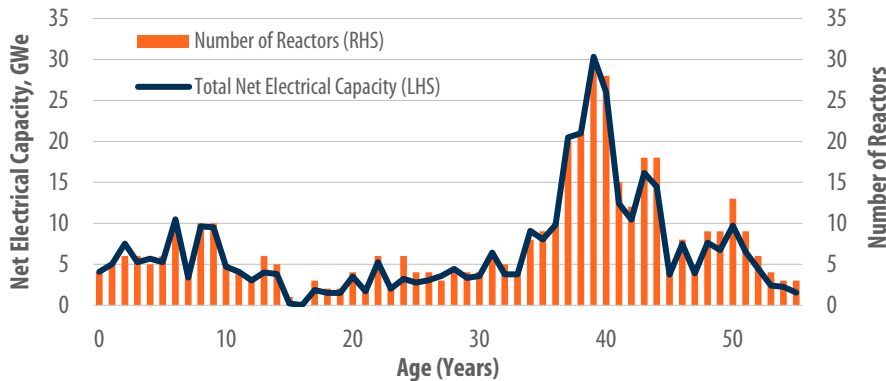


In this week's installment of "Three on Thursday," we take a look at nuclear power. Nuclear energy is a crucial component of the global energy landscape. Unlike fossil fuels, nuclear power plants produce a substantial amount of electricity without emitting greenhouse gases, making them a key player in reducing carbon footprints and achieving net-zero emission goals. Additionally, nuclear energy provides a reliable and stable energy supply, capable of operating continuously and independently of weather conditions, unlike intermittent renewable sources such as solar and wind. With advancements in technology, modern nuclear reactors are safer and more efficient, further mitigating the risks associated with nuclear power. A single nuclear reactor can produce massive amounts of electricity from a very small amount of fuel. The energy density of nuclear fuel is millions of times greater than fossil fuels, requiring far less mining and transportation. Nuclear fuel is extremely abundant, with enough minable uranium and thorium reserves to last for thousands of years at current consumption rates. This ensures a reliable long-term energy supply. So where does the world currently stand? To provide further insight, we've included three informative charts below.

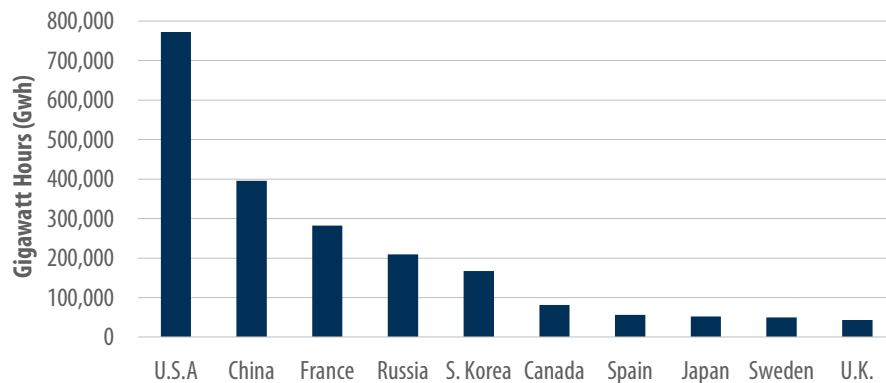
Age Distribution of Nuclear Reactors in the World



Source: International Atomic Energy Agency, First Trust Advisors. Data as of 5/21/2024.

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. Despite setbacks, nuclear power expanded globally. Today, 416 reactors operate in 32 countries, including 94 in the US, with a global median nuclear reactor age of 38 years.

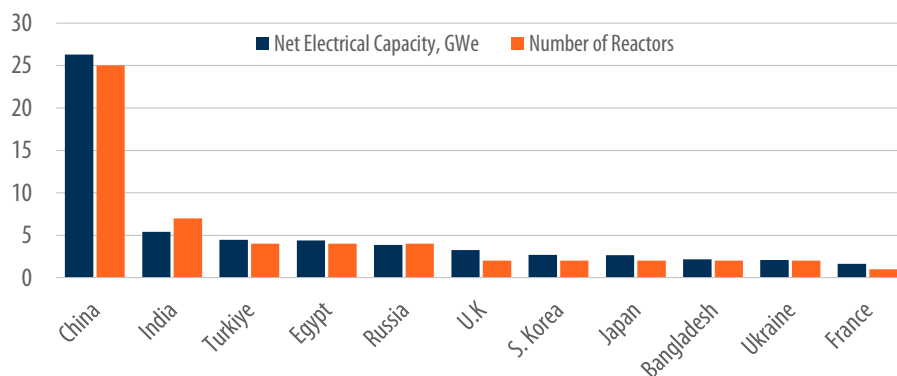
Leading Countries in Nuclear Production



Source: International Atomic Energy Agency, First Trust Advisors. Top 10 countries for year 2022.

The United States leads the world in nuclear electricity generation, producing 773,220 GWh (gigawatt hours) in 2022, accounting for 18.2% of the country's total energy production. In second place, China generated 395,354 GWh, representing 5% of its electricity production. Globally, nuclear power contributed a total of 2,486,834 GWh to electricity production in 2022.

Nuclear Reactors Under Construction in the World



Source: International Atomic Energy Agency, First Trust Advisors. Top 10 countries shown as of 5/21/2024.

A point of concern for the future is that the United States currently has no nuclear reactors under construction. In contrast, China is leading the way with 25 reactors under construction, expected to provide an additional 26.3 GWe. GWe stands for Gigawatt-electric, which is one billion watts of electric capacity. This term is used to express the electrical power output that a power plant, specifically a nuclear power plant, can deliver to the electrical grid. India follows, though far behind, with seven reactors under construction, anticipated to add 5.4 GWe. Globally, there are 59 reactors under construction, projected to yield a total of 61.6 GWe.

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.