We affirm, "Resolved: The United States federal government should substantially increase its investment in domestic nuclear energy."

Aff OV

Ethan Siegel, 10-21-2020, "The World Needs Nuclear Power, And We Shouldn't Be Afraid Of It", Forbes, https://www.forbes.com/sites/startswithabang/2020/10/21/the-world-needs-nuclear-power-and-we-shouldnt-be-afraid-of-it/ //HMKC

For thousands upon thousands of years, humans have been harnessing the power of nature to provide energy to push our civilization forward. By leveraging fire, we gained the ability to cook food, provide warmth and shelter, and to protect us from predators. Later on, we tamed a variety of animals, using their labor to perform tasks that would be too strenuous or inefficient for humans. Eventually, natural power sources, like the wind, was harnessed through windmills to turn millstones, grinding grain without any human input at all. An enormous transformation occurred when we began using natural sources — windmills, steam-generating combustion processes, even flowing water — to turn turbines, generating power and providing electricity. **Today, the world's energy needs are still dominantly met through these same processes, with non-renewable fossil fuels like coal, oil, and gas providing the dominant fraction of Earth's energy uses. We're powering a space age civilization with the same fossil fuels that emerged during the iron age. Now, more than ever, the world needs nuclear power, and yet fear, rather than facts, governs our policies. Here's the science of why we should embrace it.**

World Nuclear Association, 3-21-2025, "Nuclear Power in the World Today", No Publication, https://world-nuclear.org/information-library/current-and-future-generation/nuclear-power-in-the-world-today //HMKC

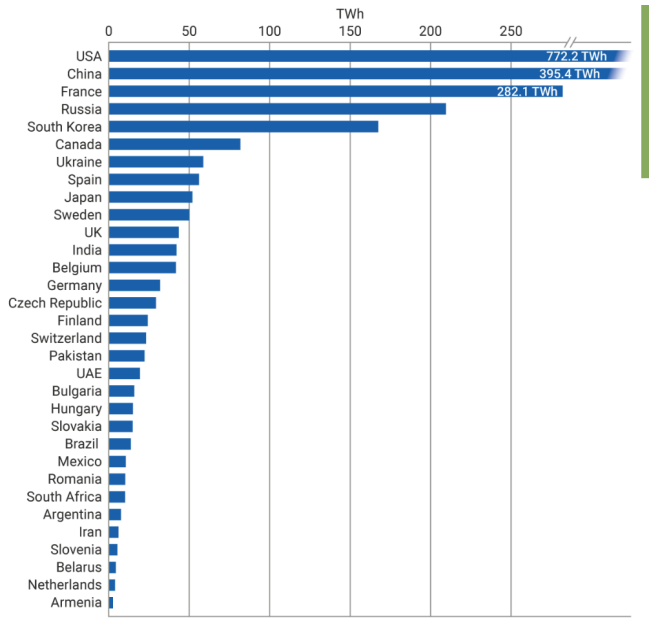

Figure 3: Nuclear generation by country 2023 (source: World Nuclear Association, IAEA PRIS)

Brook, B. W., Alonso, A., Meneley, D. A., Misak, J., Blees, T., & van Erp, J. B. (**2014**). Why nuclear energy is sustainable and has to be part of the energy mix. Sustainable Materials and Technologies, 1-2(2214-9937), 8–16. https://doi.org/10.1016/j.susmat.2014.11.001 //CT

Humanity must face the reality that it cannot depend indefinitely on combustion of coal, gas and oil for most of its energy needs. In the unavoidable process of gradually replacing fossil fuels, many energy technologies may be considered and most will be deployed in specific applications. However, **in the long term,** we argue that **nuclear fission technology is the only developed energy source that is capable of delivering the enormous quantities of energy that will be needed to run modern industrial societies safely, economically, reliably and in a sustainable way**, both environmentally and as regards the available resource base. Consequently, nuclear fission has to play a major role in this necessary transformation of the 21st century energy-supply system.

C1 is Leadership.

American adversaries dominate nuclear energy

Cohen 24(Dr. Ariel Cohen, Ph.D. is a Senior Fellow at the Atlantic Council and the Founding Principal of International Market Analysis, a Washington, D.C.-based global risk advisory boutique. He is also Managing Director of the Energy, Growth, and Security Program (EGS) and a Senior Fellow with the International Tax and Investment Center (ITIC). 7 June 2024, "China And Russia Now Dominate The Global Nuclear Trade" Forbes, https://www.forbes.com/sites/arielcohen/2024/06/07/china-and-russia-now-dominate-the-global-nuclear-trade/, DOA: 3/5/25) LLO

Russia is not alone in surpassing the US. **China is also far ahead of the US in the nuclear energy industry. China's nuclear power industry has retained its domestic focus, with twenty-three power plants under construction in China as of July 2023.** This is due to increasing energy demand, as China continues to develop its economy. The United States is constructing a single nuclear power plant. **While China has refined its nuclear power production process, the last plant built in the US arrived 7 years late and 17 billion dollars over budget, as a testament to America's byzantine permitting and environmental review system. China has built upon this expertise also to begin supplying reactors abroad. The China National Nuclear Corporation and China General Nuclear Power Group have developed a third-generation reactor called Hualong One.** This new reactor began operations in 2021 in Fuqing**. In 2023, China began construction on the Chashma-5 nuclear power plant in Pakistan, which will use Hualong One reactors. Such actions contribute to China's capacity to construct infrastructure abroad and expand its influence.** The American nuclear power industry was once the world's envy, peaking with 112 operational reactors in 1990, with America on a path to carbon neutrality much earlier than current predictions. **34 years later, the United States has lost nearly a third of its operational nuclear reactors, has built almost no new ones, and its average reactor age is decades old. If nothing is done to rectify this, in the next 10-15 years, scores of nuclear reactors will have to be retired as their operational lifecycles end, and as a result, America will have to contend with nearly 20% of its electricity capacity evaporating.**

Cohen 24 (Dr. Ariel Cohen, Ph.D. is a Senior Fellow at the Atlantic Council and the Founding Principal of International Market Analysis, a Washington, D.C.-based global risk advisory boutique. He is also Managing Director of the Energy, Growth, and Security Program (EGS) and a Senior Fellow with the International Tax and Investment Center (ITIC). 7 June 2024, "China And Russia Now Dominate The Global Nuclear Trade" Forbes,

https://www.forbes.com/sites/arielcohen/2024/06/07/china-and-russia-now-dominate-the-global-nuclear-trade/, DOA: 3/5/25) LLO

Through Rosatom, Russia remains the global leader in nuclear reactor construction. According to the World Nuclear Strategy Report, **as of July 2023, Russia had twenty-four. Nuclear reactors under construction in seven countries: China, India, Turkey, Egypt, Bangladesh, Iran, and Slovakia. For comparison, the US was constructing zero. Russia dominates the nuclear industry in more areas than just reactors. They also have the largest uranium conversion and enrichment industries in the world, at 38% and 46% of international capacity**, respectively, in 2020. **This makes it a major fuel exporter as well. Russia exported over $1 billion worth of nuclear energy-related products from February 2022-2024. Two of the countries in which Russia is constructing nuclear power plants, Turkey and Slovakia, are NATO members.** They are not alone amongst the collective West in enabling Russia's nuclear dominance while ostensibly being committed to containing the Kremlin. As my colleague Wesley A. Hill wrote, Russian-enabled geopolitical turmoil in Africa, which Russia is using to try to acquire formerly French uranium assets, helped force Europe to double its import of Russian uranium in 2023. The US was no better, remaining dependent on Russian nuclear exports even after the war in Ukraine restarted in 2022. The US imported Russian nuclear fuel until May 14th, 2024, over two years after Russia's invasion of Ukraine began, from the same entities that the White House sanctioned.

And, America is losing influence

Policy Circle 24 (Policy Circle is a digital platform that offers in-depth coverage of public policy issues in governance, environment, and society. It was launched in 2020 by a group of policy experts who share a vision of promoting evidence-based policymaking and constructive policy dialogue. It also organises summits, roundtables, and online discussions to bring together policymakers, researchers, corporate executives, professionals, and other stakeholders to deliberate on policy issues. December 27, 2024 "End of American hegemony: Can the superpower reinvent power for the 21st century" Policy Circle, https://www.policycircle.org/world/end-of-american-hegemony/, DOA: 3/28/25) LLO

In 2010, a historian predicted that the American hegemony might end by 2025 — not with a bang but with a whimper — as domestic divisions deepened and rival powers rose to challenge its authority. Today, that prediction appears prophetic as America faces increasing pressures from within and outside. Even as the US retains military dominance and an economy capable of immense influence, **the structural underpinnings of its global power are eroding. This decline, though not necessarily terminal, signals a transition away from the so-called American Century. Historically, the US leveraged its unmatched economic strength, technological innovation, and cultural influence to dominate the post-World War II global order. However, the foundations of the American hegemony are crumbling. The US share of global GDP has steadily declined,** falling from 50% in the mid-20th century to approximately 15% today when adjusted for purchasing power parity. **The globalisation, initially championed by the US, has redistributed industrial power, with China emerging as a key beneficiary. China's rise has reoriented global economic networks, particularly in the Global South.** In contrast to America's interventionist foreign policy, **China has cultivated influence through infrastructure investments, soft power campaigns**, and state-sponsored media. The United States, while still a major player, has failed to present an alternative vision that resonates with developing nations, where perceptions of Chinese leadership are increasingly favourable.

Affirming enables exports

Bowen et al 20 (Matt Bowen is a research scholar at the Center on Global Energy Policy at Columbia University School of International Public Affairs and a senior fellow at the Atlantic Council Global Energy Center. Jackie (Kempfer) Siebens is a senior policy adviser for the energy and climate program at Third Way and a senior fellow at the Atlantic Council Global Energy Center. Jennifer T. Gordon is the managing editor and senior fellow for nuclear energy at the Atlantic Council Global Energy Center. 10/7/20, "Strengthening cooperation with allies could help the United States lead in exporting carbon-free nuclear

energy", The Atlantic Council, https://www.atlanticcouncil.org/blogs/energysource/strengthening-cooperation-with-allies-could-help-the-united-states-lead-in-exporting-carbon-free-nuclear-energy/ //. DOA: 3/3/25)JDE

First, **the federal government should establish a more comprehensive and coordinated interagency system focused on the development and deployment of civilian nuclear technologies**, which would **support bringing advanced nuclear power to the global market.** This would involve establishing a collaborative network of nuclear-specific staff positions embedded in the collection of government agencies that **play a meaningful role in safely and securely developing**, deploying, and exporting US energy **technologies**. Similar to the "Team USA" whole-of-government approach first initiated under the Obama Administration, a network of nuclear-specific staff positions could be located across different US agencies including: the Department of Energy, Department of State, Nuclear Regulatory Commission (NRC), White House Office of Science and Technology Policy, National Security Council (NSC), Department of Commerce, and any future Climate Office. While the Obama Administration created an NSC role to coordinate interagency nuclear policy, and the DOE report released earlier this year, Restoring America's Competitive Nuclear Advantage, recommended reinstating that role, there is currently no high-level mechanism for interagency coordination on US nuclear exports. And, **since it is difficult to export a product that lacks a domestic market, continued policy support for constructing advanced reactors here in the United States is imperative.**

Exports secure positive global relationships

Graham 19 (Thomas Graham is a retired diplomat who helped negotiate every international arms control and nonproliferation agreement from 1970 to 1977, co-chair of the Nuclear Energy and National Security Coalition, 5/29/19, "National security stakes of US nuclear energy" The Hill, https://thehill.com/opinion/national-security/445550-national-security-stakes-of-us-nuclear-energy/, DOA: 3/4/25) ST

We have dedicated our careers to controlling the destructive potential of nuclear weapons. But since the Atoms for Peace era, **U.S. leadership in supplying peaceful nuclear energy technology, equipment, and fuel to the world has been important for world development and therefore critical for the United States to establish and enforce standards for nuclear safety, security and nonproliferation**. But in recent decades, the U.S. share of international commercial nuclear energy markets has diminished, and so with it has the United States' ability to influence global standards in peaceful nuclear energy. The critical moment for U.S. leadership in nuclear energy is when a country is developing nuclear energy for the first time. **The supplier country and the developing country typically forge a relationship that endures for the 80- to 100-year** life of the nuclear program. Unlike a coal or gas plant**, nuclear reactors need specialized fuel and maintenance. Once established, the bilateral commercial relationship is not easily dislodged by a rival nation, providing the supplier profound and lasting influence on the partner's nuclear policies and practices. Russia and China have identified nuclear energy as a strategic export, to be leveraged for geopolitical influence as well as for economic gain.** According to a recent analysis, **Russia is the supplier of more nuclear technology than the next four largest suppliers combined, and China is quickly emerging as a rival. If the United States fails to compete in commercial markets, it will cede leadership to these countries on nuclear safety, security and nonproliferation, as well as foreign policy influence.** As the competition intensifies to deliver **the next generation of nuclear power technologies**, U.S. nuclear leadership is approaching a watershed opportunity. Simpler, scalable, and less expensive, small and advanced reactors **are commercially attractive to an expanded range of markets** — particularly in Africa, Asia and the Middle East. The United States has the world's best training and development programs, unmatched regulatory experience, and multiple small and advanced reactor designs; we should be the easy choice for the next generation of nuclear technology. But early U.S. engagement in these important geopolitical regions is critical. Without it, **Russia and China will lock up future nuclear markets through MOUs and other bilateral agreements.** And for addressing the national security risks of climate change, nuclear energy is not just an option but a necessity. Developing nations that are planning to meet power and water needs for large and growing populations must have reliable, demonstrated, zero-emission nuclear power in order to meet global climate goals as well. Advanced reactors are integral to these goals. In the United States, nuclear energy is responsible for a fifth of the United States' total electricity and more than 55 percent of our emissions-free energy, but the pace of domestic construction of new natural gas plants far exceeds the few nuclear plants under development, and the existing fleet is retiring prematurely at an alarming rate. Which brings us back to the domestic nuclear industry**. U.S. global competitiveness and leadership are inextricably**

linked to a strong domestic nuclear program. Without a healthy domestic fleet of plants, the U.S. supply chain will weaken against international rivals. Russia has brought six new plants online in the past five years and has six more plants currently under construction. In the same period, China has brought 28 new plants online and has 11 others under construction. These domestic projects provide Russia and China with a robust supply chain, an experienced workforce, and economies of scale that make them more competitive in bidding on international projects. Unless we continue to innovate and build new plants, we will cease to be relevant elsewhere. Even our own domestic energy security is supported by nuclear power. The nuclear plants operating today are the most robust elements of U.S. critical infrastructure, offering a level of protection against natural and adversarial threats that is unmatched by other plants. Because the nation's grid supplies power to 99 percent of U.S. military installations, large scale disruptions affect the nation's ability to defend itself. **We can regain U.S. leadership in nuclear energy. The key steps are to maintain the domestic reactor fleet, with its reservoir of know-how, and to assist American entrepreneurs in developing the next generation of the technology**.

Countries prefer US reactors.

Gattie 19 [David Gattie; Associate Professor of Engineering at the University of Georgia's College of Engineering, Senior Fellow @ UGA's Center for International Trade and Security; 05-22-2019; "Will the US lead? Or let China and Russia dominate nuclear energy"; The Hill; https://thehill.com/opinion/energy-environment/444944-will-the-us-lead-or-let-china-and-russia-dominate-nuclear-energy/; accessed 03-07-2025] tristan + leon

Moreover, **with the UK, South Korea, Japan and France having shown signs of political uncertainty in their respective commitments to nuclear power, the global nuclear ecosystem is potentially vulnerable to domination by a country pursuing a role of top predator**.

Meanwhile, the world is seeking U.S., Allied leadership in nuclear power — a clarion call that must be heard. At a minimum, **there must be a *viable* non-authoritarian nuclear partner alternative committed to the rule of law, individual liberty, cooperative security, multilateral alliances and fair trade**. However, while other countries waver, two countries show no signs of retreating from an aggressive nuclear power future — China and Russia. In fact, they are doubling down.

Investment drives innovation. Holtzman 23

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

Industries across the economy are recognizing nuclear's ability to reduce—or erase—their carbon footprints. **Existing nuclear, small modular reactors, and other advanced nuclear technologies also offer significant opportunities for industry innovation and growth beyond electricity.** Explore Nuclear & Your Industry Aerospace - Nuclear has successfully powered space... ...exploration for decades. Now, the industry is developing new nuclear energy technologies to power the next phase of space travel: early unmanned missions, earth satellites, permanent lunar bases and missions to Mars. Companies such as Zeno Power, X-energy and Ultra Safe Nuclear Corporation are creating next-generation radioisotope power systems to send spacecraft and probes even farther into space. NASA is exploring nuclear thermal propulsion to reduce flight time, enabling human missions to Mars and beyond. As part of the historic Artemis space program, NASA also awarded contracts for a small nuclear power system that could run a permanent base for surface power on

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

C2: Climate

Clara Chaison, 2-19-2021, "Fossil Fuel Air Pollution Kills One in Five People," NRDC, https://www.nrdc.org/stories/fossil-fuel-air-pollution-kills-one-five-people//CT

If the consequences of burning fossil fuels—like melting glaciers, rising seas, and increasing global temperature averages—feel too far-flung or abstract, consider the fundamental act of taking a breath of air. A new study has found that **air pollution from fossil fuels is responsible for nearly one in every five deaths worldwide.**

Office of Nuclear Energy, 3-31-2021, "3 Reasons Why Nuclear is Clean and Sustainable," US Department of Energy, https://www.energy.gov/ne/articles/3-reasons-why-nuclear-clean-and-sustainable//CT

Nuclear is a zero-emission clean energy source. It generates power through fission, which is the process of splitting uranium atoms to produce energy. The heat released by fission is used to create steam that spins a turbine to generate electricity without the harmful byproducts emitted by fossil fuels. According to the Nuclear Energy Institute (NEI), the United States avoided more than 471 million metric tons of carbon dioxide emissions in 2020. That's the equivalent of removing 100 million cars from the road and more than all other clean energy sources combined. It also keeps the air clean by **removing thousands of tons of harmful air pollutants each year that contribute to acid rain, smog, lung cancer and cardiovascular disease.**

Brook, B. W., Alonso, A., Meneley, D. A., Misak, J., Blees, T., & van Erp, J. B. (**2014**). Why nuclear energy is sustainable and has to be part of the energy mix. Sustainable Materials and Technologies, 1-2(2214-9937), 8–16. https://doi.org/10.1016/j.susmat.2014.11.001 //CT

Humanity must face the reality that it cannot depend indefinitely on combustion of coal, gas and oil for most of its energy needs. In the unavoidable process of gradually replacing fossil fuels, many energy technologies may be considered and most will be deployed in specific applications. However, **in the long term,** we argue that **nuclear fission technology is the only developed energy source that is capable of delivering the enormous quantities of energy that will be needed to run modern industrial societies safely, economically, reliably and in a sustainable way**, both environmentally and as regards the available resource base. Consequently, nuclear fission has to play a major role in this necessary transformation of the 21st century energy-supply system.

Brook, B. W., Alonso, A., Meneley, D. A., Misak, J., Blees, T., & van Erp, J. B. (**2014**). Why nuclear energy is sustainable and has to be part of the energy mix. Sustainable Materials and Technologies, 1-2(2214-9937), 8–16. https://doi.org/10.1016/j.susmat.2014.11.001 //CT

Because methane is a potent greenhouse gas, replacing coal-fired generating stations with gas-fired stations will not necessarily result in a reduction of the rate of greenhouse-gas emission even for relatively low leakage rates of the natural gas into the atmosphere.

The energy sources popularly known as **'renewables' (such as wind and solar)**, will be hard pressed to supply the needed quantities of energy sustainably, economically and reliably. They **are inherently intermittent, depending on backup power or on energy storage if they are to be used for delivery of base-load electrical energy to the grid.** This backup power has to be flexible and is derived in most cases

from combustion of fossil fuels (mainly natural gas). If used in this way, **intermittent energy sources do not meet the requirements of sustainability, nor are they economically viable because they require redundant, under-utilized investment in capacity both for generation and for transmission.**

Brook, B. W., Alonso, A., Meneley, D. A., Misak, J., Blees, T., & van Erp, J. B. (**2014**). Why nuclear energy is sustainable and has to be part of the energy mix. Sustainable Materials and Technologies, 1-2(2214-9937), 8–16. https://doi.org/10.1016/j.susmat.2014.11.001 //CT

As numerous scientific comparisons have shown, **nuclear fission** is among the energy sources that are least polluting and **have the lowest overall environmental impact** [7]. **Operating nuclear power plants do not produce air pollution nor do they emit CO2.** Annually, the 435 operating nuclear power plants prevent the emission of more than 2 billion tons of CO2. By contrast, coal-fired stations emit worldwide about 30 billion tons of CO2 per year and cause health effects and premature death through air pollution and dispersion of pollutants, including mercury (harmful to the nervous system, particularly for infants) and other poisonous materials [8]. It is important to note that nuclear power plants emit less radioactive material than do coal-fired stations (uranium and other radioactive isotopes are found naturally in coal ash and soot) [9]. The most severe environmental impact associated with nuclear energy is due to the mining of uranium. However, the need for uranium mining will be drastically reduced after fast reactors have become commercially available, as may be expected within the coming decades.

Brook, B. W., Alonso, A., Meneley, D. A., Misak, J., Blees, T., & van Erp, J. B. (**2014**). Why nuclear energy is sustainable and has to be part of the energy mix. Sustainable Materials and Technologies, 1-2(2214-9937), 8–16. https://doi.org/10.1016/j.susmat.2014.11.001 //CT

An important aspect of long-term commercial viability of power plants is the future development of their respective fuel costs. **Nuclear power plants rank best in this respect because their sensitivity to fuel-cost increases is small** (Table 3). A temporary abundance of low-cost natural gas may seem to make gas-fired stations appear to be economically attractive. However, this will change because it can be expected that **gas prices will rise substantially during the 60 + lifetime of new-build nuclear power plants**

Pushker A. Kharecha and James E. Hansen, 3-15-2013, “Prevented Mortality and Greenhouse Gas Emissions from Historical and Projected Nuclear Power, ACS Publications, https://pubs.acs.org/doi/10.1021/es3051197//CT

In the aftermath of the March 2011 accident at Japan’s Fukushima Daiichi nuclear power plant, the future contribution of nuclear power to the global energy supply has become somewhat uncertain. Because nuclear power is an abundant, low-carbon source of base-load power, it could make a large contribution to mitigation of global climate change and air pollution. Using historical production data, we calculate that **global nuclear power has prevented an average of 1.84 million air pollution-related deaths** and 64 gigatonnes of CO2-equivalent (GtCO2-eq) greenhouse gas (GHG) emissions that would have resulted from fossil fuel burning. On the basis of global projection data that take into account the effects of the Fukushima accident, we find that nuclear power could additionally prevent an average of

420 000–7.04 million deaths and 80–240 GtCO2-eq emissions due to fossil fuels by midcentury, depending on which fuel it replaces. By contrast, we assess that large-scale expansion of unconstrained natural gas use would not mitigate the climate problem and would cause far more deaths than expansion of nuclear power.

The climate crisis is existential

Pearce and Parncutt '23 [8/16/2023, "Quantifying Greenhouse Gas Emissions in Human Deaths to Guide Energy Policy," Professor in the Department of Electrical and Computer Engineering, and in the Ivey School of Businesses, Western University, Canda, Professor, University of Graz, Australia (**Richard Pearce, Joshua Parncutt) https://www.researchgate.net/publication/373281884_Quantifying_Global_Greenhouse_Gas_Emissions_in_Human_Deaths_to_Guide_Energy_Policy]//recut vagoon

The estimates made in sections 2.1 to 2.3 are very rough but provide a useful rule of thumb for gaging a first approximation. The 1000-ton rule makes it clear that there is a marginal human death cost to every amount of warming, no matter how small. Thus, **every 0.1 °C** degree of warming can be expected to **cause 100 million deaths.** Similarly, every 0.001 °C of warming will cause a million deaths. If humanity misses the 2°C target or any of the more granular goals to stop 'dangerous climate change' [67], which appears likely according to AI models [68], rather than relax and accept it, all efforts to reduce carbon emissions can be viewed as lifesaving.