POLICY TIP SHEET

The Case for Expanding Nuclear Energy

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THE PROBLEMS

- **America's energy grid still depends heavily on imported fossil fuels, leaving the nation exposed to supply shocks from adversarial countries.**
- **Rising electricity demand and outdated infrastructure are driving up costs for families and businesses.**
- **Public skepticism and outdated regulations continue to stall construction of new nuclear facilities.**
- **Misconceptions about safety and waste disposal have slowed acceptance of modern nuclear technology.**

THE SOLUTIONS

- **Empower states to authorize new nuclear plants and small modular reactors, with streamlined permitting and faster environmental reviews.**
- **Rebuild public confidence through education and outreach that accurately present nuclear power's safety record and economic benefits.**
- **Reform federal energy policy to remove unnecessary red tape and direct incentives toward uranium mining and reactor innovation.**
- **Promote energy independence by expanding reliable, American-made nuclear power to reduce reliance on foreign fuel.**

The United States became a true pioneer in nuclear science in the early 20th century. Key leaders in the field, such as Albert Einstein, Enrico Fermi, and J. Robert Oppenheimer gradually unlocked the secrets of the atom during their respective careers. They had developed various methods for utilizing atomic theory, harnessing natural forces in everything from medical research to nuclear weapons.

The first ever nuclear power plant was built in 1951, located at a research facility in Idaho.[1] This experimental reactor set the standard for how all future reactors would generate electricity. Conceptually, nuclear reactors are like futuristic steam engines, using heat emitted from the decay of radioactive elements—typically uranium—to boil water, which then spins an electrical turbine.[2] Advancements in recent years have allowed nuclear waste to be safely recycled, although much of it is stored underground in specialized facilities.[3]

The advent of small modular reactors (SMRs) increases the overall accessibility of nuclear power for commercial use. An SMR is, as its name implies, a smaller and simpler variant of a nuclear reactor which produces 20-300 megawatts of electricity. Traditional large reactors typically produce around 1,000 megawatts of electricity, or one gigawatt, but require thousands of personnel per plant. SMRs only require about 30 to 150 people to operate and are cheaper and faster to build than a traditional reactor. They also require significantly less land.[4]

Although atomic power is widely considered the cleanest method for generating electricity on a large scale, there have been a handful of disasters stemming from human error or natural causes that discourage segments of the public from embracing it. The most significant of these was the Chernobyl reactor

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meltdown in 1986. Nowadays, it is understood that the meltdown was caused by a faulty reactor design, worsened by censorship laws in the Soviet Union that prevented experts from identifying critical safety flaws within the power plant.[5]

The repercussions of the meltdown were swift and severe. Thousands of Ukrainians lost their homes, reports of cancer and radiation sickness surged across Eastern Europe, and public opinion started to shift away from nuclear energy. Suspicion of the technology then spread globally. American politicians who once favored nuclear energy suddenly became liabilities for their parties, and the controversy around the Chernobyl disaster seems to have contributed to Germany's shutdown of its nuclear power plants.[6] Ironically, this would increase European dependency on Russian oil exports, subverting the goals of the environmentalist movement.

WINNING BACK THE PUBLIC'S TRUST

Debates over energy policy in the twenty-first century often center on reducing emissions and improving efficiency. While opinions differ on the causes and severity of climate change, most Americans support the development of cleaner and more reliable power sources. According to polling from the University of Chicago's Energy Policy Institute, a majority of Americans say that climate change is occurring, though preferred solutions vary sharply by political affiliation. Support for solar and wind energy remains strong across the political spectrum, but only about one-third of Democrats, independents, and Republicans express support for nuclear power plants.[7] These numbers leave much room for improvement.

One reason for the low enthusiasm toward nuclear energy is decades of media-driven fear surrounding its safety.[8] Plans to build additional reactors across the United States were largely abandoned following environmentalist backlash in the 1970s and 1980s. Had those planned reactors been completed, they would have added substantially to America's electrical generation capacity, with virtually no carbon dioxide emissions.[9] The resulting cancellations represented a major economic setback and a missed opportunity for long-term energy stability.

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Public skepticism also stems from misconceptions about nuclear waste. In reality, the United States and other nations already possess proven, safe methods for handling and recycling spent fuel. According to the World Nuclear Association, as much as 97 percent of uranium and plutonium waste can be recycled in specialized reactors.[10] Otherwise, used material can be mixed with melted glass through a process called "vitrification," effectively neutralizing its radioactivity.[11] A more direct approach involves sealing waste in reinforced canisters and storing it in deep geological repositories, where it becomes safe to handle after natural decay over several centuries.

The efficiency of these processes is remarkable. The World Nuclear Association notes that a 1,000-megawatt nuclear power station—enough to power more than a million homes—produces only about three cubic meters of vitrified high-level waste per year when fuel is recycled. By contrast, a 1,000-megawatt coal-fired plant produces roughly 300,000 tons of ash and more than six million tons of carbon dioxide annually.[12]

Importantly, no nuclear power-related accidents in the United States have resulted in any fatalities. Even the 1979 incident at the Three Mile Island facility was safely contained due to superior Western engineering

and safety protocols. Modern reactors have since become even safer, incorporating advanced control systems and redundant safeguards that eliminate the design flaws responsible for the Soviet-era Chernobyl disaster.[13]

Winning back public confidence is ultimately a matter of persuasion. President Donald Trump has emphasized that true energy independence is vital to national security.[14] By reducing dependence on foreign fuel, the United States protects itself from potential supply disruptions and gains leverage to support allies facing energy coercion from adversarial exporters such as Russia or Iran. Nuclear power offers one of the fastest and most reliable paths toward energy independence.

Finally, the sheer productivity of nuclear energy sets it apart from all other low-emission sources. Roughly 19 percent of the nation's electricity—and about half of America's "clean" energy generation—comes from the 54 nuclear power plants currently operating across the country.[15] One kilogram of uranium can generate approximately as much energy as 90 tons of coal, equivalent to the lifetime electricity use of the average person.[16] This extraordinary density makes nuclear energy a uniquely powerful yet underutilized tool for securing America's economic and energy future.

POLICY RECOMMENDATIONS

Expanding nuclear energy requires both sound policy and renewed public understanding. Americans should be accurately informed about nuclear power's safety, efficiency, and economic advantages. State education boards can help by incorporating balanced material on nuclear science into K-12 and college curricula, presenting its practical value alongside lessons about other energy sources.

As of the end of 2024, several U.S. states still maintain legal bans on new nuclear plant construction, according to the U.S. Department of Energy. Among these are California, New Jersey, and Massachusetts. Others—such as West Virginia and Kentucky—have repealed their moratoriums, setting a strong example for the rest of the nation and demonstrating that pro-nuclear reform is politically viable.[17]

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The rise of small modular reactors offers states an opportunity to expand generation capacity without the high costs or long timelines of traditional reactors. Indiana and Virginia have explored SMRs as cost-effective tools for meeting rising energy demand, while Illinois—though continuing to restrict large reactors—has recently allowed limited SMR development.[18] These compact, scalable units are gaining support at a time when data centers and other power-intensive industries are placing immense strain on state grids.[19]

At the federal level, the Trump administration took major steps toward a new era of nuclear innovation. Executive orders issued in 2025 streamlined the approval and testing of advanced reactors and directed agencies to modernize outdated permitting rules.[20] These reforms will accelerate construction, create thousands of skilled jobs in engineering and manufacturing, and strengthen the domestic mining industry that supplies reactor fuel.

Approving new facilities is only part of what President Trump has called a "Nuclear Renaissance." Continued deregulation and the removal of unnecessary bureaucratic barriers will allow nuclear energy to compete on equal footing with other sources. Modern environmental reviews can be expedited without compromising safety, especially with the integration of artificial-intelligence monitoring systems that further reduce the risk of meltdowns.

By embracing cleaner, denser, and more reliable energy, the United States can secure affordable electricity, reduce dependence on foreign fuel, and strengthen its position as the world leader in advanced energy technology.

Endnotes

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