



Understanding Anion Exchange Membrane (AEM): The Basics



Definition

An electrolysis technology that uses a specialized membrane and catalysts to split water into very pure hydrogen and oxygen.



Low Cost (Like Alkaline)

Uses a mild environment that eliminates the need for expensive precious metals like platinum or iridium.



High Speed (Like PEM)

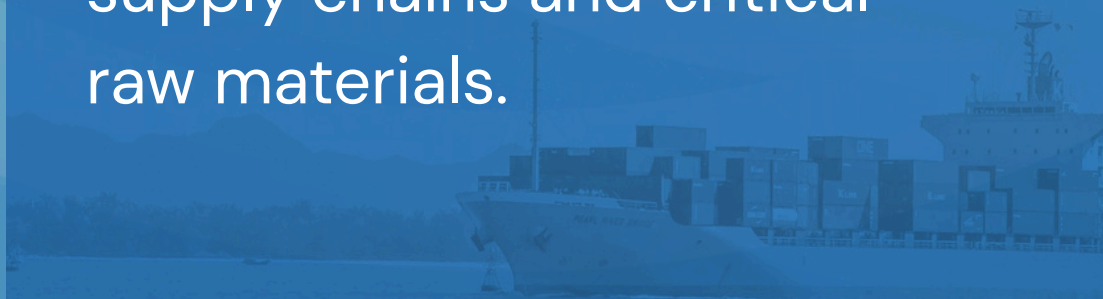
Can react instantly to fluctuating electricity, making it perfect for pairing with solar power or wind turbines.



Why AEM is Important: The Big Picture

Geopolitical Independence

By eliminating scarce precious metals like platinum or iridium, AEM removes reliance on fragile global supply chains and critical raw materials.



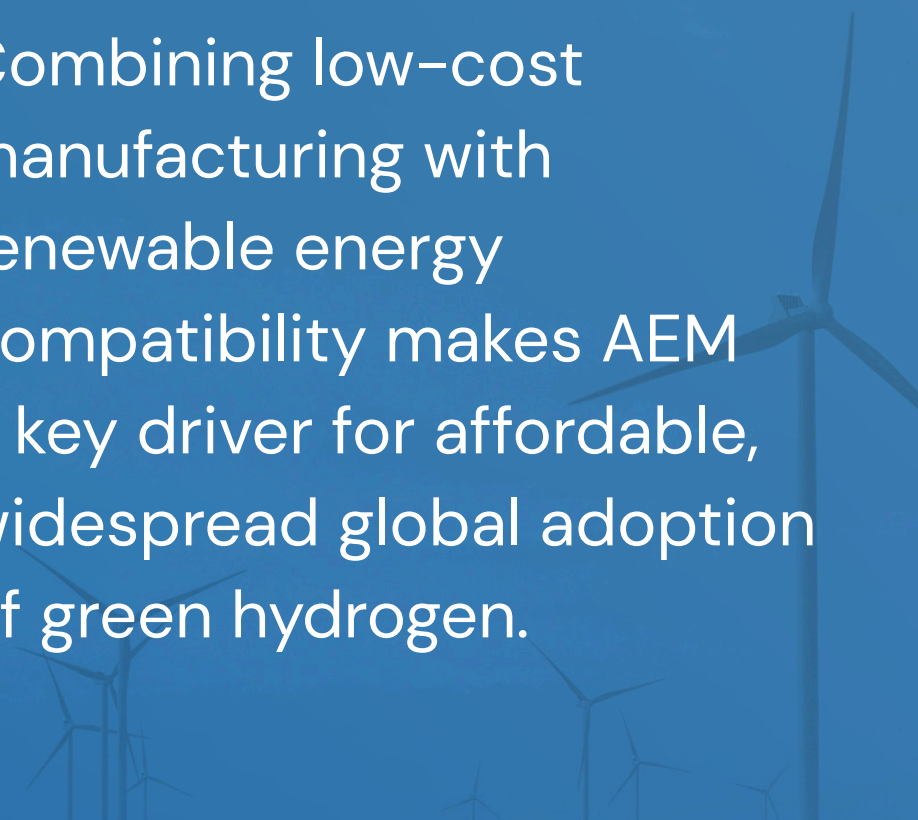
Mass Scalability

Uses abundant, earth-rich materials like nickel and steel, allowing green hydrogen production to be scaled up massively and affordably worldwide.



Global Decarbonization

Combining low-cost manufacturing with renewable energy compatibility makes AEM a key driver for affordable, widespread global adoption of green hydrogen.





AEM in Our Daily Lives: Practical Impact

On-Site Generation: Eliminates the high cost and logistical hassle of transporting hydrogen by producing it exactly where it is needed.

Modularity: Enapter's AEM provide solutions from kilowatts to megawatts based on a modular approach delivering the same high resilience and efficiency at any size.



Storage

Year-round clean energy at remote locations.



Industry

Replacing natural gas with green hydrogen for industrial furnaces or producing green ammonia from hydrogen produced by AEM.



Mobility

Commercial hydrogen refueling stations for cars and production of green hydrogen for the naval sector or aircrafts.



The Crucial Difference: Why innovation is needed?

The Core Challenge

Even in a mild environment, continuous electrical and chemical stress over long operational hours gradually degrades the stack.



The Goal of Innovation

Optimising advanced materials and cell component designs to significantly extend the operational lifespan of the stack.



The Economic Impact

Longer-lasting stacks directly reduce maintenance costs, eliminate frequent replacements, and ultimately drive down the lifetime cost of producing green hydrogen.





ENAPTER's Role: Addressing AEM Challenges



Global Material Sourcing
Innovative AEM materials and components originate from top labs and research institutions worldwide.



Pilot Line Manufacturing
Partner pilot lines scale up these raw materials, automating their assembly into standardized test cells and stack configurations.



Enapter's Evaluation Hub
Enapter utilises its advanced testing infrastructure to subject these prototype components to rigorous, real-world durability testing.



Accelerating Technology
This high-stability testing generates the precise feedback loop needed to rapidly improve component lifespan and drive the market maturity of AEM tech.