Management Presentation

January 2026

CIPHER NEUTRON

- AEM Electrolyser Stacks
- Turn-Key Hydrogen Systems
- Balance of Plant Integration
- Engineering and R&D Support

Cipher Neutron At a Glance

Canada's Leading Industrial-Scale AEM Electrolyser Company

Industrial Scale AEM Electrolyser Manufacturer

Technology Advantage
Iridium-Free Architecture
PFAS-Free Stack Design
High Efficiency
High Output Pressure

Scalable Platform
250 kW Single stack
Modular & Industrial Design

Traction & IP
6+ Patents Granted & Filed
5+ Years Stack Validation
International Installations

Target Markets
Transportation
Industrial
Chemicals
Fertilizers

Engineering Cost-Competitive Green Hydrogen at Scale

2021 Year Founded	10 + Engineers & Scientists	5 + Years Stack Validation
250 kW Single Stack Capacity	100 MW+ Annual Stack Manufacturing Capacity	6 + Patents Filed and Granted

Research Partners

National Research Council Canada
SFU Simon Fraser University
IONMR Innovations
UQTR Université du Québec à Trois-Rivières
University of Alberta
Western

Leadership Team

Leadership That Has Built the Foundations of the Global Hydrogen Market

Gurjant Randhawa, M.Eng, P.Eng

President & CEO

- Founded Cipher Neutron in 2021.
- 10+ years of experience in hydrogen electrolysers and fuel cells; Former Head of R&D, dynaCERT.

Pierre Rivard, P.hd

Director

- Built and scaled Hydrogenics (now Cummins) to global exit.
- Council member of National Research Council, Canada.

Ranny Dhillon, M.Eng

Chief Scientific Officer

- 10+ years of R&D experience in hydrogen electrolysers.
- Co-invented numerous international patents in hydrogen technologies.

Bruno Pollet, P.hd

Scientific Advisor and Market Development

- Executive Vice President of the International Association for Hydrogen Energy
- Advisory Council to the United Nations Secretary-General
- Strategy Advisor - Green Hydrogen Value Chain.

Valuable Hydrogen Experience

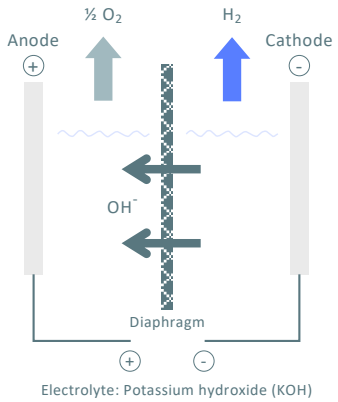
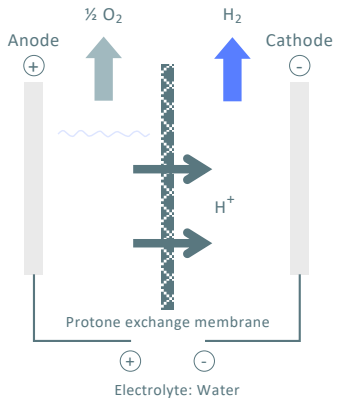
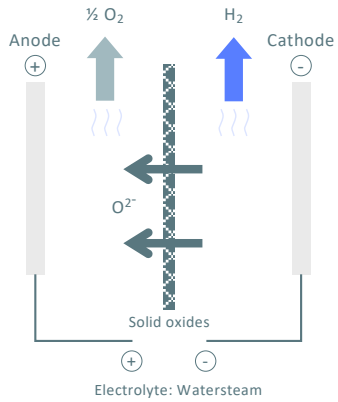
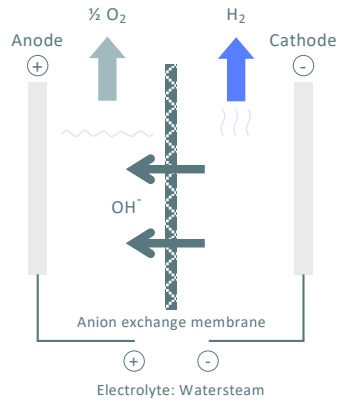
HYDROGENICS SHIFT POWER | ENERGIZE YOUR WORLD · TES Canada · Hydrogène Québec · CHFCA Clean. Efficient. Energy. · IHR Institute of Hydrogen Research UQTR · ia2h

200+ Years

Combined experience in hydrogen, clean technology, and business development

Electrolyser Innovations: Understanding AEL, PEM, SOEC, and AEM

AEM Offers a Unique Approach Towards Water Electrolysis

	Alkaline Electrolyser ("AEL")	Proton Exchange Membrane ("PEM") Electrolyser	Solid Oxide Electrolyser Cell ("SOEC")	AEM Electrolyser
Concept	*Uses a diaphragm to separate the anode and cathode*	*Deploys a membrane-based technology that allows protons to pass but blocks electrons*	*The solid electrolyte cell consists of ceramic material that separates anode and cathode*	*Uses an anion exchange membrane to separate the anode and cathode*
Structure				
Process	▪ At the cathode, electrons react with water, producing hydrogen (H_2) and hydroxyl ions (OH^-) ▪ The OH^- can pass the diaphragm, while H_2 leaves the cell at the cathode ▪ OH^- react at the anode and form oxygen (O_2) and water (H_2O), releasing electrons	▪ Water is supplied at the anode, where it is split into hydrogen protons (H+) and O2 ▪ The H+ pass through the membrane to the cathode, and produce H2 when H+ reacts with electrons	▪ Water vapor is fed into the cathode and is reduced to form H2 and oxygen ion (O2-) ▪ H2 leaves the cell at the cathode, the electrolyte enables the transport of O2- to the anode ▪ At the anode, oxidation takes place and O2- absorb electrons and to form O2	▪ H2O soaks the anion exchange membrane and migrates from the anode to the cathode, where it is split into H2 and OH– ▪ H2 gas leaves the cell at the cathode, while OH– pass through to the anode thereby resulting in water and oxygen when OH– reacts with electrons
Technology Readiness	Matured	Commercialized	Demonstration	Demonstration[2]
Global Installed Capacity[1]	~65% *(oldest technology to date)*	~35%	<1%	<1%

Source: IEA, United States Department of Energy ("DOE"), and publicly available information.

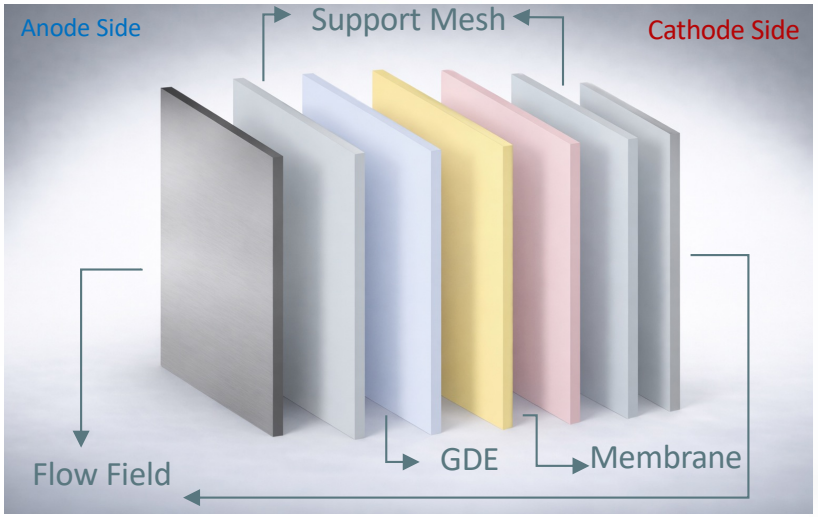
1. Based on estimates from IEA as of 2023.
2. Only two participants, including Cipher Neutron, in the manufacturing of commercial AEM electrolysers.

https://www.new-era-insights.com/article/the-four-main-types-of-water-electrolysis-technology/

Cipher Neutron's AEM Technology Differentiation

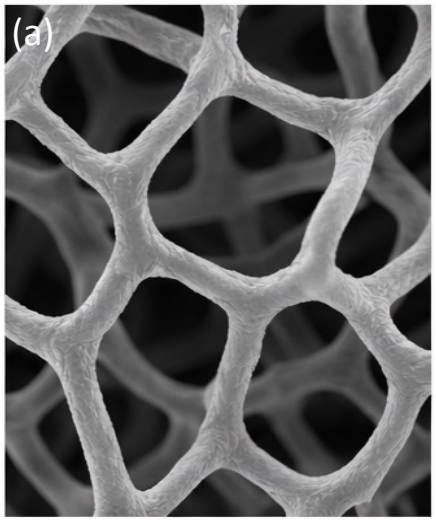
Proprietary Technology and High-Quality Components Deliver Exceptional Performance

Advanced cell design

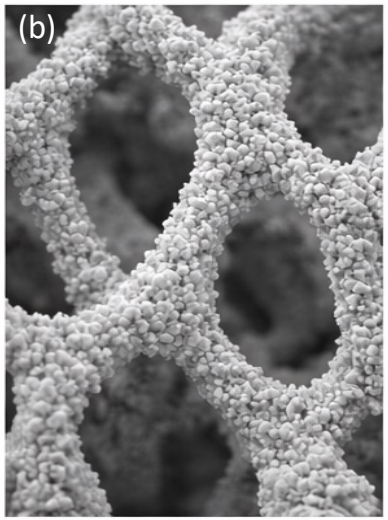


Built for efficiency, durability, and scalability

Proprietary ink recipe and coating mechanism



(a) Substrate



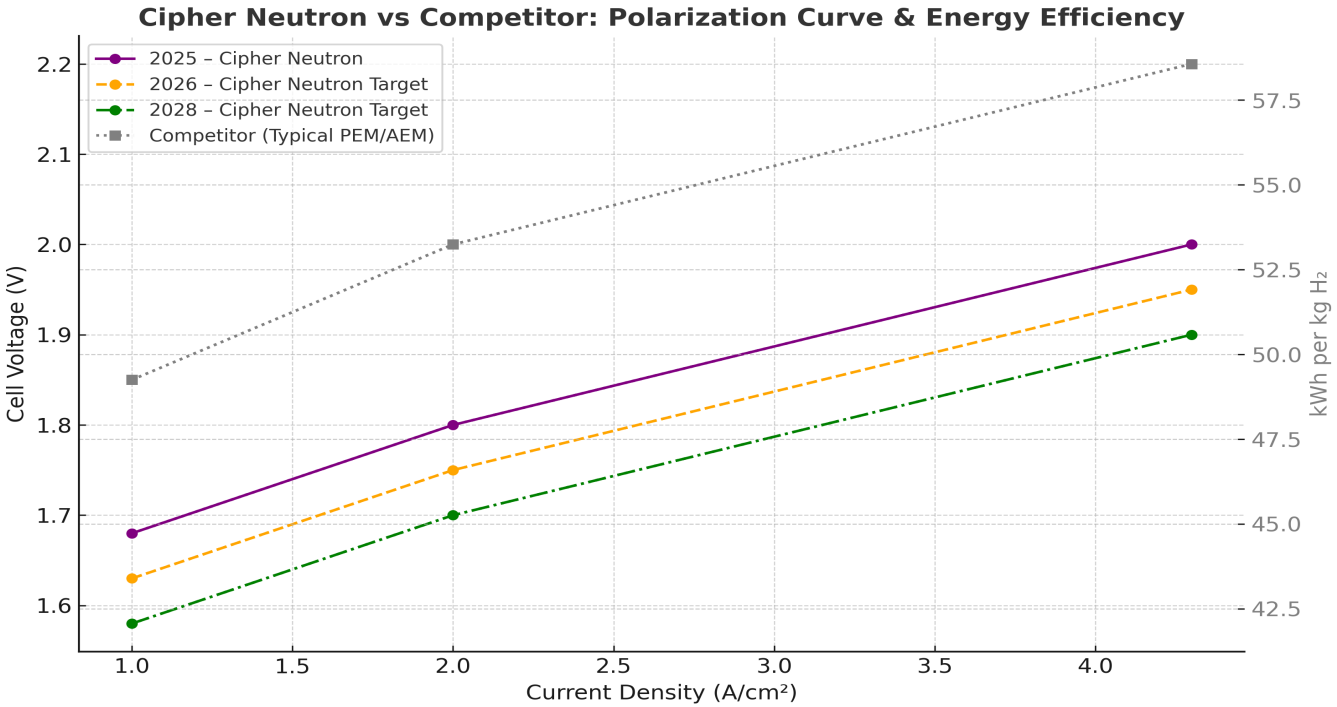
(b) Catalyst growth on Substrate

Cipher Neutron's proprietary catalyst formulation and advanced AEM cell architecture deliver a range of performance and durability benefits, including:

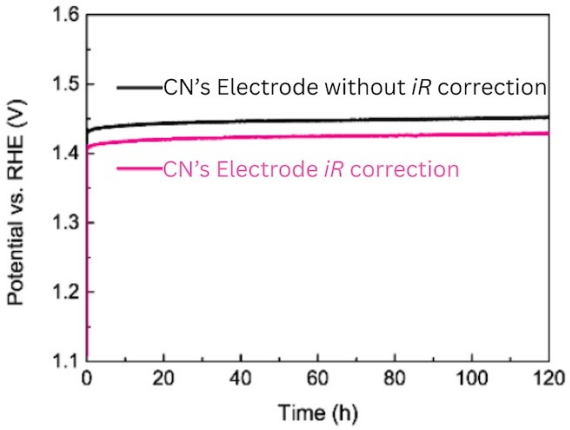
- **High Ionic Conductivity:** Optimized MEA reduces resistance, improves ion transport & Faradaic efficiency.
- **Low Ohmic Resistance:** Tight electrode spacing minimizes voltage losses at high current densities.
- **Gas Crossover Suppression:** Zero-gap design enhances selectivity and safety by preventing H_2/O_2 mixing.
- **Stable Long-Term Operation:** Highly stable catalysts ensure durability in alkaline conditions.

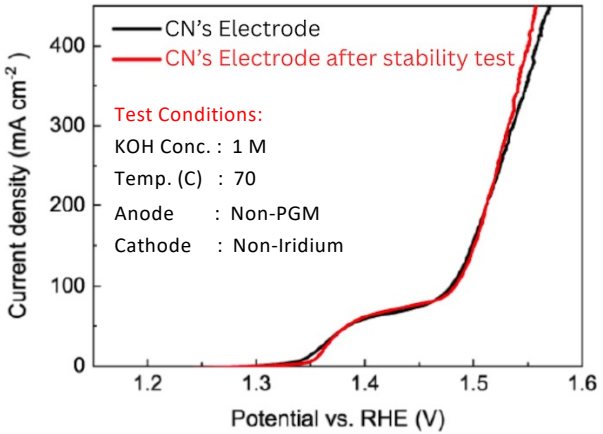
Cipher Neutron's Polarization Curve

Unrivaled Efficiency and Performance Across all Electrolyser Technologies



Stability in Harsh Conditions



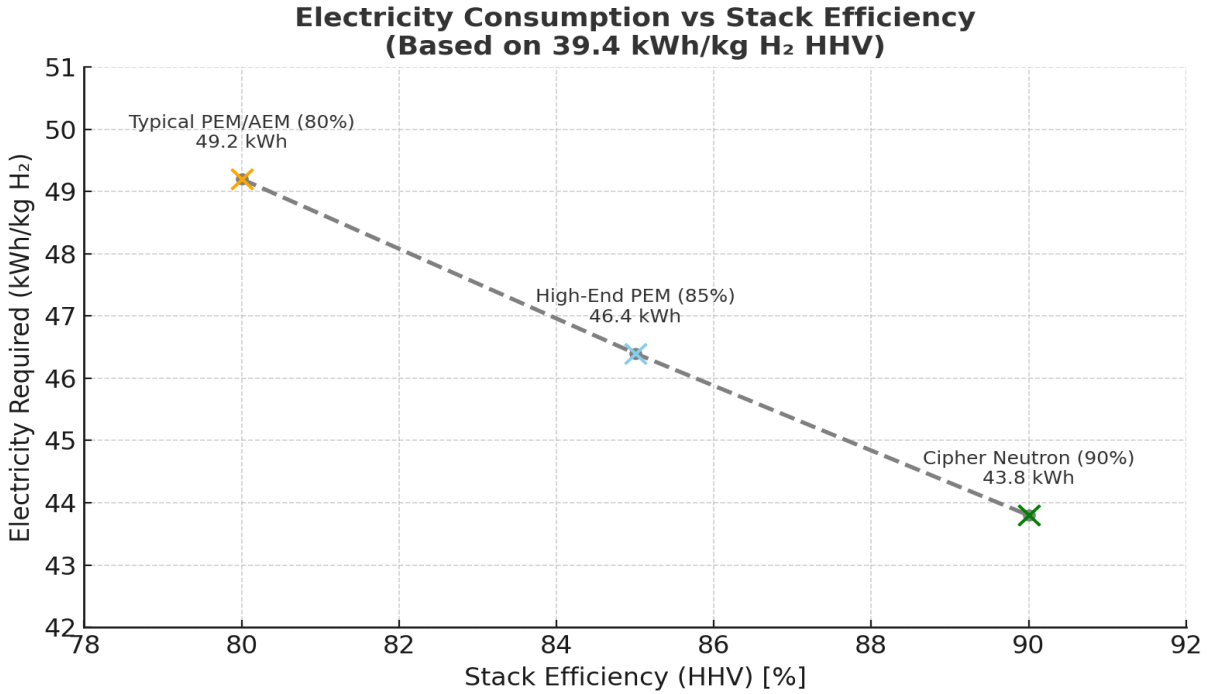


These results place cipher neutron ahead of most PEM and AEM systems in the market today.

Cipher Neutron's Path to $1/kg Green Hydrogen

Targeted Improvements in Efficiency, Cost, and Durability

With electricity making up ~70% of green hydrogen's cost, improving stack efficiency is the most effective way to reduce LCOH. The graph shows how cipher neutron's high-efficiency AEM stacks help drive the cost closer to $1/kg. (USD)



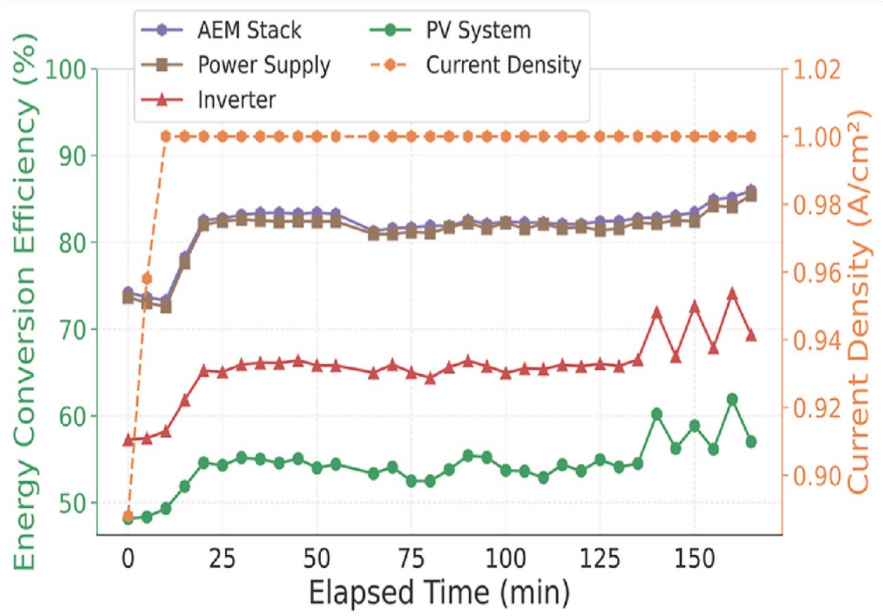
Cipher neutron's roadmap to $1/kg hydrogen

Improvement Area	2025 Baseline	2030 Target	Impact on LCOH
Stack Efficiency	90% (HHV)	>95%	Reduces electricity consumption(⬇Capex)
Catalyst	Iron-Nickel (non-PGM)	Rhenium alloy (Platinum-free)	Lowers catalyst cost(⬇Capex)
Membrane Durability	40,000+ hours	100,000+ hours	Reduces replacement frequency (⬇Capex)
Stack CapEx	$500,000 per MW (USD)	$350,000 per MW (USD)	Lowers capital investment (⬇Capex)
Manufacturing Capacity	50 MW/year	2 GW/year	Reduces unit cost through economies of scale(⬇Capex)
Materials	Nickel foam	Abundant Earth metals	Reduces raw material cost and supply risk(⬇Capex)

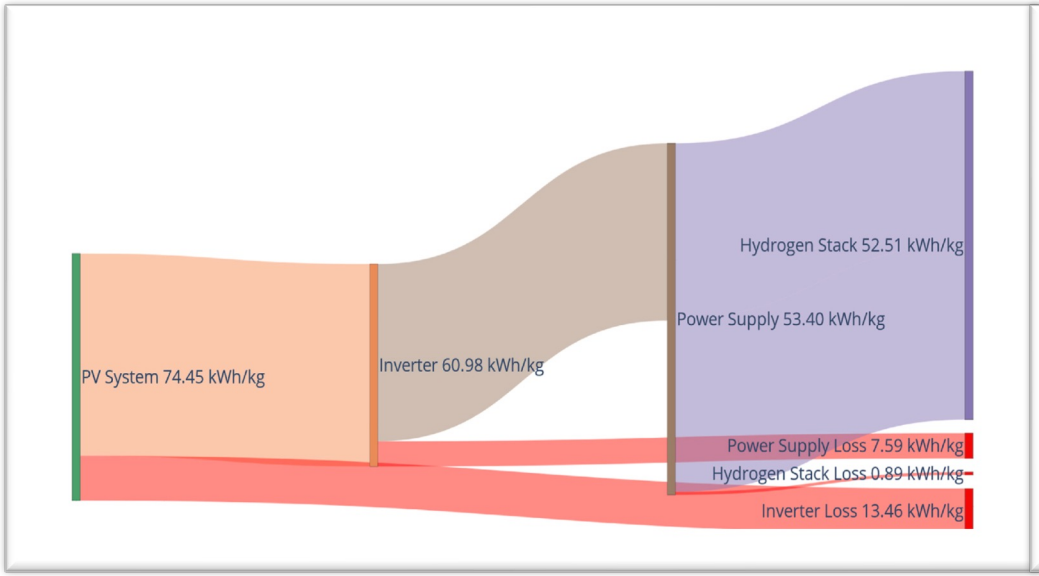
Third Party Publication (ELSEVIER OPEN ACCESS PUBLICATION)

Integration of AEM electrolysers with floating Solar Panels

AEM Key Performance Indicator (KPI)	Literature Range	Reference	This Study's Performance (FPV-AEM)	IRENA 2050 Target [20]
Specific Energy Stack (kWh/kg)	76.77–48.25	[16,[62], [63], [64], [65], [66], [67]]	45.77	<42
Specific Energy System (kWh/kg)	83.44–50.01	[62,65,67]	63.72	<45
Stack Efficiency (%)	69.64–79.26	[16,28,63]	86.2	>88
System Efficiency (%)	49.25–57.24	[68]	61.9	No goal
Hydrogen Flow (m^3/h/kW)	0.19–0.21	[16,64]	0.28	No goal
Oxygen Flow	Data Not Available		0.16	No goal
Hydrogen Purity	99.5–99.99	[64,65,71]	99.22	99.9999



ENERGY CONSUMPTION FOR HYDROGEN PRODUCTION



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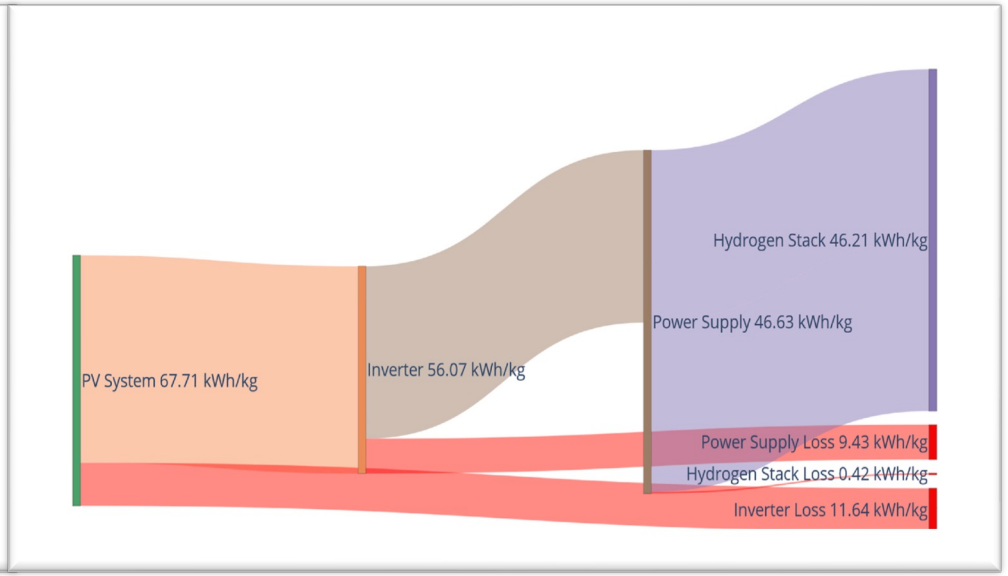
ENERGY CONSUMPTION FOR HYDROGEN PRODUCTION



External Heating provided

Global Installations Demonstrating Industrial Scalability

International Installations | Industrial & Mobility Applications | Repeat Customers

Green ammonia project, Ontario, Canada

Delivered AEM stack for agricultural green ammonia production.
Demonstrates industrial fertilizer decarbonization pathway.

Fuel cell project, Taiwan

Delivered 10 kW AEM stack for mobility hydrogen application.
Validates performance in transportation sector.

University of Western Ontario, Canada

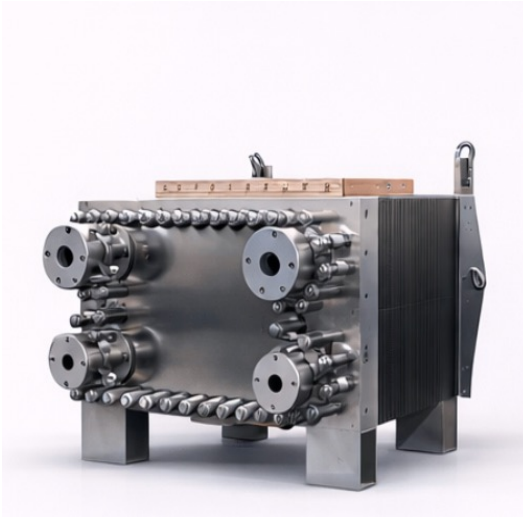
5 kW electrolyser supporting renewable-integrated hydrogen research.
Demonstrates solar-to-hydrogen integration capability.

Metal reduction project, Chile

Industrial green hydrogen deployment for mining sector decarbonization.
Repeat engagement with same customer.

North America's First Commercial AEM Electrolyser

Unrivaled Efficiency and Performance Across all Electrolyser Technologies



250 kW Stack

Durable	Affordable	Sustainable
High chemical & thermal stability	PGM-free catalyst stack	PFAS-free materials
>20000-hour stability confirmed	Lower CAPEX vs PEM	Reduces >10 kg CO_2/kg H_2
Handles 30 bar H_2 directly	Simplified Balance of Plant	Powered by renewables

Industrial applications powered by cipher neutron AEM electrolysers

Sector	Use Case
Steel & Mining	Hydrogen for metal reduction, Electric Arc Furnaces
Oil & Gas	Green hydrogen for refinery & desulfurization
Transportation	Hydrogen fueling stations, heavy-duty fleets
Fertilizers & Chemicals	Green ammonia, methanol, hydrogen peroxide
Power & Utilities	Grid storage with reversible RFC system

Scaling AEM to 250 kW: SFU + Cipher Neutron Collaboration

Building Out SFU's Clean Hydrogen Hub

PROJECT SUMMARY

- In July 2024, Cipher Neutron was awarded an advanced contract award notification to design and construct 2 electrolyser stacks with a capacity of 250 kW for Simon Fraser University ("SFU")
- The project started in Q4 2024
- The project will investigate and validate the AEM technology at the 250 kW - 1 MW scale
- As part of the partnership, Cipher Neutron and SFU intend to explore advanced AEM electrolyser technologies to enable scaling of low-cost green hydrogen production

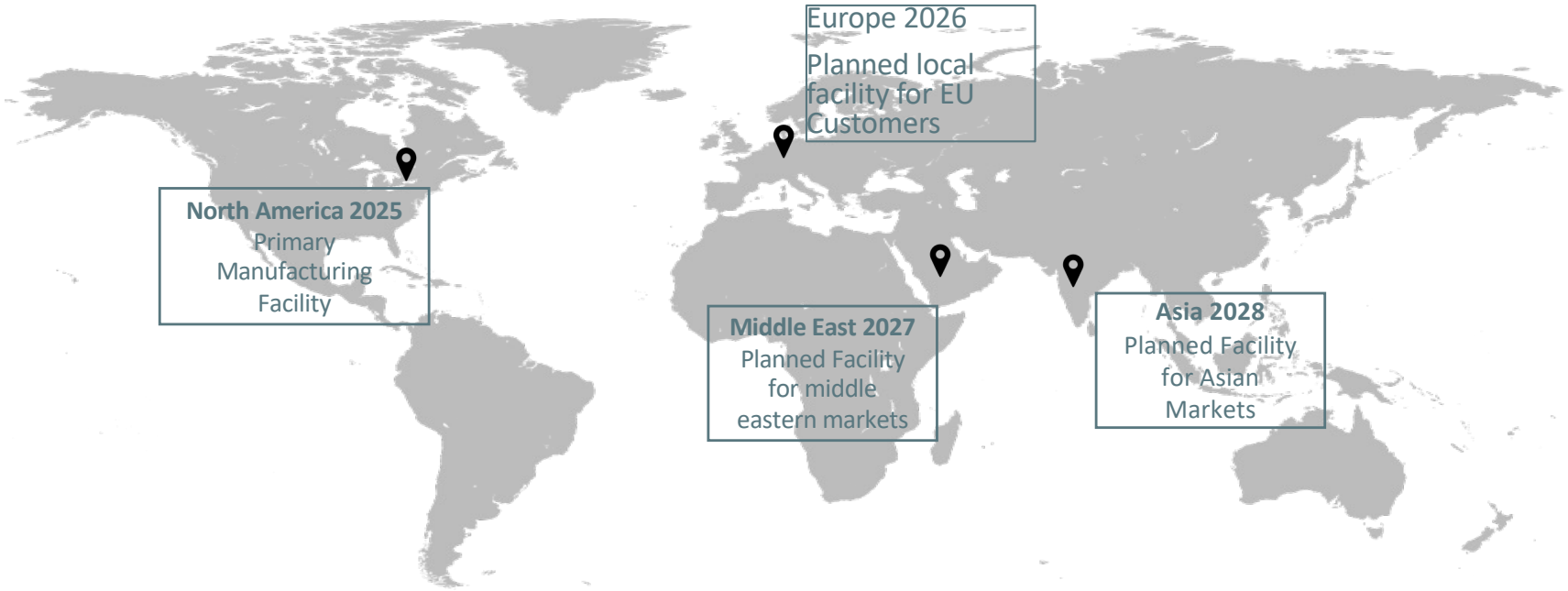
"As a leading research university and trusted innovation partner, Simon Fraser University is excited to collaborate with Cipher Neutron to advance the scalability of AEM electrolysers with this innovative 250 kW single-stack project. This initiative will help us advance the Canadian innovation ecosystem while developing the capacity needed to reach net-zero target"

- Laura Sloboda, Operations Director, Clean Hydrogen Hub of SFU

Project site in Burnaby, British Columbia

Global Manufacturing Strategy

Efficient. Scalable. Ready for Expansion.



North America (Current)

Location: Toronto, Canada

Purpose: Developing 250 kW and 1 MW AEM stacks, foundation for scaling technology and manufacturing

Status: Operational.

Middle East – 2027

Location: UAE or Saudi Arabia

Purpose: Hub for local manufacturing and hydrogen production projects

Status: In active conversations with local stakeholders and potential co-investors.

Europe – 2026

Location: Germany

Purpose: Regional AEM stack manufacturing & service hub

Status: In discussion with local investors and government bodies for expansion support.

Asia – 2028

Location: India (strategic hydrogen partner country)

Purpose: Stack assembly and regional sales/service center

Status: Ongoing discussions with Indian investors, EPCs, and government programs.

Disclaimer

Forward-Looking Statements:

This presentation may contain forward-looking statements regarding future events, financial performance, or business strategies of Cipher Neutron Inc. These statements are subject to risks and uncertainties that could cause actual results or outcomes to differ materially from those expressed or implied in possible forward-looking statements. Cipher Neutron Inc. undertakes no obligation to update or revise any such forward-looking statements, if any, whether as a result of new information, future events, or otherwise. Cipher Neutron Inc. reserves the right to modify, amend or update any information in this news release without prior notice. Cipher Neutron Inc. is not required and may not inform readers of any such changes or any updates to this news release to reflect subsequent developments.