

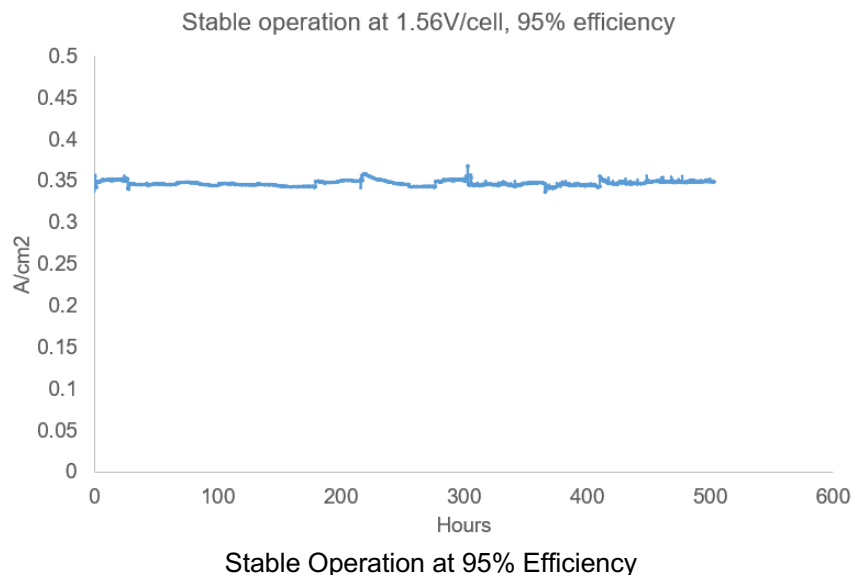
## Horizon AEM Electrolyser Achieves 95% Efficiency

Singapore 14 June 2024

Green hydrogen costs need to drop significantly for the global community to meet its decarbonization goals, which are best achieved when green hydrogen competes economically with fossil fuel alternatives. AEM (Anion Exchange Membrane) electrolysis stands out as a highly promising technology due to strong dynamic response capabilities, much lower equipment costs and higher efficiencies, compared to alternatives.

Energy consumption of 42kWh for each kilogram of hydrogen produced is now within reach.

AEM electrolyzers are known to reach very high efficiency operating at low voltage. However, such operating conditions were not well suited to mass deployment due to instability and low current density (hence output). Through a combination of several innovations, Horizon Fuel Cell's scientists are operating AEM electrolyzers at  $0.35\text{A}/\text{cm}^2$  at  $1.56\text{V}/\text{cell}$ , with stable performance under lab conditions. This current density is similar to commercial alkaline electrolyzers, however 20% higher efficiency is achieved with dramatically lower operating voltage.



Among the innovations, Horizon invented a novel electrode structure (patent pending) with high surface area and excellent stability. Horizon also eliminates iridium and titanium from stack designs, and relies upon low cost, earth-abundant materials. The new Horizon AEM platform can be produced in large scale to meet the global energy transition, with Horizon's existing volume production equipment readily adapted for AEM electrolyzers.



Although some additional validation work remains prior to launch, recent progress demonstrates the high potential of AEM electrolyzers to reach the widely sought green hydrogen production target of \$1/kg from renewable electricity. Horizon AEM electrolyzers substantially outperform the best PEM electrolyzers on efficiency, with a price point in line with traditional alkaline electrolyzers.

Horizon aims to launch the new MW-scale high efficiency AEM electrolyzers around the end of 2024.

**About Horizon's New AEM Electrolyser Technology:**

See the official press release from here: <https://www.horizonfuelcell.com/news-1>

**About Horizon Fuel Cell Technologies [www.horizonfuelcell.com](http://www.horizonfuelcell.com)**

Horizon Fuel Cell Technologies was established in Singapore in 2003, with a consistent focus on fundamental innovation in both materials and systems-level technology for fuel cell and electrolyser solutions. Horizon has become a world-leading developer of key technologies across the hydrogen value chain, with 1.2GW annual production capacity at two locations for Membrane Electrode Assemblies (MEA) underpinning production of downstream fuel cell and electrolyser products deployed in various applications.

For more information visit [www.het-h2.com](http://www.het-h2.com), or email [sales@horizonfuelcell.com](mailto:sales@horizonfuelcell.com)