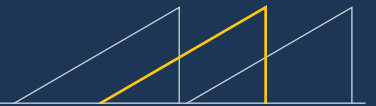


GIB AM Sustainable World

Navigating a Nuclear Resurgence - Opportunities for Outperformance

By Stefanie Mollin



President Donald Trump:

"IT'S TIME FOR NUCLEAR, AND WE'RE GOING TO DO IT VERY BIG"¹

Nuclear complex stocks rallied last week after President Trump published the Executive Order (EO)² related to the streamlining of permitting and approvals, Nuclear Regulatory Commission (NRC) reform, and federal loans and guarantees for the sector. This seems to be a step in the right direction in addressing growing energy demand while continuing along the energy transition path and is a clear tailwind for the Nuclear theme.

Executive Summary

- Global electricity consumption is expected to increase at the fastest pace in recent history over the next few years, growing at ~3.5-4% CAGR³ out through 2050 (the equivalent of adding more than Japan to the world's electricity consumption each year).
- The need to reduce carbon emissions from power generation remains pressing, with power generation still the largest contributor to greenhouse gas (GHG) emissions (accounting for 26% of all GHG emissions in 2024).
- Nuclear energy is one of the only low carbon energy sources that can provide base load power and replace coal and natural gas. Furthermore, nuclear energy's competitive levelised cost of electricity⁴ with coal and natural gas makes it a viable and attractive substitute.
- The [GIB AM Sustainable World Strategy](#) is monitoring the Nuclear theme for catalysts and inflection points through 2025, and we were delighted to see the news around the NRC reform at the end of May.
- In this article, Stefanie Mollin (Co-Portfolio Manager of the GIB AM Sustainable World Fund) discusses the key impacts of President Trump's Nuclear Executive Order, nuclear power generation demand growth drivers, and how the Investment Team are considering accessing the Nuclear theme within the constraints of the Fund's sustainable investment framework.



The long-term growth drivers for the Nuclear theme reflect the fact that electricity consumption is expected to grow at a ~4% CAGR over the next three years (2025-27), and ~3.5% CAGR to 2050 – the equivalent of adding more than Japan to the world's electricity consumption each year.

In 2024, power generation continued to be the largest contributor to greenhouse gas emissions (26%), followed by transport (15%).

Nuclear energy's levelised cost of electricity (LCOE) is comparable to both coal and natural gas, making it a viable and attractive substitute to these carbon emitting options addressing both rising electricity demand and GHG emissions from power generation. The International Energy Agency (IEA) forecasts that future electricity demand growth will be met entirely by growth in low-emission energy sources (renewables and nuclear).

President Trump's executive order should accelerate the adoption and roll out of nuclear reactor projects (new plants and restarts) and increase confidence in forecasts for future growth. In addition, the recent completion of Vogtle 3 and 4 by Southern Company in Georgia in 2023 and 2024, provides confidence in a revitalised and robust supply chain for nuclear reactors, bringing down construction risk for future projects. Vogtle 3 and 4 were the first new nuclear units in the US for more than 30 years.

Figure 1:⁵

Trump seeks to fast-track new nuclear licenses, overhaul regulatory agency

By Jarrett Renshaw

May 23, 2025 10:55 PM GMT+1 · Updated 7 days ago



The Three Mile Island Nuclear power plant is seen at sunset in Middletown, Pennsylvania, U.S., October 15, 2024. REUTERS/Shannon Stapleton/File Photo [Purchase Licensing Rights](#)

The key impact of the Nuclear Executive Order:

- Speeds up the approval and adoption** of specialised nuclear reactors at defence installations and AI sites – with the Department of Energy (DOE) making fuel stock available. The Secretary of Energy will designate DOE sites and will work with the private sector to deploy **advanced nuclear technology to power AI infrastructure within 30 months**. The EO also creates a **special envoy position** and strategy for **nuclear technology exports**. Within 90 days, the government will produce strategies to **increase financing for US nuclear projects** and support foreign adoption.
- Reforms the Nuclear Regulatory Commission (NRC)**, with the goal of increasing capacity from 100 GW currently to 400 GW by 2050. **The EO establishes fixed deadlines for evaluation and approval of licenses** (18 months for construction and operation of new reactors). It also establishes **expedited pathways for approving designs** that have been safety tested by the Department of Defense (DOD) or DOE and creates processes for **high-volume licensing of micro and modular reactors**.
- Streamlines nuclear reactor testing at the DOE**. The EO creates a pilot program targeted at bringing online three experimental reactors by July 4, 2026.
- Leverages the Defense Production Act to collaborate with private industry** to ensure fuel supply and provisions to develop a nuclear energy sector workforce. This allows for voluntary agreements with domestic nuclear companies for the procurement of enriched uranium. **The DOE will facilitate 5 GW of power uprates** (modifications made to existing nuclear power plants to increase their electricity output) **and 10 new large reactors under construction by 2030**. Federal loans and guarantees will support the **restart of closed nuclear power plants, prioritising funding** for companies with potential for near-term deployment of **advanced nuclear technologies (i.e. SMRs – Small Modular Reactors)**.

¹ [Trump signs executive orders to boost nuclear power, speed up approvals](#)

² [President Trump deploys advanced nuclear technologies for national security](#)

³ [Electricity 2025 – Analysis and forecast to 2027](#)

⁴ [Levelised costs of new generation resources in the annual energy outlook 2023](#)

⁵ [Trump seeks to fast-track new nuclear licenses, overhaul regulatory agency](#)

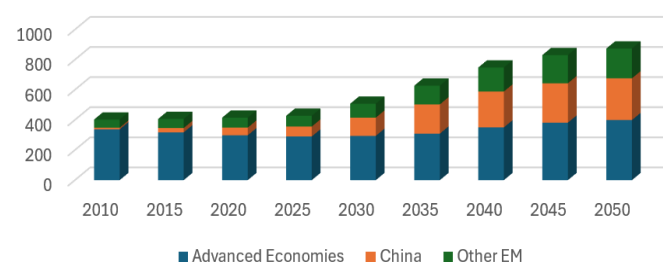
The Nuclear theme is based on solving the challenge of growing electricity demand in a low carbon manner through increased nuclear power. This addresses sustainable development goal (SDG) 7 to ensure access to affordable, reliable, sustainable, and modern energy for all as well as addressing SDG 13 to take urgent action to combat climate change and its impacts.

Challenge: reduce CO2 emissions and increase electricity production to meet growing energy demand.

- According to the IEA, global electricity consumption is expected to increase at the fastest pace in recent history from 2025-2027, fuelled by growing industrial production, rising use of air conditioning, accelerating electrification, and the expansion of data centres worldwide. Global electricity demand rose by 4.3% in 2024 and is **forecast to continue to grow at close to 4% pa out to 2027**. Over the next three years, global electricity consumption is forecast to rise by an unprecedented 3,500 TWh, the equivalent of adding more than Japan to the world's electricity consumption each year. This is also a sharp acceleration over the 2.5% increase in 2023, when strong gains in China, India and Southeast Asia were tempered by declines in advanced economies.⁶
- In the International Energy Outlook 2023 Report the US Energy Information Administration (EIA) projects that **global electricity demand could increase by about one-third to three-quarters by 2050, implying a ~3.5% CAGR**.⁷

In 2024, the power sector (i.e. electricity production) continued to be the largest global contributor to emissions at 15.1 GtCO₂e (26%), followed by transport (8.4 GtCO₂e – 15%), agriculture (6.5 GtCO₂e-11%) and industry (6.5 GtCO₂e – 11%).⁸

Figure 2: Global Nuclear Capacity (GW)



Solution: increase electricity supplied by low-carbon sources (renewables and nuclear).

- **Renewables will overtake coal as the largest source of global electricity supply in 2025.** Renewables will surpass coal-fired generation in 2025, and coal's share will decline below 33% for the first time in the last 100 years.
- **When renewables (hydro, solar, wind) play a pivotal role in the energy transition the main problem for solar and wind technologies is that they are intermittent:** it is not sunny at night and is usually not windy either. Solar and wind only work 25-35% of the time and therefore cannot provide a grid with a baseload of energy. In addition, there are certain times where there is just no wind or sun for several days or weeks. Nuclear energy is one of the only low carbon energy sources that can provide base load power and replace coal and natural gas.
- **Global nuclear generation is expected to reach a new high in 2025 and continue to rise steadily over the following two years, setting further records. Global nuclear generation rose 3.5% in 2024**, after a 2.1% increase in 2023. The maintenance of the French nuclear fleet progressed faster than initially forecast, boosting generation by almost 13%. Global nuclear generation is expected to rise by 2.3% annually on average in 2025-2027, as new reactors in China, Korea, and Europe, as well as restarted ones in Japan, become operational.⁹
- **Nuclear power LCOEs¹⁰ are comparable to the carbon emitting sources of coal and natural gas.** Advanced nuclear has a LCOE of \$88-120 per MWh vs. \$72-120 for coal and \$39-101 for natural gas.

Nuclear power generation demand growth drivers are both governmental and commercial providing multiple catalysts for the Nuclear theme to gain market attention, lead to increased nuclear revenue growth certainty, and earnings upgrades for the nuclear power generation complex.

Government commitment to nuclear generation capacity growth: At the COP28 climate change conference in Dubai in December 2023, nuclear energy received high-level recognition for the first time. Leaders from 25 governments

⁶ IEA Electricity 2025 Report

⁷ International Energy Outlook 2023

⁸ UN Environment Programme Emissions Gap Report 2024

⁹ Electricity 2025

¹⁰ Levelised Costs of New Generation Resources in the Annual Energy Outlook

signed a ministerial declaration committing to the tripling of global nuclear energy capacity to achieve net zero by 2050. Confidence in future nuclear generation capacity growth is bolstered by the commercial demand to restart or build new nuclear facilities.

Commercial interest in nuclear generation capacity is coming, in large part, from the need to power AI. Powering AI through nuclear power is directly linked to our Frontier Technology theme in which the challenge of exponential growth in compute power demand while miniaturisation is reaching limits is addressed by 2nm chips, AI, quantum computing, lithography, and visualisation.

Commercial nuclear power agreements include the Microsoft and Constellation Energy power purchase agreement (PPA). The 837MW Three Mile Island Unit 1 nuclear power plant is scheduled to restart operations in 2028, following a 20-year PPA between Constellation Energy and Microsoft. The plant's Unit 1 reactor, which was shut down in 2019 due to economic challenges, will be reactivated to supply carbon-free electricity to Microsoft's data centres. The plant will be renamed the Crane Clean Energy Center. **As of early 2025, the project is progressing ahead of schedule.** Constellation Energy has already hired 200 of the anticipated 600 full-time employees needed for the plant's operation. The company is investing \$1.6 billion into the plant's upgrades, pending regulatory approval.

Another recent example of commercial appeal for nuclear power generation is the Google-Kairos Power agreement for small modular reactors (SMRs). Google signed a groundbreaking agreement with Kairos Power to purchase up to 500MWh of electricity from multiple SMRs. The first reactor is expected to be operational by 2030, with additional units planned through 2035. This initiative supports Google's commitment to 24/7 carbon-free energy for its AI data centres. Google states, 'The next generation of advanced nuclear reactors offers a new pathway to accelerate nuclear deployment thanks to their simplified design and robust, inherent safety. The smaller size and modular design can reduce construction timelines, allow deployment in more places, and make the final project delivery more predictable.' Kairos Power has already reached several technical milestones toward deploying its first power-producing reactor and unlocking the path to long-term commercial scale. **In summer 2024, Kairos Power broke ground on its Hermes non-powered demonstration reactor in Tennessee,** the first U.S.

advanced reactor project to receive a construction permit from the U.S. Nuclear Regulatory Commission.

We are actively monitoring ways of leveraging the nuclear theme within the constraints of our sustainable investment framework. The nuclear value chain is spread across (a) uranium producers; (b) nuclear power generation; and (c) reactor construction and components. Our preference in the value chain is for nuclear power generation > reactor manufacture/components > uranium production.

Uranium Production: producers currently screen expensive, higher risk, lower quality, and higher growth. Within the group, **Cameco Corp (CCJ US) stands out as one of the more attractive companies** on growth, quality, value, and volatility. For background, Cameco is one of the world's largest providers of uranium. Other names in this part of the value chain include: Centrus Energy (LEU), Nexgen (NXE), Energy Fuels (UUUU), Lightbridge (LTBR), and Uranium Energy (UEC).

Nuclear Power Generation: in the US, 44% of nuclear power plants are owned by independent power producers (IPPs) and 56% by utilities. Within this group, the most thematically aligned include: Nextera, Brookfield Renewable, Vistra Corp. and Constellation Energy. Amongst these stocks, **Nextera screens attractively** currently.

Reactor construction and components incorporates nuclear reactor manufacturers and suppliers to them. The main nuclear reactor manufacturers are GE Vernova, Westinghouse and Babcock & Wilcox.

The main listed companies which produce nuclear reactors include: Nuscale Power, GE Vernova (via GE Hitachi Nuclear Energy JV), Hitachi (via GE Hitachi Nuclear Energy JV), Cameco (via Westinghouse JV), Brookfield Renewable Partner (via Westinghouse JV), Mitsubishi Heavy, Nano Nuclear Energy, BWX, and Babcock & Wilcox (<\$1bn). **Cameco and Nano Nuclear screen the most attractive.**

The main reactor component suppliers include companies like Flowserve, Emerson Electric, Crane Co, Curtis Wright. Companies like **BWX, Curtiss-Wright, and Crane screen well** amongst this group.



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