer to solve climate change," One Earth, <https://www.oneearth.org/the-7-reasons-why-nuclear-energy-is-not-the-answer-to-solve-climate-change/?utm_source=chatgpt.com>] doa 3-22-2025 //🇫🇷s

**One nuclear power plant takes on average about 14-1/2 years to build**, from the planning phase all the way to operation. According to the World Health Organization, about **7.1 million people die from air pollution each year,** with **more than 90 percent** of these deaths **from energy-related combustion.** So **switching out our energy system to nuclear would result in** about **93 million people dying**, **as we wait for all the new nuclear plants to be built** in the all-nuclear scenario.  **Utility-scale wind and solar farms, on the other hand, take on average only two to five years, from the planning phase to operation.** Rooftop solar PV projects are **down to only a 6-month timeline.** So **transitioning to 100% renewables as soon as possible would result in tens of millions fewer deaths.** This illustrates a major problem with nuclear power and why renewable energy -- in particular Wind, Water, and Solar (WWS) -- avoids this problem. Nuclear, though, doesn’t just have one problem. It has seven. Here are the seven major problems with nuclear energy:

### Argument 2: Local Communities

#### Nuclear facilities are built in areas with little political power, disproportionately harming low-income and Indigenous communities.

**Lawrence 21** [Ainsley Lawrence, 6-11-2021, "How Nuclear Waste Impacts Marginalized Communities," Geopolitics, <https://thegeopolitics.com/how-nuclear-waste-impacts-marginalized-communities/>] doa 3-22-2025 //🇫🇷s

The Unfortunate Consequences for Marginalized Communities Nuclear power can be immensely beneficial. At the same time—if improperly handled—**nuclear energy and the waste it creates can be a ticking time bomb for disaster**. And like we saw with the COVID-19 pandemic, poor management will mean that marginalized communities face the worst of the effects. Three unfortunate circumstances faced by societies all over the world make this so. These are: **the lack of power marginalized communities have in making their voices heard, the tendency of nuclear power plants to be built in low-income areas,** and existing protections designed around an adult white male base. Here’s how these factors play out to the detriment of marginalized communities: Marginalized Voices are Ignored in Favor of Nuclear Development All over the world, **nuclear power plants are planned and developed within communities that do not want them and question their safety.** Yet, **corporations press on with their plans.** One prominent example occurred **in the aftermath of the Fukushima nuclear disaster,** in which an estimated **32 million people were affected.** Then, plans in South Africa to develop a nuclear reactor set off political activism in the nation. Social equality groups pressed for reconsideration, stating that any fallout would only further widen the gaps generated by apartheid. But were they listened to? South Africa has moved ahead time and time again with plans to develop more nuclear reactors. Nuclear Power is Built in Low-Income Communities As a direct consequence of their being ignored, **marginalized communities like those below the poverty level or with higher populations of minority groups tend to live closer to nuclear power plants. According to Stanford University research, a larger percentage of African Americans lived within 50 miles of nuclear power plants than their white peers.** **Infamously, Chernobyl represents exactly what happens to marginalized communities when a nuclear disaster occurs.** The city’s many subsistence farmers found themselves suddenly without the means to make a living when the disaster occurred. **As a result, they were forced to rely on government subsistence to make ends meet, and many have either returned or stayed in the region where housing is cheaper.**

#### Expanding nuclear energy investment will perpetuate these injustices, exposing vulnerable communities to three key health risks.

#### First, the US has tons of terribly unmanaged nuclear waste.

**GAO** [No Author, xx-xx-xxxx, "Nuclear Waste Disposal," No Publication, <https://www.gao.gov/nuclear-waste-disposal> ] doa 3-22-2025 //🇫🇷s

Spent nuclear fuel. **The nation has over 90,000 metric tons of spent nuclear fuel from commercial nuclear power plants. DOE is responsible for disposing of this high-level waste in a permanent geologic repository but has yet to build such a facility because policymakers have been at an impasse over what to do with this spent fuel since 2010.** As a result, **the amount of spent** nuclear **fuel** stored at nuclear power plants across the country **continues to grow by** about **2,000 metric tons a year.** Meanwhile**, the federal government has paid billions of dollars in damages to utilities for failing to dispose of this waste** and may potentially have to pay tens of billions of dollars more in coming decades. If Congress were to authorize a new consent-based process for siting a repository, it could help break the impasse over a permanent solution for commercial spent nuclear fuel.

#### Because of corporate ignorance and biased policies,

**Lawrence 21** [Ainsley Lawrence, 6-11-2021, "How Nuclear Waste Impacts Marginalized Communities," Geopolitics, <https://thegeopolitics.com/how-nuclear-waste-impacts-marginalized-communities/>] doa 3-22-2025 //🇫🇷s

There were at least 30 cases of cancer and ailments associated with the Savannah River site in its earlier days, but **the leaks of nuclear containments continue to give the community health concerns, especially when it comes to the availability of safe drinking water.** Poor water quality can lead to illness and even death. When polluted with radiation, **the effects of contaminated drinking water can be even worse**. But Stanford research shows that ionizing radiation standards are designed more to protect adult males. For nuclear facility workers, even these standards can be waived, allowing facility owners to expose workers to as much as 50 times more radiation than is allowed for the common citizen. Often, these workers don’t even receive hazard pay. **Minority and low-income communities are at higher risk of the radiation pumped via nuclear waste into their communities because of their proximity. At the same, these communities have statistically higher levels of women and children. These risk factors, much like the reasons nuclear power plants are built in these areas in the first place, perpetuate racist and classist outcomes.**

#### These facilities are prone to leakage which destroys drinking water reserves.

**Freeman 24** [Tami Freeman, 8-7-2024, "Radiation monitoring keeps track of nuclear waste contamination – Physics World," Physics World, <https://physicsworld.com/a/radiation-monitoring-keeps-track-of-nuclear-waste-contamination/>] doa 3-23-2025 //🇫🇷s

In the UK, spent nuclear fuel is typically stored in ponds or water-filled silos. The water provides radiation shielding, as well as a source of cooling for the heat generated by this material. In England and Wales, the long-term disposal strategy inv**olves ultimately transferring the waste to a deep geological disposal facility, while in Scotland, near-surface disposal is considered appropriate. The problem, however, is that some of the legacy storage sites are many decades old and some are at risk of leaking.** And **when** this **radioactive waste leaks it can contaminate surrounding land and groundwater. The potential for radioactive contamination to get into the wet environment is an ongoing problem, particularly at legacy nuclear reactor sites.** “The strategy for waste storage 50 years ago was different to that used now. There wasn’t the same consideration for where this waste would be disposed of long term,” explains Malcolm Joyce, distinguished professor of nuclear engineering at Lancaster University. “A common assumption might have been ‘well it’s going to go in the ground at some point’ whereas actually, disposal is a necessarily rigorous, regulated and complicated programme.” In one example, explains Joyce, radioactive waste was stored temporarily in drums and sited in near-surface spaces. “**But the drums have corroded over time and they’ve started to deteriorate, putting containment at risk and requiring secondary containment protection,”** he says. “Elsewhere, some of the larger ponds in which spent nuclear fuel was stored are also deteriorating and risking loss of containment.”

#### Second, the government has allowed for excessive mining radiation exposure in underserved communities.

**Schroer 22** [Cleo Schroer, 6-29-2022, "Host Communities and Nuclear Energy: Benefits for Some, Risks for Others," No Publication, <https://www.goodenergycollective.org/policy/host-communities-and-nuclear-energy-benefits-for-some-risks-for-others> ] doa 3-22-2025 //🇫🇷s

**One analysis** from researchers at the University of Michigan **looked at the demographics around nuclear fuel cycle facilities.** **They found that counties with extraction facilities have significantly higher Native American, Latino, and Hispanic populations** when they are constructed. **Furthermore, minority populations continue to make up higher percentages of these communities in subsequent decades.** Counties that host fuel cycle facilities also have higher rates of poverty than neighboring areas. While it appears that communities with nuclear power generation get whiter and more affluent after facilities are constructed, the opposite is true in fuel cycle facilities: White populations around extraction facilities drop substantially in the decades after siting, and incomes decrease as well.12 Contemporary radiation exposure is well-regulated, but studies have yet to quantify the historical preventable exposures of workers and communities in U.S. uranium mines. **Affected communities often lack adequate compensation for impacted families, and the government and private sector have failed to remediate much of the contaminated land and water surrounding mining and milling sites.** The injustices **on Navajo lands are the most prominent example of this: the EPA estimates that at least 500 mines are still awaiting cleanup,** potentially **exposing tribal communities to high levels of radiation after decades of misleading and gross endangerment of Navajo workers in these mines.**13 However, justice issues in the fuel cycle are not solely limited to legacy mining issues.

#### Finally, these communities are threatened by reactor meltdowns like Chernobyl or Fukushima.

**UNDR 24** [UNDR, 1-3-2024, "Prolonged impact of the Fukushima Nuclear Power Plant Accident on health and society," No Publication, <https://www.preventionweb.net/news/prolonged-impact-fukushima-nuclear-power-plant-accident-health-and-society> ] doa 3-23-2025 //🇫🇷s

The Japanese Government declared a nuclear emergency and ordered residents within a 30km radius of the reactor to evacuate. **In** t**he Fukushima prefecture, more than 160,000 residents were forced to evacuate immediately due to the earthquake, tsunami, and explosion at the Daiichi Nuclear Power Plant.** Subsequently, the evacuation order was gradually lifted. While some residents have returned under the national repatriation policy, many others have decided to continue living in the places they evacuated to.

#### Events like these are not just theoretical disasters.

**Jacobson 24** [Mark Z. Jacobson, 10-10-2024, "7 reasons why nuclear energy is not the answer to solve climate change," One Earth, <https://www.oneearth.org/the-7-reasons-why-nuclear-energy-is-not-the-answer-to-solve-climate-change/?utm_source=chatgpt.com>] doa 3-23-2025 //🇫🇷s

**To date, 1.5 percent of all nuclear power plants ever built have melted down to some degree. Meltdowns have been either catastrophic** (Chernobyl, Ukraine in 1986; three reactors at Fukushima Dai-ichi, Japan in 2011) **or damaging** (Three-Mile Island in 1979; Saint-Laurent France in 1980). **The** nuclear **industry has proposed new reactor designs that they suggest are safer. However, these designs are generally untested, and there is no guarantee** that the reactors will be designed, built, and operated correctly or that a natural disaster or act of terrorism, such as an airplane flown into a reactor, will not cause the reactor to fail, resulting in a major disaster.

#### Ignoring these risks means prioritizing corporate profit over the health of vulnerable communities.

#### Public health violations will be amplified by an affirmative ballot.

**Kyne 16** [\*Correspondence, xx-xx-xxxx, "Emerging Environmental Justice Issues in Nuclear Power and Radioactive Contamination," PubMed Central (PMC), <https://pmc.ncbi.nlm.nih.gov/articles/PMC4962241/>] doa 3-22-2025 //🇫🇷s

**Evidence suggests that individuals living near the nuclear power plants face difficult-to-avoid health risks associated with exposure to low level routine radioactive effluents** emitted from plants. Given that **no level of radiation exposure is considered safe**, any excess exposure could have deleterious impacts on human health [6]. **The effects of radiation at the cellular level could lead to irreversible damage and potential premature death. Tritium, to highlight a common isotope, is a carcinogen, mutagen, and teratogen and can easily be incorporated into human tissues causing cancers, chromosomal aberrations, birth defects and miscarriages, and mental retardation after in utero exposure** [6]. We observed that among the estimated 87.5 million people living within a 50-mile radius of a NPP (Table 1), 5.6 million (6.4%) are children under the age of five years. **Children have been found to be particularly vulnerable to radiation** exposure as European studies on leukemia have found. A study in Germany reported that the **children under five years of age living within a 5 km** (3.1 miles) **are 2.19 times more likely to develop leukemia** [53] than those outside this zone. And while such findings are still debated (e.g., [54]) many are strongly convinced by the evidence (e.g., [55]).