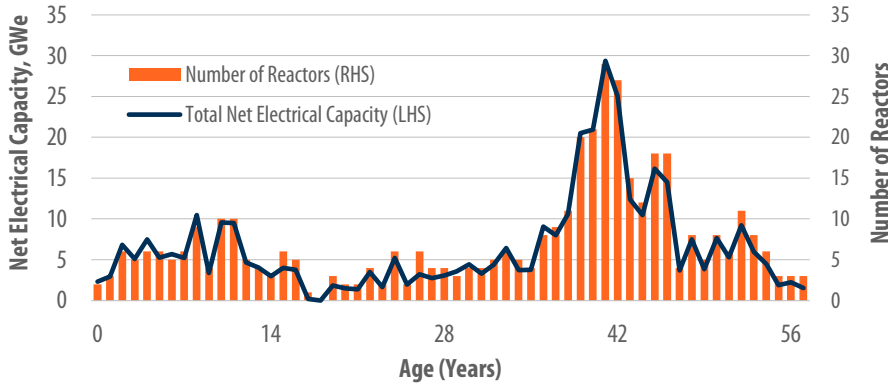


## Nuclear Energy

Nuclear energy is a crucial component of the global energy landscape. Unlike fossil fuels, nuclear power plants produce a substantial amount of electricity without emitting greenhouse gases, making them a key player in reducing carbon footprints and achieving net-zero emission goals. Not only is nuclear energy a more reliable and stable energy supply, its fuel energy density is millions of times greater than that of fossil fuels, requiring far less mining and transportation. As energy demand continues to surge due to the data center and AI buildout, reliable and efficient sources of clean energy are gaining attention with aims of supplementing the strained grid. In this week's "Three on Thursday," we take a deeper look at what the nuclear picture looks like around the world. To provide further insight, we've included the two charts and table below.

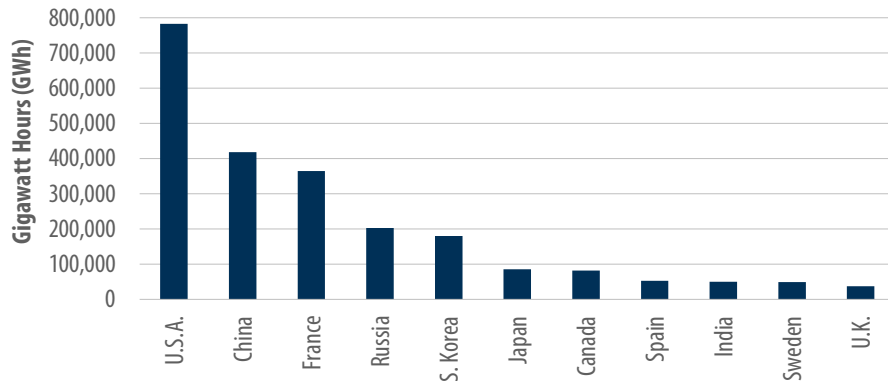
### Age Distribution of Nuclear Reactors in the World



Source: International Atomic Energy Agency, First Trust Advisors. Data as of 6/22/2026.

The Obninsk Nuclear Power Plant in the Soviet Union, which began operations in 1954, was the world's first to generate electricity for a power grid. By 1960, 17 reactors were operating in four countries, and by 1970, 90 reactors were operating in 15 countries. The 1970s saw rapid growth in nuclear power, with 25-30 new units starting construction annually. By 1980, there were 253 operating nuclear plants worldwide, with over 3,500 reactor-years of experience and no fatal accidents. However, the 1979 Three Mile Island accident in the US led to public fear, increased regulation, and halted new projects in the US until 2012. The 1986 Chernobyl disaster further fueled opposition and regulation around the world. Despite setbacks, nuclear power expanded globally albeit at a slower pace. Today, 415 reactors operate in 31 countries, including 94 in the US, with a global median nuclear reactor age of 39 years, or about half the expected lifespan of these power plants.

### Leading Countries in Nuclear Production



Source: International Atomic Energy Agency, First Trust Advisors. Top 10 countries for year 2024.

The US leads the world in nuclear electricity generation, producing 781,945 GWh (gigawatt hours) in 2024, which accounted for 18.2% of the country's total energy production. In second place, China generated 417,518 GWh, representing 4.5% of its electricity production. However, China is increasing its nuclear energy capacity significantly, with 35 reactors currently under construction – compared to only one in the US. Chinese nuclear projects are expected to almost double the country's total nuclear capacity by 2040, bringing it close to the current US capacity of 97 GW.

### U.S. Nuclear Reactor Projects

Site	Location	MWe Capacity	Status	Expected Start of Operation
Palisades	Covert, MI	789	Restart	2026
Crane Clean Energy Center (Three Mile Island 1)	Middletown, PA	835	Restart	2027
Idaho National Laboratory	Idaho Falls, ID	75	Proposal	2028
Duane Arnold	Palo, IA	615	Restart	2029
Kemmerer 1	Kemmerer, WY	345	Under Construction	2031
Columbia Generating Station	Benton County, WA	960	Proposal	2031
Palisades	Covert, MI	600	Proposal	2031
Clinch River	Oak Ridge, TN	300	Proposal	2032
Fermi America 1-4	Carson County, TX	5,000	Proposal	2032 - 2036
Seadrift	Calhoun County, TX	320	Proposal	NA

Source: World Nuclear Association, First Trust Advisors.

Although the US has only one nuclear reactor under construction, it is still expanding its nuclear capacity through other channels. Nuclear reactor power plants often take more time to build than other power plants due to safety concerns and regulatory requirements. The recent surge in energy demand due to the data center buildout has forced energy providers to prioritize getting reactors online as fast as possible. As a result, multiple nuclear reactors that had been previously shut down are now being refitted and refurbished for operation within the next few years. In particular, the Palisades plant in Covert, Michigan is set to add 789 MW of electricity to the grid by the end of 2026, enough to power over 800,000 homes. In total, these projects should bring an additional 9.5 GW of electric capacity to the grid by 2036.

This report was prepared by First Trust Advisors L.P. and reflects the current opinion of the authors. It is based upon sources and data believed to be accurate and reliable. Opinions and forward looking statements expressed are subject to change without notice. This information does not constitute a solicitation or an offer to buy or sell any security.