World-First 5MW AEM Electrolyser to deliver cheaper green hydrogen, to be deployed end 2025 by Horizon

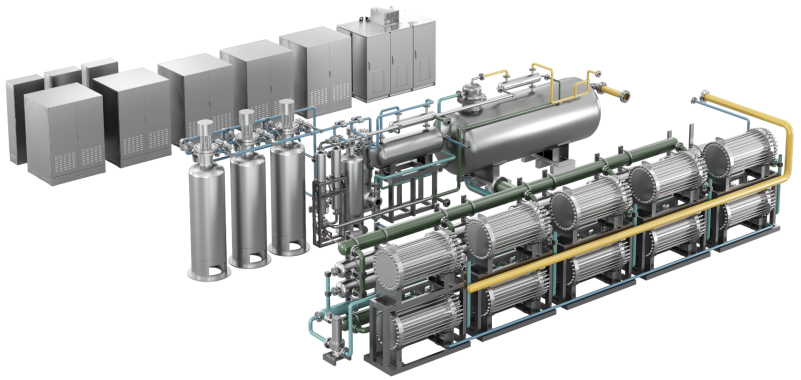
SINGAPORE, August 4, 2025 /EINPresswire.com/ -- Horizon is redefining the viability of green hydrogen production, enabling lower cost green hydrogen for sectors such as steel production, ammonia, methanol and zero emission transportation through its electrolyser subsidiary HET Hydrogen. The first of the groundbreaking 5MW systems are currently being prepared for deployment with a subsidiary of Rockcheck Steel Group Co Ltd, a leading industrial enterprise in Tianjin, China.

Rockcheck Steel Group Operations

Horizon logo file

The collaboration with Rockcheck Steel is part of an integrated system of photovoltaics / hydrogen / hydrogen-enriched smelting, utilising a 17MW building-integrated photovoltaic (BIPV) system and two 5MW (1000Nm³/h) AEM hydrogen production systems. The green hydrogen produced will be injected into the gas pipeline for blast furnace operations at Rockcheck Steel Group, aiming to reduce coal consumption and carbon emissions. The world-first electrolyser is expected to be operational around the end of 2025, accelerating and promoting sustainable hydrogen in the progressive decarbonisation of steel production, one of the most difficult to abate industry

sectors.



Horizon 5MW AEM Electrolyser For Lower Cost Green Hydrogen

As an important part of the global energy transition, the interest in hydrogen as a decarbonisation tool is high, but the cost of hydrogen has been a hurdle to widespread adoption. Horizon's modular AEM system provides a convenient and cost-effective solution for large-scale production of green hydrogen, enhancing the transition to green fertilisers and green chemicals, and the move to more sustainable heavy industry. Horizon's AEM system reduces power consumption by 10–20% compared to traditional alkaline technology, and will demonstrate a lower levelized cost of hydrogen (LCOH) than alkaline electrolyser systems. With the AEM equipment deployed on large scale, the capital cost of AEM is also expected to challenge that of alkaline equipment, the key selling point of that traditional technology.

The successful completion of this project will pave the way for the deployment of Horizon AEM systems with renewable power projects around the world, providing more efficient hydrogen production from photovoltaic, wind and other renewable power sources. It accommodates intermittent power input and improves the utilisation of renewable energy to produce green hydrogen at a cost as low as US$2/kg. This delivers highly competitive green hydrogen solutions for downstream applications such as green ammonia, green alcohols, hydrogen metallurgy, and transportation.

Green ammonia is the next target for meaningful validation of AEM electrolysis at scale, with increasing interest in ammonia not only as a hydrogen carrier, but also as a direct fuel for gradual decarbonisation of power generation and global shipping operations. To that end, Horizon is currently collaborating with third parties to design a flexible green ammonia production scheme.

Horizon Fuel Cell and electrolyser subsidiary HET Hydrogen will continue to promote technological innovation in both green hydrogen production and its applications, with a mandate of improving the viability of the hydrogen economy.

About Horizon Fuel Cell Group
Horizon Fuel Cell was founded in 2003, with a focus on fundamental innovation in materials and systems-level technology for fuel cells and electrolysers. Horizon is a world leader in key technologies across the hydrogen value chain, making hydrogen viable through the provision of best-in-class equipment, and is a global leader in eliminating diesel from heavy duty applications such as commercial transport and industrial processes.

About Rockcheck Steel Group
Rockcheck Group was formed in 1988, and is headquartered in Tianjin, China. With over 10,000 personnel, the company is one of the top 500 enterprises in China. Rockcheck has a sense of urgency around ESG, and is investing heavily in environmental protection and social welfare. Rockcheck sees their decarbonisation efforts as part of a broader technology-enabled modernisation that positions the group well on the international stage.

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