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New Asia Perspectives

Welcome to Morgan Creek's New Asia Perspectives, an open forum where we share our proprietary research together with curated articles of interest. We seek to offer a variant interpretation of important political and economic events through an Asian lens by leveraging our team's "on the ground" insights and decades-long experience in covering the region. We disseminate our research through newsletters, webinars and periodic whitepapers. Feel free to forward our research to colleagues you think might be interested and please share any interesting research you come across as well. To offer comments, share research, or learn more about our team and investment offerings, please email chinateam@morgancreekcap.com.

Best Regards,

Mark W. Yusko

Mark W. Yusko
CEO & CIO

NOTES FROM THE BUND[1]

Despite the pursuit of various fusion pathways by different countries, the Tokamak remains the most heavily funded and advanced technology globally, edging us closer to fusion commercialization. Early research linked Tokamak's size to fusion power, guiding the design of the first International Thermonuclear Experimental Reactor (ITER).[2] As a result, this device spanned 180 hectares, weighed 23,000 tons, and cost over 60 billion euros. This is why the progress of this process is so slow. Such colossal investment, coupled with extremely long project duration and other factors in technology, management, and international relations, hampers fusion's progress. However, the introduction of high-temperature superconducting technology[3] appears to be a game-changer. Within the past decade, this material has allowed for four times the magnetic field strength and 15 times the confinement capability.[4] Theoretically, this means we can achieve the power required for controlled nuclear fusion ignition using a much smaller device.

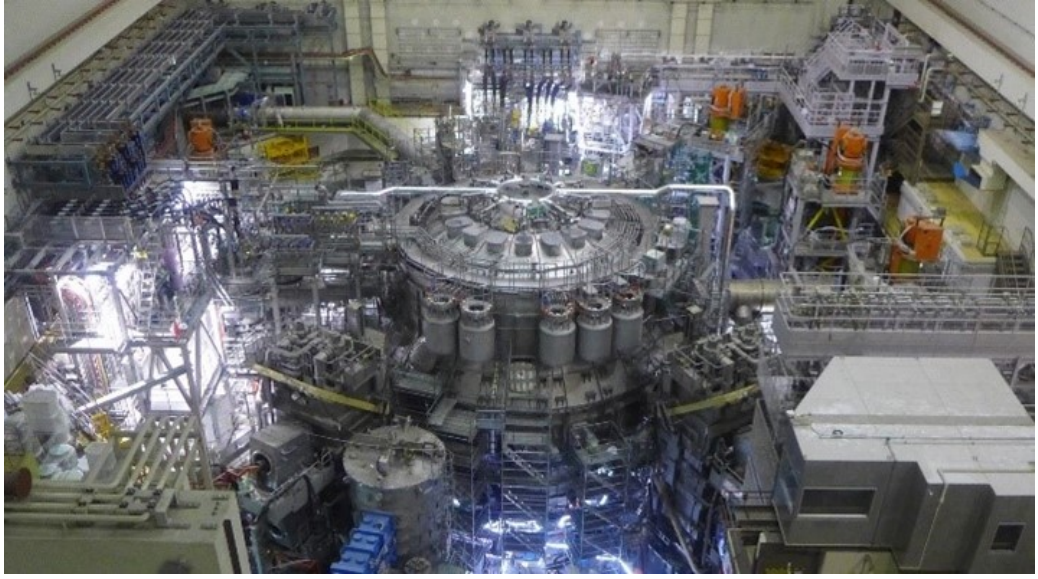

Figure 1: Tokamak Fusion Reactor

China has been at the forefront of this field, especially showcasing its engineering strengths. As a key member of the ITER project[5], China has been responsible for manufacturing 18 procurement packages since 2008. These include essential components like the magnet support system, magnet feeder system, power system, etc.

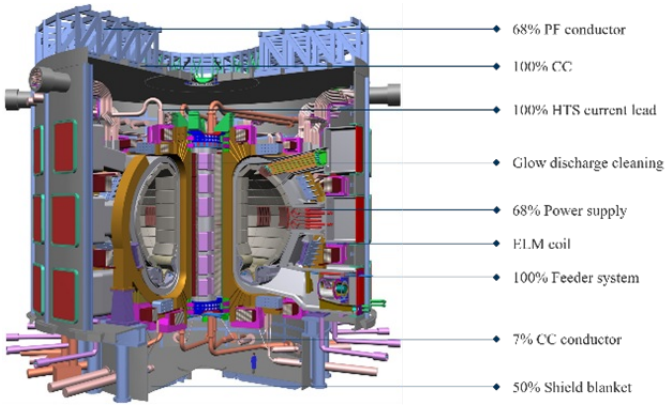

Figure 2: China's Contribution in ITER Procurement[6]

China's participation in international projects has significantly advanced its technology in the field. The EAST (Experimental Advanced Superconducting Tokamak), another device, was proposed by China in 1996 and completed in 2006.[7] It is the world's first all-superconducting Tokamak, utilizing superconducting materials in all magnets. Since 2011, China has filed more patents in nuclear fusion technology supply chains than any other country.[8] By 2014, China established a kilometer-level production line for high-temperature superconducting tapes. By 2020, the production capacity had reached several hundred kilometers per year, sufficient for assembling a Tokamak device. Most recently, in June 2024, China's Energy Singularity produced a net energy-positive fusion reaction using its fully high-temperature superconducting Tokamak device, further highlighting the commercial potential of this technology.[9] Going forward, the country outlined plans to build a demonstration fusion power plant by 2050, with an expected capacity of 1 gigawatt (GW).

Figure 3: Key Supply Chain of Nuclear Fusion Power Plant Using Tokamak Technology and Chinese Companies' Presence

In conclusion, we believe nuclear fusion holds the promise of meeting future energy demands sustainably. With ongoing advancements and international collaboration, fusion energy could pave the way for a future powered by clean energy.

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ASIA NEWS SPOTLIGHT

Asia-USWC Spot Rates Edge Lower as New Capacity takes Edge Off Overheated Market: Spot ocean rates for Asia to the US West Coast appear to have peaked after edging lower over the past week, forwarders and carriers say, reflecting the capacity recently injected on the trade to handle what US retailers are calling their strongest volumes in two years. After climbing steadily since May 1 amid twice-monthly general rate increases (GRIs), forwarders expect the rate decline to accelerate in the coming weeks after carriers launched or reinstated 10 services into the eastbound trans-Pacific. *Read More.*

China Ranks Among Best in Global Nuclear Safety, Advances AI Integration into Nuke Power Operation: The overall safety level of nuclear power in China ranks among the best in the world, and China is working on integrating artificial intelligence (AI) and big data into the application of nuclear power plants to ensure safer and more reliable nuclear power operations, industry insiders said at a forum held in Beijing on Wednesday. Ye Qizhen, an academician at the Chinese Academy of Engineering, said at the forum that China's operational nuclear units have maintained safe and stable operation, with no International Nuclear and Radiological Event Scale (INES) level 2 or above operational incidents in the last 30 years. In 2023, there were no operational incidents of INES level 1 or above, placing China's operational safety level among the best in the world, Ye noted. *Read More.*

Japan Builds Gas Markets in Asia to Boost LNG Trading, Energy Security: Japanese companies foreseeing a growing surplus in stocks of liquefied natural gas (LNG) as their demand for the fuel wanes in coming years, are scrambling to invest in regional markets to provide potential outlets to sell the gas. As more nuclear plants restart and renewable energy gains momentum, Japan's LNG imports are at their lowest in over a decade, spurring companies to turn to Asia to unload supplies contracted during past market shocks, such as

Russia's 2022 invasion of Ukraine. *Read More.*

Actis' Southeast Asia Renewables Platform Levanta Makes First Thailand Investment With 139MWp Operating Solar Portfolio Acquisition: Levanta Renewables ("Levanta"), Actis' (a leading sustainable infrastructure investor) renewable energy developer and independent power producer in Southeast Asia, has announced the acquisition of a 90% controlling shareholding in a 139.4MWp operating solar project portfolio in Thailand. The projects have been acquired from Super Energy Corporation Public Co. Ltd. ("Super Energy"), a leading Thai renewable energy developer with operations across Thailand and Vietnam, and Super Energy Group Co. Ltd., a subsidiary of Super Energy. The investment marks Levanta's first transaction and entry into the Thai market and serves as a key step towards its goal of achieving 1.5GW of operating capacity across Southeast Asia. *Read More.*

China's Solar Power Prowess can Truly Shine in Energy-starved Africa: Compared to electric vehicles (EVs), China's production overcapacity in solar panels may be more glaring. The country commands 80 per cent of the solar photovoltaic (PV) value chain and its five-fold expansion in module manufacturing capacity during 2022 and 2023 precipitated a 40 per cent price decline last year. Long before the US moved to lock out Chinese EVs, it had imposed heavy tariffs on Chinese solar panels – in 2012. But the industry's supply-demand balance must be understood in the context of its sustained high growth. *Read More.*

[1]The Bund is a historic waterfront area in central Shanghai, where Morgan Creek's office is located. From the 1860s to the 1930s, it was the rich and powerful center of the foreign establishment in Shanghai, operating as a legally protected treaty port. The picture above is part of the historical waterfront.

[2] Note: In 1985, Soviet General Secretary Gorbachev proposed to US President Reagan the joint construction of a large Tokamak device (ITER). This facility is located in the small town of Cadarache in southern France; Source: 10 YEARS AGO: THE AGREEMENT THAT ESTABLISHED ITER, https://www.iter.org/, Nov 21, 2016

[3] Note: Superconductors demonstrate the zero-resistance effect, minimizing energy loss during current transmission. Moreover, superconducting coils boast robust current-carrying capacities, enabling the creation of stronger magnetic fields. Elevating magnetic field strength not only enhances fusion power but also effectively reduces the size of the reaction apparatus.

[4] Source: Nuclear Fusion Power, https://world-nuclear.org/, Dec 22, 2022

[5] Note: As signatories to the ITER Agreement, the ITER Members China, the European Union, India, Japan, Korea, Russia and the United States will share in the cost of project construction, operation and decommissioning, and also share in the experimental results and any intellectual property generated by the project. Twenty years of collaborative research experiments are planned on the machine; Source: International cooperation boosts China's competitiveness in controlled nuclear fusion: political advisor, https://www.globaltimes.cn/, March 7, 2024

[6] Source: Chinese Consortium Gets the Order Assembling Core Part of ITER Tokamak, http://english.ipp.cas.cn/

[7] Source: Controlled nuclear fusion, CDSE Security, April, 2024

[8] Source: Nuclear fusion patent competitiveness: China ranks first, the United States ranks second, https://cn.nikkei.com/, Feb 23, 2023

[9] Source: New world record: China's 'artificial sun' runs for 403 seconds in steady-state high-confinement plasma operation, https://news.cgtn.com/, Apr 13, 2023