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The second nuclear reactor approaching Hinkley Point C. The domes of on the two new reactor buildings are in the background. Image: EDFenergy

Delivery of Nuclear Reactor for Hinkley Point C Unit 2

Two EPR pressurised water reactors of 1630 MWe each are being built at Hinkley Point C in the UK. Hinkley Point C has taken delivery of its second nuclear reactor. The first arrived in 2023 and is already installed and welded in place on Unit 1 of the power station.

The high strength steel cylinder weighs in at 500-tonnes and is 13-metres long. The reactor was shipped from the Framatome Saint Marcel factory in France to Bristol, before being transported by barge. The final journey was a six-hour road trip for four miles by a transporter to the construction site.

First concrete for the nuclear island of Unit 1 was poured in December 2018 and is now expected to come online in 2030.

Funding is approved for two further EPR units to be constructed at Sizewell C.

Recent Nuclear Energy Developments around the World: January to March 2026

Information sourced from World Nuclear News https://www.world-nuclear-news.org/.

New Builds and Life Extensions

Canada: Unit 4 at Darlington is back at full power following refurbishment to extend the unit's life by 30 years. The refurbishment took 968 days and was completed four months early and CAD150 million under budget.

Darlington Nuclear Power Plant, Canada. The plant is 70 km from Toronto

China: First concrete has been poured for two more CAP1000 reactors in China, Unit 1 of the Bailong nuclear power plant and Unit 2 at the Lufeng plant. The CAP1000 pressurised water reactor is the Chinese version of the Westinghouse AP1000. The two units are expected to cost USD5.6 billion and take 56 months to construct.

China: First concrete has been poured for the Xuwei nuclear power project. The project involves coupling two Hualong One reactors with a high temperature gas cooled reactor to provide both electricity and industrial heat. Saturated steam from the Hualong One will be further heated in the HTGR to the high temperatures required for an industrial refinery

China: Unit 2 of Hangzhou nuclear power plant has commenced commercial operation. Unit 2 is the second of six Hualong One (HPR1000) reactors planned at the site. Construction of Unit 2 commenced in September 2020.

China: Unit 1 of the Taipingling nuclear power plant has been connected to the grid. Unit 1 is the first of six Hualong One reactors planned for the site. Construction of the unit commenced in 2019.

China: Unit 1 at San'ao has been connected to the grid and is supplying electricity to the grid. Unit 1 is the first of six Hualong One reactors planned for the site.

Hungary: First concrete has been poured for the Paks II nuclear power plant. Two VVER-1200 units are planned for the site. When complete, the plant can provide 70% of the electricity demand in Hungary.

India: Tarapur Unit 1 (TAPS-1) has been refurbished and returned to service. The unit is a 160 MWe BWR that entered commercial operation in 1969. TAPS-1 and 2 are the oldest commercial nuclear power reactors in India. The refurbishment will extend the life of TAPS-1 by a decade.

India: Rajasthan Unit 7 has reached full power. Unit 7 is the third of 16 planned 700 MWe pressurised heavy water reactors planned for India.

India: First concrete has been poured for Units 5 and 6 at Kaiga. Both units are 700 MWe pressurised heavy water reactors. India has a program of "fleet mode" construction of this indigenous reactor design and aims for 200 GW of nuclear capacity by 2047.

Japan: Unit 6 at the Kashiwazaki-Kariwa nuclear power plant has restarted after being offline for almost 14 years. It is the 14th reactor to resume operations since the accident at the Fukushima Daiichi plant.

Russia: The first new reactor at the Kursk II site, a VVER-TOI reactor, has been connected to the grid and reached 100% power. The VVER-TOI reactor is rated at 1250 MWe, higher than previous models of the VVER technology. Construction of the Unit began in 2018. Four units are planned for the site, the last to be operational by 2034.

Russia: The last units at the Bilibino nuclear power plant have been shut down. Three 12 MWe EGP-6 light water graphite-moderated reactors were taken offline in December, with the capacity replaced by the 70 MW floating nuclear power plant, the Akademik Lomonosov. The plant is located in Russia's Arctic north east.

Russia: Leningrad 4, an RBMK-1000 reactor, has been granted a 5-year licence extension to 50 years of operating life.

United States: A construction permit has been granted for Unit 1 for the TerraPower Natrium Kemmerer project. This is the first construction permit granted for a commercial scale non-light water reactor in four decades. Natrium is a 345 MWe sodium-cooled fast reactor with a molten salt-based energy storage system.

Continued Page 3

Recent Nuclear Energy Developments – Continued from Page 2

Policy

Europe: The President of the European Commission, Ursula von der Leyen, has stated that she believes it was "a strategic mistake for Europe to turn its back on a reliable, affordable source of low-emissions power [nuclear energy]". The President also announced new financial support for nuclear energy, funded via the Emissions Trading System.

World: An additional five countries have signed the pledge to triple nuclear capacity by 2050 – China, Brazil, Italy, Belgium and South Africa. This brings the number of signatories to 38.

United States: Meta has signed agreements that will support up to 6.6 GW of existing and new capacity in the US by 2035:

- 20-year power purchase agreements with Vistra Corp for nearly 2.2 GW of nuclear capacity from two operating plants in Ohio, plus the energy from uprates from two plants in Pennsylvania.
- Energy from up to eight Natrium sodium fast reactors provided by TerraPower, capacity approximately 2.8 GW.
- Development of 1.2 GW of Oklo aurora powerhouse deployment.

Russia: The Russian regulator Rostekhnadzor has issued 10-year operating licences for Zaporizhzhia Units 1 and 2. The Zaporizhzhia plant has been under Russian military control since 2022. Russia aims to restart the Units when conditions are right, i.e. they will not be restarted while the military conflict continues. Ukraine maintains the plant should be returned to the control of its regulatory system.

Ukraine: Two sites within the Chernobyl Exclusion Zone have been identified as future SMR locations. Last year there were 210 organised visits into the zone for various reasons, including by banks, diplomats and government officials.

United States: Efforts have commenced to gain an additional 5 GW of capacity in the US by 2029 through reactor life extensions, power uprates and restarting closed facilities. The US has an overall goal of expanding capacity from 100 GW to 400 GW by 2050.

Other

Finland: An operating licence has been granted for a new very low-level waste disposal facility at Olkiluoto.

UK/Australia: Lloyds Register has given in principal approval to Australian ship builder Seatransport Pty Ltd for a concept hybrid nuclear-diesel powered ship. The design includes the use of micro modular reactors combined with conventional diesel-electric systems.

Jo Lackenby ANA

Rooppur Nuclear Power Plant (RNPP) Unit 1 is expected to startup in 2026

The Bangladesh Rooppur Nuclear Power Plant (RNPP) is Bangladesh's first nuclear power facility, marking a significant milestone in the country's pursuit of energy diversification and sustainable development.

The Rooppur Nuclear Power Plant (Image: Rooppur NPP)

Bangladesh's current energy mix is heavily dependent on natural gas and coal. The introduction of nuclear power will help reduce greenhouse gas emissions and improve energy security by providing a reliable baseload power supply.

The Rooppur Nuclear Power Plant employs two VVER-1200 pressurized water reactors (PWR), designed and manufactured by Atomstroyexport, a Russian state nuclear engineering company. The VVER-1200 is a Generation III+ reactor known for enhanced safety features and improved efficiency.

Construction of the 1,200 MWe Unit 1 commenced in 2017 and is scheduled to begin supplying electricity to Bangladesh's national grid around June or early July 2026, with fuel loading expected in April 2026. Construction of Unit 2 began in 2018. Full-scale commercial operation Unit 1 is targeted for December 2026, following trial runs and grid integration, according to World Nuclear Association.

https://www.nuclearaustralia.org.au/wp-content/uploads/2026/04/Rooppur-NPP.pdf

Mamun Haque ANA

Transportable Micro Modular Reactors (MMRs)

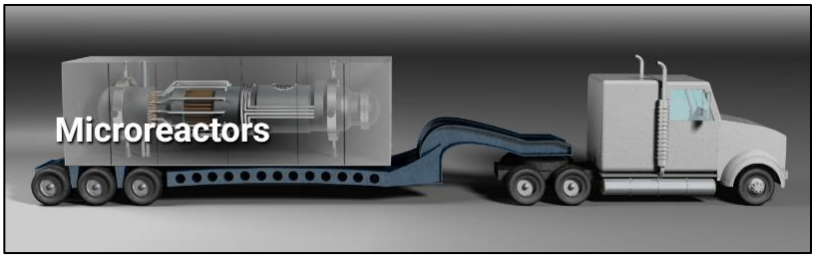
Large ~1000 MW reactors make up most of the world's 415 operational reactors and 74 units under construction. Mid-sized SMRs were promised to be more economical but designs such as the BWRX (300 MW) are under construction and yet to be proven. Smaller still are micro modular reactors (MMRs) outputting 20 MW or less. Even smaller (< 5 MW) transportable MMRs are designed to complement diesel electric generation for off-grid applications like mining or maritime use.

As such, MMRs compete in the diesel electric market (>$250/ MWh) which carries a significant cost premium compared against grid-electricity ($50 - $100 / MWh). The current war in the Middle East has spiked fuel prices and reduced fuel supply which makes MMRs even more attractive for its ability to operate 5+ years without refuelling.

In addition, MMRs have higher inherent safety by virtue of its small size and lower operating power at approximately 1/200th that of large reactors. To put this into perspective, MMRs operate at the same power level of research reactors and are equipped with passive safety systems that keep the reactor safe in the event of an earthquake, flood or blackout. So, for all intents and purposes, MMRs can be regarded as research reactors, only they produce power.

Given these advantages, many companies are racing to develop the first remote-deployable MMR. Such is the importance of energy security, the US Government has implemented policy changes to encourage advanced reactor development, particularly for transportable MMRs via regulatory streamlining, public/private, National Laboratory/start-up collaborations and using the DOE (Department of Energy) approval process in parallel with the traditional NRC (US Nuclear Regulatory Commission) licensing framework to accelerate MMR development.

As a result, there are currently over 20 US and international MMR developers working in the US. MMR developers such as Westinghouse, Radiant and Deployable Energy (of which I am a cofounder) are targeting zero-power criticality tests as soon as 4th of July this year and with full-power demonstration before 2030. Valar Atomics' Ward 250 - a 5 MW micro, High Temperature Gas Reactor (mHTGR), has already achieved 'zero power testing' using the criticality facility at LANL (Los Alamos National Laboratory) in November last year.



Transportable MMR. Image: Idaho National Laboratory

Transportable MMRs come in a variety of designs. From helium-cooled mHTRGs by Valar Atomics, BWXT and Radiant, to Westinghouse's heat-pipe cooled 5 MW eVinci design. All four designs are graphite moderated and use HALEU (High-Assay Low Enriched Uranium, enriched from 5 to 19.75%) fuel fabricated as TRISO (TRI-structural ISOtropic) particles embedded in prismatic blocks. TRISO fuel is designed to operate at high temperatures and can survive up to 1600°C, though is manufactured at great cost. Deployable Energy's 1 MW Unity MMR is also helium cooled but is water moderated and uses 5% LEU (Low Enriched Uranium) fuel commonly used in large 1 GW reactors to reduce operational cost.

Recently, MMRs have seen vigorous development as both developers and regulators see MMRs to have the highest chance for full-power demonstration within a 3-to-5-year timeframe. This is for reasons of (1) their small size, which allows for the full-scale thermal-hydraulic testing that greatly assist in the NRC licensing process, (2) a smaller fuel inventory (and thus reduced prototype cost) compared to large power reactors, and (3) better license ability due to a smaller radioactive source-term, lower decay heat and lower risk profile - all of which contribute to an improved safety case. MMRs are an exciting technology that is making fast progress and is sure to make tomorrow's news**.**

Mark Ho, ANA

The **Australian Nuclear Association ANA2026 Conference** will be 9 am – 5 pm AEDT on **Friday 9th October 2026** at the **UTS Aerial Function Centre**, Level 7, UTS Building 10, 235 Jones Street, Ultimo, NSW 2007. *Mark the date on your calendar*