

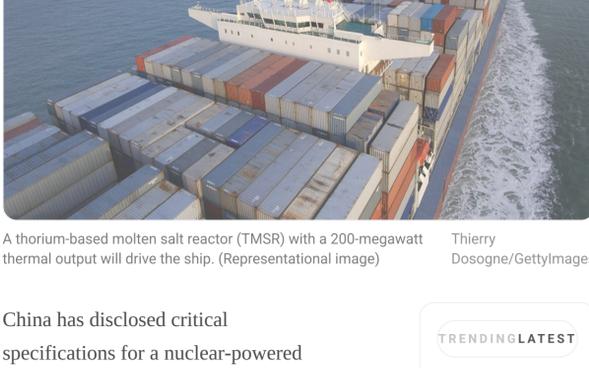
# China unveils thorium-powered nuclear cargo ship that can carry 14,000 containers

Its 200MW thermal output matches the power of the US Navy's S6W reactors used in Seawolf-class nuclear attack submarines.

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By A...Transportation  
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A thorium-based molten salt reactor (TMSR) with a 200-megawatt thermal output will drive the ship. (Representational image) Thierry Dosogne/GettyImages

China has disclosed critical specifications for a nuclear-powered 'world's largest' cargo ship under development, revealing it will be driven by a groundbreaking thorium-based molten salt reactor (TMSR) with a thermal output of 200 megawatts. The vessel is designed to carry 14,000 standard shipping containers.

Hu Keyi, a senior engineer with Jiangnan Shipbuilding Group, disclosed the details.

The reactor's 200MW thermal output matches the power level of the S6W reactors used in the US Navy's advanced Seawolf-class nuclear attack submarines.

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The ship's concept was first announced in 2023, but technical details were scarce until now, as [reported](#) by SCMP.

## Advanced propulsion and efficiency

Instead of using heat for direct propulsion, Hu explained the 200MW thermal output will power a supercritical carbon dioxide (sCO2) generator using the highly efficient Brayton cycle.

This system generates 50MW of electrical power—enough to propel the vessel for years without refueling. According to Hu, this advanced sCO2 cycle achieves a thermal-to-electric conversion efficiency of 45 to 50 percent, a massive leap over the roughly 33 percent efficiency of conventional steam-based reactors.

A primary advantage of the new design is its inherent safety, stemming from the choice of thorium over traditional uranium. Thorium is more abundant, and the [reactor design](#) does not require water for cooling, allowing for a smaller, quieter, and safer system.

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## China's push toward nuclear energy

The container ship is a crucial component of China's broader initiative in advanced nuclear power. This move follows a historic milestone in 2025, when China's experimental thorium reactor in the Gobi Desert became the world's first to achieve long-term stable operation, proving the technology. The United States had abandoned its own thorium reactor program in the 1960s.

China is also leveraging its vast thorium reserves, particularly in Inner Mongolia, to fuel this new generation of reactors. Hu also revealed that China is exploring other nuclear vessels, including a Suezmax oil tanker powered by a lead-bismuth cooled fast reactor and a floating nuclear power station.

A recent breakthrough has further bolstered this push into thorium technology. China announced it had successfully achieved the [first-ever conversion of thorium](#) into uranium fuel within a Thorium Molten Salt Reactor (TMSR).

This result provides the first concrete proof of the technical feasibility of using thorium in a molten-salt reactor system. The achievement is a crucial milestone, offering a viable pathway for China to harness its extensive domestic thorium resources and represents a significant step forward in the global development of next-generation nuclear energy.

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