



BriHyNergy

**Globally Leading Provider of Green Hydrogen
Production Equipment and Solutions**





About BriHyNergy

BriHyNergy (Shenzhen) Co., Ltd. is a national high-tech enterprise specializing in the localization and industrialization of **PEM and AEM water electrolysis hydrogen production technologies**.

The company was founded by **Dr. Hui Li's core team**, which originates from Vancouver, Canada, and has over 20 years of experience. Technical personnel account for over 65% of the team. The company is headquartered in Shenzhen with a 10,000 m² R&D and production facility. BriHyNergy has obtained **CE, ASME, ISO 22734**, ISO 9001, ISO 14001, and ISO 45001 certifications, participated in the development of five national standards, and holds over 50 patents and more than 20 registered trademarks.

Committed to forward-focused R&D targeting critical “bottleneck” materials, BriHyNergy has achieved mass production of multiple core components with several technologies being domestic firsts and internationally leading. Its products include **BriPEM® Dual-enhanced Proton Exchange Membrane, BriMEA™ Membrane Electrode Assembly, BriLyzer® PEM stack, BriLyzer® AEM stack, and the BriSystem® Hydrogen Production System**.

MW-scale PEM stacks have achieved commercial deployment across multiple European countries, and the company was consecutively included (2023 & 2024) in CEEC's centralized procurement catalog. Representative projects include the 200 Nm³/h PEM system for CHN Energy, the 100 kW AEM system for CSG, and multiple national key projects. Since its establishment, BriHyNergy has received over 30 honors, including National High-Tech Enterprise, Shenzhen Specialized and Innovative Enterprise, “Top 10 Electrolyzer Brands,” and has been featured in the China Hydrogen Energy Industry Development White Paper.

BriHyNergy, committed to its mission of “**Green Hydrogen Technology For Net - Zero Future**”, envisions **To Build A Globally Leading Green Hydrogen Brand**. Guided by its core values of **Customer First, Integrity & Precision; Collaboration, Responsibility, Innovation & Efficiency; Driven, Determined, Mission-Focused**, the company is committed to continuous technological innovation, supporting China's dual-carbon goals, and accelerating the global transition toward a low-carbon society.

Corporate Mission



Mission

Green Hydrogen Technology For Net - Zero Future



Vision

To Build A Globally Leading Green Hydrogen Brand



Values

Customer First, Integrity & Precision
Collaboration, Responsibility, Innovation & Efficiency
Driven, Determined, Mission-Focused

Core Team



Dr. Li Hui Founder / CEO

- **China National Distinguished Expert**
- Chair Professor at Southern University of Science and Technology
- B.Eng. & M.Eng., Chemical Engineering, Tsinghua University
- Ph.D., Electrochemical Engineering, University of British Columbia, Canada
- Project Leader of the National “14th Five-Year Plan” Key R&D Program on Hydrogen Energy
- Program Technical Leader and Research Council Officer, National Research Council Canada
- Edited the first international monograph on PEM water electrolysis for H₂ production in 2015
- Published more than 100 SCI papers, 4 books, More than 20 authorized patents



Dr. Fan Jiantao Co-Founder / CTO

- Research Associate Professor at Southern University of Science and Technology
- B.Eng., M.Eng. & Ph.D., Beijing University of Chemical Technology
- Postdoctoral Fellow, Simon Fraser University
- Project Leader of the National “13th Five-Year Plan” Key R&D Program on Hydrogen Energy
- Core member of Guangdong Innovation and Entrepreneurship Team
- Core member of Shenzhen Peacock Team (Overseas High-Caliber Talent Program)
- Published more than 50 papers, More than 10 authorized patents

Development Milestones

2005-2015

- Dr. Li is a former member of ISO/WG14 and participated in the formulation of international standards for PEMFC.
- Dr. Li served as the multi-client project manager for the PEMFC contamination consortium involving **Ballard and Hydrogenics**.
- Dr. Li served as the industrial project manager for projects involving MBFC, AFCC, and Greenlight.

2021



- **Nov. 2021, Establishment of BriHyNergy**
- Project Leader of the National “14th Five-Year Plan” Key R&D Program on Hydrogen Energy
- Developed 500 cm² short stack (Single cell 1.1kW)

2015-2021

- 2015-2021 Dr. Li brought the core team to SUSTech in Shenzhen
- Established Shenzhen Key Laboratory of Hydrogen Energy
- First domestic short-side Chain PEM production line
- Edited the first international monograph on PEM water electrolysis for H₂ production in 2015

2022

- Completed RMB 50 million Series Angel funding
- **Longgang industrialization base was put into operation**
- Completed the **MEA production line** (annual capacity: ~4 GW)
- Delivered the **first stack** (50 Nm³/h)



2023

- Completed **Pre-A funding with Envision and Sequoia**
- Delivered a **3 MW order** (12 × BriLyzer®-S50 PEM stacks)
- Released the **BriLyzer®-R200 PEM Stack (MW-scale per unit)**
- Completed the **PEM production line** (annual capacity: ~4 GW)
- Completed the **automated assembly line for stacks** (annual capacity: ~1 GW)

2025

- Delivered a **3 MW order to the European customer** (3 × BriLyzer®-R200 PEM stack)
- Released the **BriLyzer®-A20 AEM Stack**
- Completed **ISO 22734 certification (250 Nm³/h stack)**
- Won the bid for CHN Energy's 200 Nm³/h PEM system project

2024

- Completed A funding with ATL, CoStone Capital and Qingsong Fund
- **Completed EU CE certification**
- Strategic partnership with WISON
- Released the **BriLyzer®-R200 PEM Stack Gen2** (MW-scale per unit)

Innovation Platforms and Certifications

Compliance Certifications



CE
Certificate ✓



ASME
Certificate ✓



ISO 22734
Certificate ✓



ISO 9001
Certificate



ISO 14001
Certificate



ISO 45001
Certificate

Major Projects and R&D Platforms

- National “14th Five-Year Plan” Key R&D Plan for Hydrogen Energy (MEA mass production for PEM water electrolysis led by Professor Hui Li)
- Key Laboratory of the Ministry of Education (PEM & AEM MEA R&D, batch production of AEM catalysts, and large-scale preparation of resin).
- Shenzhen Key Laboratory of Hydrogen Energy Director: Professor Li Hui
- R&D lab area of approximately 1,000 m² with over 100 instruments and equipment pieces. Total equipment investment: RMB 20 million.
- Many R&D equipment are self-designed and customized for characterizing key materials including: PEM, MEA, CCM, GDL and PTL.



Corporate Certifications

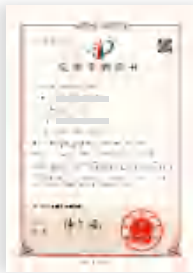


High-Tech Enterprise

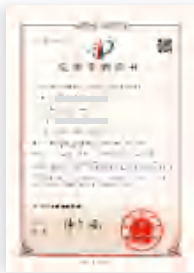


SRDI SMEs

Selected Patent Certificates



Inv. Pat. Cert.



Inv. Pat. Cert.



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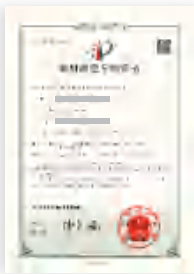
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BriPEM® Dual-enhanced Proton Exchange Membrane



Product Introduction

- This product adopts a highly stable, proton-conductive solid electrolyte, reinforced with a high-strength polymer framework for mechanical enhancement, and incorporates hydrogen elimination and free radical scavenging for chemical enhancement.
- It features high mechanical strength, excellent dimensional stability, superior conductivity, and hydrogen impermeability.
- The product is suitable for high-pressure differential water electrolysis for hydrogen production and serves as a key solution to critical technological bottlenecks.

Product Parameter

	Unit	BriPEM®-801	BriPEM®-802
Thickness	μm	80±5	80±5
Water absorption	%	23	23
Surface swelling	%	≤3.5	≤3.0
Tensile strength	MPa	≥40	≥40
Elastic modulus	MPa	≥500	≥500
Ion exchange capacity	mmol/g	0.95~1	0.95~1
Proton conductivity(60°C, Water)	mS/cm	≥170	≥150

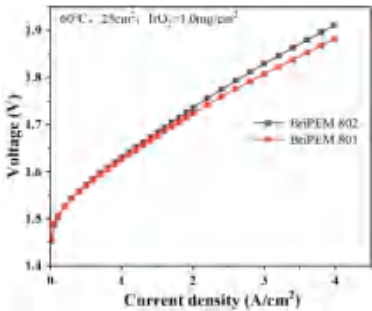
Dual Enhanced

-  Mechanical enhancement
-  Chemical enhancement

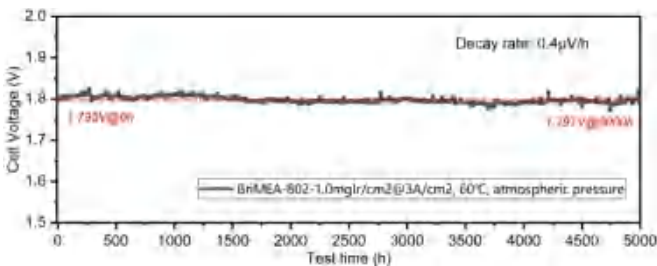
Product Features

- Hydrogen impermeability
- Excellent conductivity
- High chemical stability
- High mechanical strength
- Good dimensional stability
- Suitable for industrial electrolyzers

Test data of Performance



Test data of durability



BriPEM® durability tested over 5000h

BriMEA™ Membrane Electrode Assembly



Product Introduction

- Proprietary combined dispersion technology to increase stability of catalyst slurries.
- Unique precise 3-phase catalyst layer construction technique.
- Stringent quality control ensuring high batch-to-batch consistency and high yield of products.
- Multiple de-hydrogen technology.

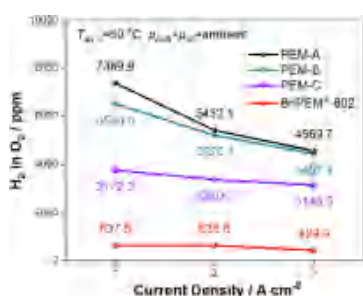
Product Parameter

Application Scenarios	BriMEA™-801	BriMEA™-802	BriMEA™-115	BriMEA™-117
	Hydrogen health products	Industrial-grade PEM Stack / System	Industrial-grade PEM Stack / System	Industrial-grade PEM Stack / System
Performance in PEM stack	$\leq 1.75\text{V}@1\text{A}/\text{cm}^2$	$\leq 1.8\text{V}@3\text{A}/\text{cm}^2$	$\leq 2.0\text{V}@3\text{A}/\text{cm}^2$	$\leq 2.1\text{V}@3\text{A}/\text{cm}^2$
Operating temperatures (°C)	Ambient temperatures	60-65	60-65	60-65
Coating method	Roll to roll coating			
Product structure	3 in 1 or 5 in 1			
Edge banding material	PEN/PI/PPS (Customizable)			

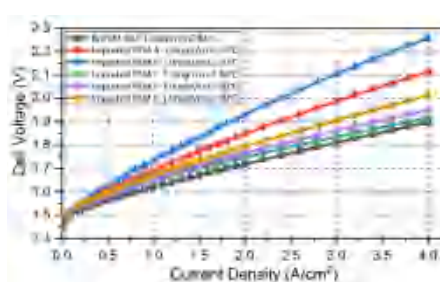
Product Features

- Low hydrogen permeation (high safety)
- High current density and long life
- Customizable membranes, active area, catalyst loading, framings, etc.
- Maximum active area of 5000cm^2
- High pressure difference up to 30 bars

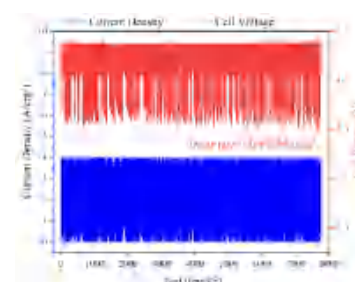
Test Data



Data of H_2 content in O_2



Actual test IV curve data from customers



0~4 A/cm² AST test with 15x faster fluctuation of the wind profiles from ChiFeng China

BriMEA's hydrogen cross-over removal capability comes from triple techniques, one from BriPEM's unique chemical reinforcement and the other two from catalyst layer and/or the interface, resulting in a much lower H_2 content in O_2 than MEA products made with homogeneous membranes or other brand reinforced membranes.

BriLyzer® PEM Stack



Product Introduction

- BriLyzer® PEM stacks cover the R, S, T, and M series with single-stack hydrogen production capacity ranging from 1 to 600 Nm³/h.
- The PEM stack leverages multi-scale, multi-physics simulations for precise thermal, electrical, and mass-transfer modeling, integrating core technologies to overcome key challenges such as mass transfer under high-current conditions, plate corrosion, and high-pressure sealing.
- A high-reliability manufacturing system is established based on multi-stage self-sealing technology and high-precision stacking processes.
- The product is widely applicable in sectors including renewable energy-based hydrogen production (green hydrogen, methanol, ammonia, SAF, etc.), green metallurgy, hydrogen energy storage, and electronic semiconductors.

Product Parameter

	Unit	BriLyzer®-R500	BriLyzer®-R200	BriLyzer®-S50	BriLyzer®-T10
Hydrogen production	Nm ³ /h	500	200	50	10
Rated power	kW	<2280	<912	<228	<46
DC power consumption	kWh/Nm ³ H ₂	4.1~4.4 (Optional Rated Operating Conditions)			
Operating Power Range*	%	10~120*			
Outlet pressure of H ₂	barg	5~35 Adjustable			
Purity of hydrogen production	%	99.95 (Before purification)			
Start-up time(Warm)	s	10			
Start-up time(Cold)	min	8			
Water quality requirement		≤0.1μS/cm (ISO 3696: 1987 Grade 1)			
Design life	hours	80,000			
Size(W×L×H)	mm	1126*970*1800	1126*970*1200	780*660*1100	410*385*450

BriLyzer®-R Platform: 100-600 Nm³/h

BriLyzer®-S Platform: 20-50 Nm³/h

BriLyzer®-T Platform: 5-10 Nm³/h

BriLyzer®-M Platform: 1-4 Nm³/h

* Power range 10 ~120% means it could reach 10% lowest and 120% highest of the rated power, but only to last short time to cope with the fluctuation of renewable energy, not intended to work long hours at the lowest and highest power.

Product Features

- High energy efficiency, low power consumption
- Wide power range, highly resistant to electrical disturbances
- Low hydrogen content in oxygen for high safety
- Stable operation and long life
- High differential pressure

BriLyzer® AEM Stack



Product Introduction

- The BriLyzer® AEM stacks, catering to different application scenarios, are available in three models: A50, A20, and A2.
- AEM stack is developed based on BriHyNergy's innovative research in PEM stack, advanced stacking technology, and extensive engineering expertise.
- Possessing proprietary polymer design patents, anion exchange membrane (AEM) development and manufacturing technology.
- Exclusive AEM electrode design by BriHyNergy, offering a lifespan significantly higher than the market average.
- Integrated modular design allows for quick stacking and expansion of size, ensuring scalability and flexibility.

Product Parameter

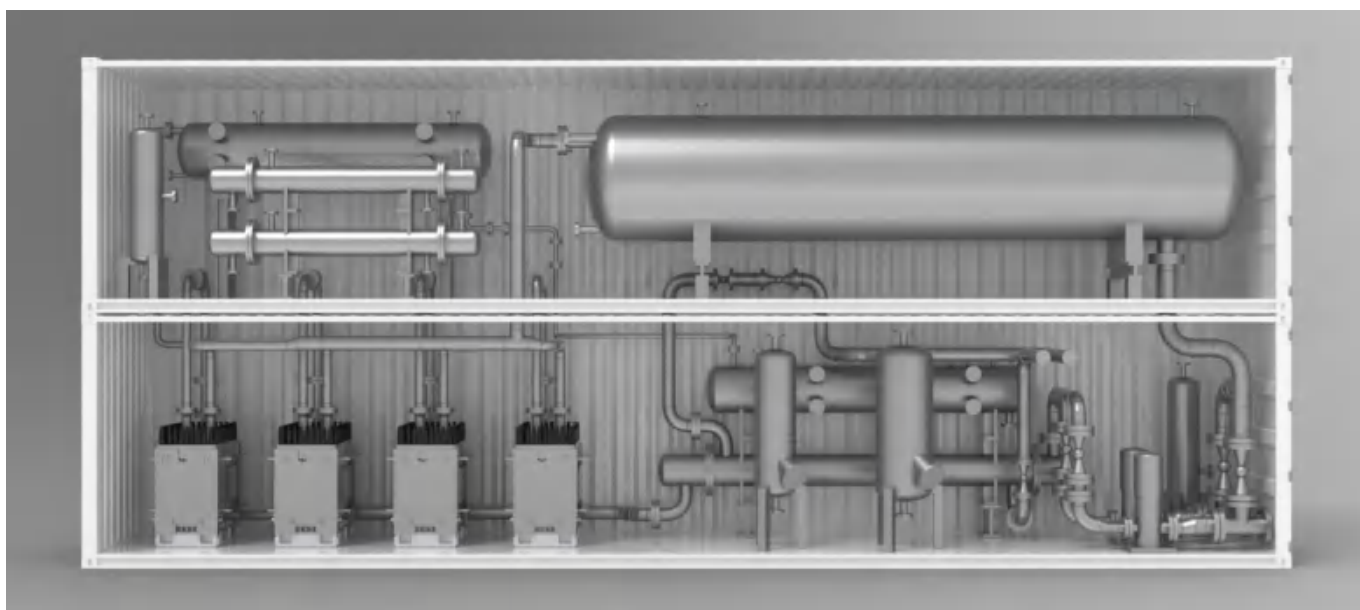
	Unit	BriLyzer®-A50	BriLyzer®-A20	BriLyzer®-A2
Hydrogen production	Nm ³ /h	50	20	2
Rated power	kW	220	88	8.8
Operating Power Range*	%	20%~110*		
Outlet pressure of H ₂	barg	≤16		
Purity of hydrogen gas	%	99.999 (After purification)		
Start-up time(Warm)	s	Seconds		
Start-up time(Cold)	min	≤30		
Electrolyte	mol	≤1 KOH		

* Power range 20 ~110% means it could reach 20% lowest and 110% highest of the rated power, but only to last short time to cope with the fluctuation of renewable energy, not intended to work long hours at the lowest and highest power.

Product Features

- High electrolysis efficiency
- Low energy consumption
- Rapid start-stop in seconds
- Quick response
- Wide power load range
- Modular design and flexible expansion

BriSystem® PEM System



Product Introduction

- Highly integrated containerized or modular solution.
- Convenient site installation in indoor & outdoor environments.
- Simple module interconnection enables effortless capacity expansion to meet hydrogen demand across various scales.
- Exceptional compactness, high reliability, low maintenance costs, and high safety standards.

Product Parameter

	Unit	BriSystem® -1000	BriSystem® -500	BriSystem® -200
Hydrogen Production Capacity	Nm ³ /h	1000	500	200
	Kg/day	2160	1080	435
Stack DC Power Consumption	kWh/Nm ³ H ₂	4.1~4.4 (Optional Rated Operating Conditions)		
Total System Power Consumption	kWh/kg	51~54 (Optional Rated Operating Conditions)		
Operating Power Range*	%	10~120*		
Outlet pressure of H ₂	barg	5~35(Adjustable)		
Hydrogen Purity	%	99.999 (After Purification)		
Start-up time(Warm)	s	10		
Start-up time(Cold)	min	8		
Water quality requirement		0.1μS/cm (ISO 3696: 1987 Grade 1)		
Design life	hours	80,000		
System Footprint*		2 x 40' Containers	1 x 40' Container 1 x 20' Container	1 x 40' Container

* System energy consumption is affected by scope of supply and operating conditions etc.

* Power range 10%~120% is only meant for short period of time under wind and solar conditions, between 10% and 120% of the rated power

* System footprint does not include power supply, cooling system, etc.

Mass Production Line

PEM Production Line



- 1050mm in width and roll-to-roll for both continuous and intermittent manufacturing
- Proprietary process and coating technology
- With various thickness of the membranes
- Annual capacity: 100,000 m² (~4 GW)

Automated Flexible Stack Assembly Line



- Automatic stacking to ensure consistency among cells in a stack
- Compatible with automated production of different stack models
- Stacking accuracy: 0.2 mm
- Pace: 4 stacks / 10 hours
- Annual capacity: ~1 GW

MEA Production Line



- 600mm-wide and roll-to-roll continuous or intermittent operation
- Capable of mass production delivery
- X-ray consistency in-line inspection
- Quality control – product tracing system
- Annual capacity: 100,000 m² (~4GW)

Application Cases

Benchmark Projects



Project: Envision Energy Zero Carbon Hydrogen for Ammonia Production
Scale: 3MW, 250 kW per stack, Delivered in 2023
Model: 12 x BriLyzer®-S50 PEM Stack (CE certified)



Project: A European company
Scale: 3MW, 1MW per stack, Delivered in 2025
Model: 3 x BriLyzer®-R200 PEM Stack (CE certified)

PV-PEM Hydrogen Production Projects



Project: A Southeast Asian solar energy company
Scale: 60 Nm³/h hydrogen production system, Delivered in 2025
Model: BriLyzer®-S60 PEM Stack (CE certified)



Project: A European company
Scale: 50 Nm³/h PEM Stack, Delivered in 2025
Model: BriLyzer®-S50 PEM Stack Gen2 (CE certified)

Research and Demonstration Projects



Project: PEM Hydrogen Production Demonstration Project for a Sinopec Subsidiary
Scale: 20 Nm³/h hydrogen production system, Delivered in 2025
Model: BriLyzer®-S20 PEM Stack



Project: A New Energy Enterprise in Southern China
Scale: 50 Nm³/h PEM Stack, Delivered in 2023
Model: BriLyzer®-S50 PEM Stack

Source-Grid-Load-Storage Integrated Projects



Project: SCCC Source-Grid-Load-Storage Integrated Project
Scale: 3 Nm³/h hydrogen production system, Delivered in 2024
Model: BriLyzer®-M3 PEM Stack

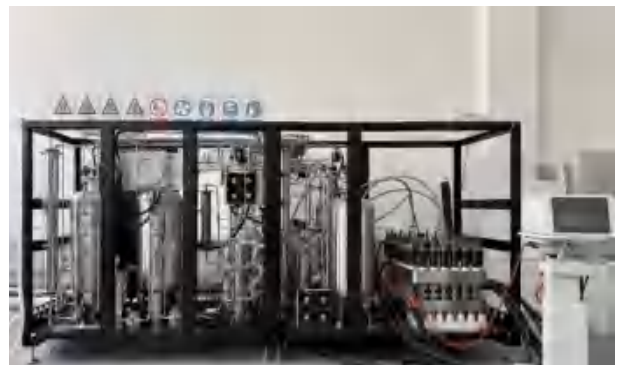


Project: Pan-Hydrogen Coupled Energy Storage Demo Project at a University
Scale: 2 Nm³/h hydrogen production system, Delivered in 2025
Model: BriLyzer®-M2 PEM Stack

AEM Hydrogen Production Projects



Project: A Petrochemical Enterprise
Scale: 10 kW AEM hydrogen production system, Delivered in 2025
Model: BriLyzer®-A2 AEM Stack



Project: A Research Institute of CSG
Scale: 100 kW AEM hydrogen production system, Testing in progress, pending delivery
Model: BriLyzer®-A20 AEM Stack

Major Project Award Notice



Project: CHN Energy – 200 Nm³/h PEM Hydrogen Production System
Scale: 1MW, Project in execution
Model: BriLyzer®-R200 PEM Stack

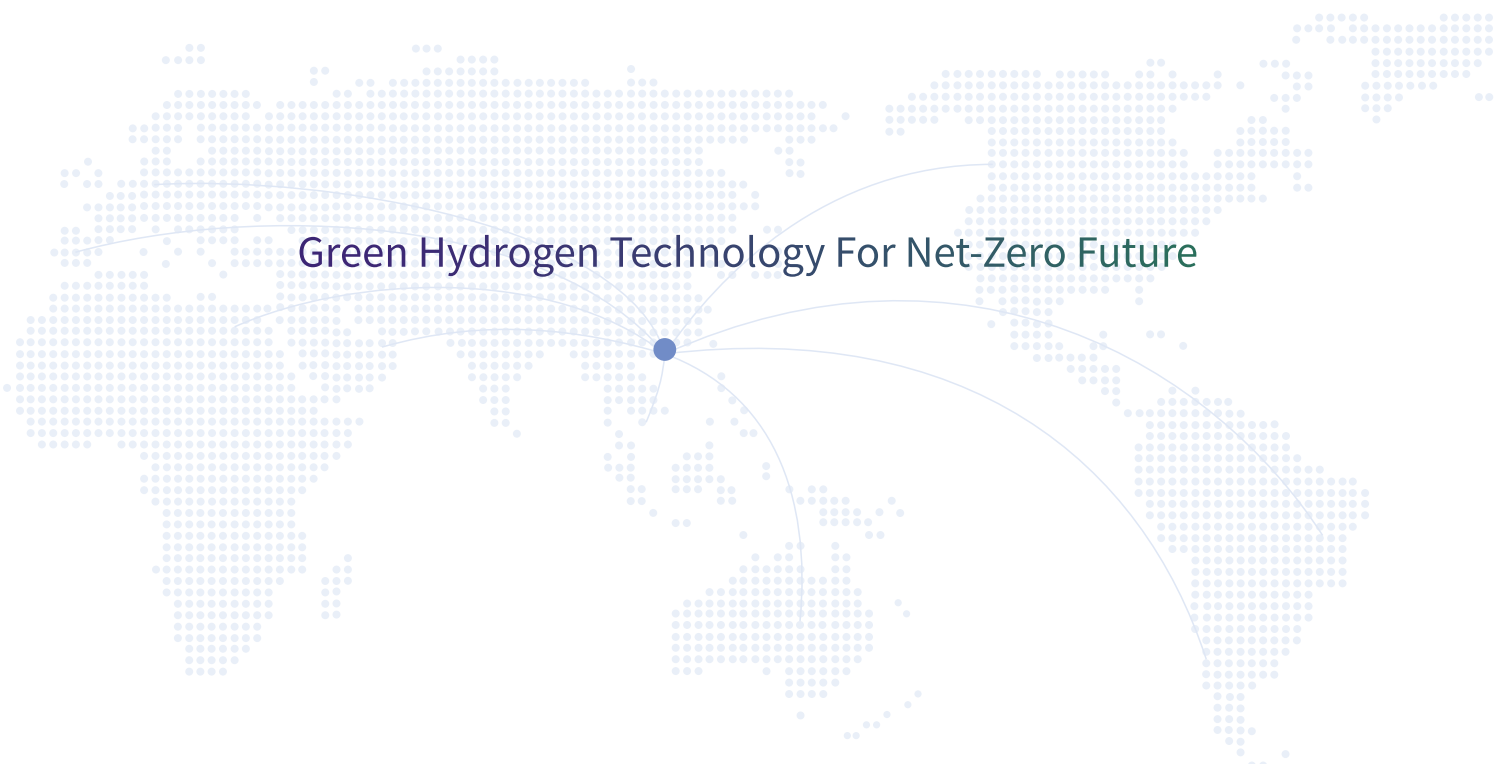


Project: CEEG's Annual Centralized Procurement of Hydrogen Production Equipment (2023 / 2024)
Scale: 15 MW (1MW × 15)
Model: BriLyzer®-R200 PEM Stack

Strategic Partners



* Listed in no particular order



Green Hydrogen Technology For Net-Zero Future



LinkedIn: Scan or search
BriHyNergy Hydrogen

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