



KAORI HEAT TREATMENT CO., LTD.

Investor Meetings 2024

December, 12th, 2024



Safe Harbor Notice

- KAORI's statements of its current expectations are forward-looking statements subject to significant risks and uncertainties and actual results may differ materially from those contained in the forward-looking statements.
- Information as to those factors that could cause actual results to vary can be found in KAORI's Annual Report.
- Except as required by law, we undertake no obligation to update any forward-looking statement, whether as a result of new information, future events, or otherwise.



Agenda

- **Company Profile**
- Financial Results
- 2024 Business Results and 2025 Outlook
- Q & A

About KAORI



Since 1970, the company's major goal has been to pursue cutting-edge heat treatment technology and to manufacture world-class products.



KAORI 50+
Go For Sustainable Future

Founded in

1970

Capital US\$

30

million

Employees

717

Number of Factory

6

※Group employees: 641 in Taiwan; 76 in Ningbo, a total of 717. Statistical deadline 2024.11

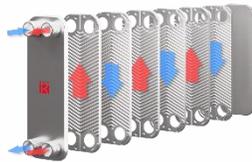
Milestones

Continuous innovation and transformation, towards the sustainable development of net zero carbon emissions.

1970
established
heat treatment



1994
launched **brazed plate heat exchanger** business



2008
started collaboration
with Bloom Energy in **fuel cell energy
system**



2018
launched **Immersion
Liquid Cooling System**



2020
Sustainable Development
ESG Management
R&D Innovation Momentum



Sustainable Development Strategy

Governance

Establish Sustainability Committee

Build a sustainable governance structure to promote sustainable affairs

Communication

Establish Communication Platforms as

KAORI ESG online Hub
 ESG Sustainability Annual Report (GRI*/SASB* Standards)
 Annual Climate Risk Opportunities Annual Report



Focus

Develop Sustainable Products

Focus on major issues and connect to the UN SDGs*



Implementation

Setting Carbon Reduction Goals for Climate Action (Y2021-Y2035)

Short Term (Y2021-Y2023): carbon emission accounting and verification at organizational level
 Medium Term (Y2024-Y2028): set carbon reduction target and roadmap / evaluate to join SBTi*
 Long Term (Y2029-Y2035): carbon neutrality transition

*UN SDGs: the United Nations Sustainable Development Goals
 *SBTi: Science Based Target initiative
 *GRI: Global Reporting Initiative Index
 *SASB: Sustainability Accounting Standards Board Index

Sustainability Achievements (YOY)

 <p>S&P Global Ratings</p>  <p>UP</p> <p>Y2022* #48 Y2023 #34</p>	 <p>Carbon Disclosure Project</p>	
 <p>Greenhouse Gas Emissions Intensity*</p> <p>33.50 ↓ %</p> <p>Y2022 Y2023</p>	 <p>CARBON FOOTPRINT ISO 14067:2018</p>  <p>Lower Emission than in the Industry*</p>	
 <p>Human Rights Due Diligence</p>	 <p>Occupational Safety and Health Management System</p>	 <p>Information Security Management System</p>

Procurement Center : Establishing sustainable supply chain

- **Challenges**: Geopolitical issues and economic development severely affect the manufacturing supply chain, while extreme climate conditions, energy transition, AI applications, and carbon taxes pose, etc.
 - **Supply chain management plan**: Include ESG as an important evaluation indicator, incorporating the carbon emissions of raw materials and outsourced processing into overall procurement considerations.
 - **Identifying risks** : Natural disasters, geopolitical risks, supplier operational risks, shortages of raw materials, or price fluctuations, etc.
 - **Promoting sustainable development among suppliers**: Establish guidelines that integrate environmental, social, and governance aspects into statements and standardized contracts, and require suppliers to sign and comply.



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Financial Results

Unit: NT\$ in thousands / % / NT\$(EPS)

Items	Y2019	Y2020	Y2021	Y2022	Y2023	2024 Q1~Q3
Revenues	2,083,280	2,076,359	2,231,273	2,843,540	4,325,671	3,007,674
Gross Profit	575,456	528,382	593,603	785,630	1,223,949	951,964
Gross Profit(%)	27.6%	25.4%	26.6%	27.6%	28.3%	31.7%
Net Income before Tax	199,080	154,671	195,520	389,853	729,646	632,740
Net Income after Tax	158,138	112,524	149,156	301,020	576,526	501,299
EPS	1.77	1.26	1.67	3.37	6.45	5.56

Financial Results

Unit: NT\$ in thousands / % / NT\$(EPS)

Items	Y2024 Q3	Y2024 Q2	QoQ	Y2023 Q3	YoY
Revenues	1,209,670	1,000,082	21%	1,147,815	5%
Gross Profit	404,302	334,470	21%	351,568	15%
Gross Profit(%)	33.4%	33.4%	0 ppts	30.6%	2.8 ppts
Net Income before Tax	260,442	221,184	18%	263,382	-1%
Net Income after Tax	206,996	165,720	25%	206,136	0%
EPS	2.27	1.84	23%	2.31	-2%

Financial Results

Items	Y2019	Y2020	Y2021	Y2022	Y2023	2024 Q1~Q3
Current Ratio(%)	181	164	142	152	271	295
Quick Ratio(%)	110	101	85	61	142	187
Average Collection Days	48 days	60 days	61 days	61 days	59 days	87 days
Average Inventory Turnover Days	148 days	148 days	143 days	165 days	149 days	160 days
Debt Ratio (%)	34.28	44.7	44.76	50.46	44.01	35.99
Return on Total Stockholders' Equity(%)	8.61	6.01	7.84	15.27	24.21	22.39
Net Income to Sales(%)	7.59	5.42	6.68	10.59	13.33	16.67



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- **2024 Business Results and 2025 Outlook**



Plate Heat Exchanger



Hydrogen Clean Energy



Liquid Cooling Technologies



Operation Overview⁽¹⁾ The global market size for BPHE is about USD 1.05 billion.

Market	Growth potential
<p>EU USA</p>	<ul style="list-style-type: none"> • Hydrogen power is rapidly advancing, fueled by policy support and technology. • Automotive HVAC is transitioning to natural refrigerants, driving higher replacement demand. • Server liquid cooling demand is growing. • Long-term trend for industrial heat pumps remains robust.
<p>CHINA</p>	<ul style="list-style-type: none"> • China's 2060 carbon neutrality target goal boosts demand for heat pumps and district heating systems

Source: MMR-Brazed Plate Heat Exchangers Market



Operation Overview⁽²⁾

Industry	Growth potential
Fuel Cell	<ul style="list-style-type: none"> Hydrogen power generation construction is expected to accelerate.
HVAC	<ul style="list-style-type: none"> CO2 is a promising automotive AC refrigerant, adopted in developed countries..
Data Center	<ul style="list-style-type: none"> Policies supporting HPC and energy efficiency are boosting sustainable construction and maintenance.
Heat Pump	<ul style="list-style-type: none"> 2025 CAGR10%



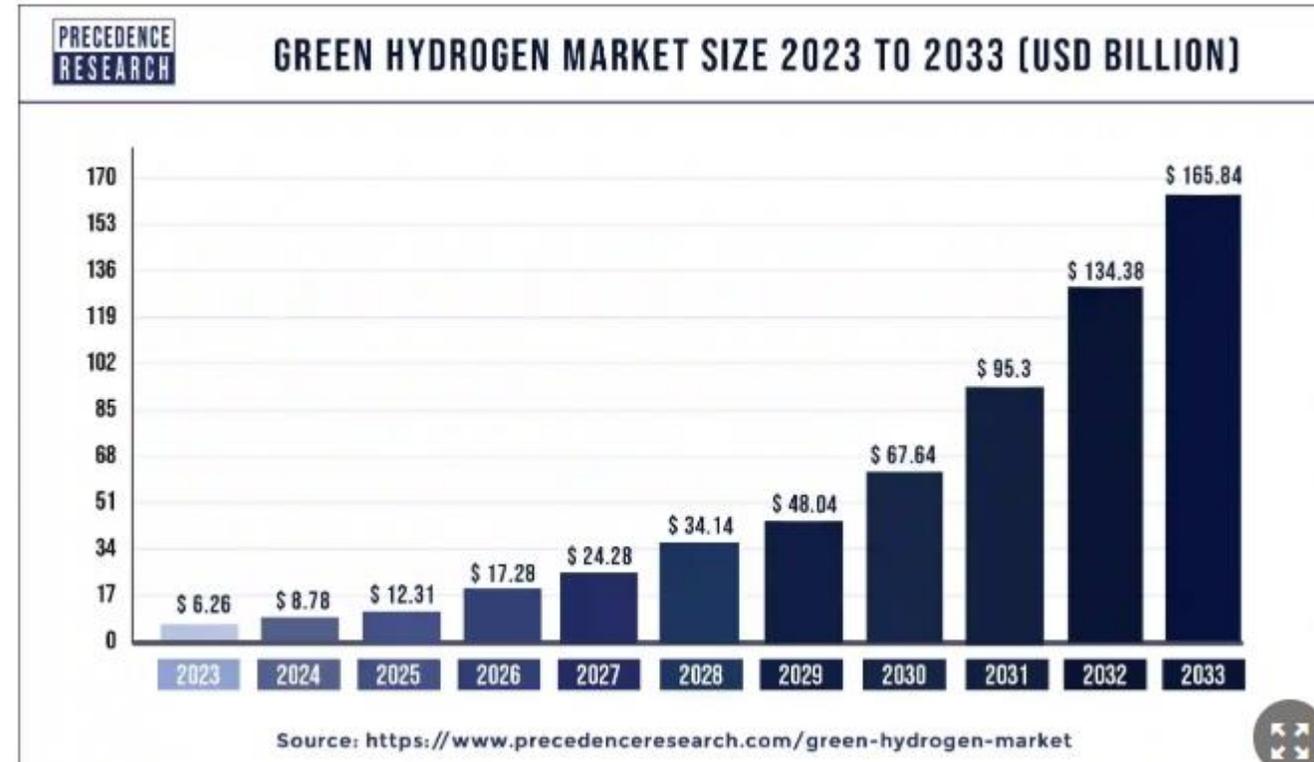
New Product Roadmap (Y2024Q4 & 2025)

Model	Application	Purpose of development	Characteristics	Launch in
B416D B236D	HVAC	Designed for next-gen, eco-friendly refrigerants with innovative heat transfer design	Asymmetric channel Design for new refrigerants, Offering lower charge Optimal performance with Reduced pressure drop	2025.Q1
All Series	All Industry	Enhanced corrosion resistance	Low nickel content, Lower cost Corrosion-resistant Compatible with ultra-pure water	Constantly
T Series	Hydrogen	Developed for green energy storage market	900°C Working Temperature Corrosion-resistant	2024.Q4

Market Opportunity

In 2024, Hydrogen drove double-digit growth

- **Hydrogen**
 - (1) EU/ USA government strong support.
 - (2) Green/ Blue Hydrogen Market CAGR 39%
 - (3) Kaori collaborates with key JP/ EU accounts.



Source: Precedence Research [Link](#)



Capacity Plan

- **Overseas Expansion**
Expand fully automated plate production near material suppliers to reduce costs
- **Upgrade Automation**
 - (1) Expand advanced testing to reduce manual labor hours
 - (2) Optimized station flow with robots



Operation Overview

- Outsourcing and self-production--4/3" 、 1" 、 2" 、 3" 、 4" Light industry
- Import of complete machines and sales---6" 、 8" 、 10" 、 12" Heavy industry, semiconductor fabs, power plant, Marine.
- Shell and tube heat exchangers--Hydrogen Application Technology Collaborate with Funke

Our customers and actual business achievement :Air Liquide Far Eastern, Lienhwa Industrial Gases etc.

- Spare parts --Large Selection of Plates and Gaskets Available
- Light Industries Maintenance Service and Improvement of Thermal -- less than 6 inches
- Heavy Industries Maintenance Service -- more than six inches

Market Opportunity and Outlook

- Stable expansion of Light industry---1”~4” Ordered Basis in Light industry
 - ✓ More than 2,500 transactions, enhancing customer service and sales service, consolidating and expanding the existing basic market, and gaining market share from competitors
- Shipbuilding market--- JSSC: Indigenous Defense Submarine, CSBC :4 210,000 DWT Bulk Carrier, FU LONG:1800 Ton Class American Type Purse Seiner
- Marine and Heavy industry : Maintenance Service---Large Scale Industries, 45 ship repairing of EMC, YM, TA-HO MARITIME, CPC Product Carrier
- Hi-Tech factory---AHRI certification, Qualified to participate in large-scale cooling systems, TSMC etc.
- Chemical and Petroleum industry---Shell and tube heat exchangers (316H, duplex steel, Gr1 Titanium), UNITED BIOMEDICAL Lienhwa Industrial Gases
- Public Works Tenders---CSBC, Navy, Taiwan Power, CSC, CPC, FPC
- Liquid Cooling Application in electricity industry and energy storage---Storage of wind power energy, target customer :DELTA ,TCC, FPC



- **2024 Business Results and 2025 Outlook**



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Liquid Cooling Technologies



Hydrogen Clean Energy

2025 Outlook

Support **Bloom energy**
Promoting Hydrogen Application Technology

Product	Growth Momentum
SOFC (Natural Gas) Solid Oxide Fuel Cells	<ol style="list-style-type: none"> 1. November 7, 2024 – BE announced a landmark project to deliver fuel cells to the largest single-site installation to date in history. The 80 MW project, developed in partnership with SK Eternix, will power two ecoparks in North Chungcheong Province, South Korea, providing reliable, sustainable energy for critical infrastructure and regional development. The project is expected to begin commercial operations in 2025. 2. November 7, 2024 – BE and Quanta Computer Inc. announced a major expansion of an existing agreement to power the production of critical hardware serving the AI industry. The new agreement increases the power capacity of Quanta’s existing Bloom SOFC installation by more than 150 percent and will circumvent a costly utility interconnection delay to keep up with rapidly growing demand for orders. Bloom is on-track to deliver the expanded power capacity for Quanta ahead of schedule early next year. 3. November 7, 2024 – BE announced an agreement with FPM Development for 20 megawatts of Bloom’s SOFCs in Los Angeles. The partnership demonstrates Bloom’s capability to rapidly add affordable and resilient generational capacity to American utilities. Bloom and FPM are working together to deliver hardware by the end of 2024. 4. November 14, 2024 – BE announced that it has signed a supply agreement with American Electric Power (AEP) for up to 1 gigawatt of its products, the largest commercial procurement of fuel cells in the world to date. AEP has placed an order for 100 megawatts of fuel cells with further expansion orders expected in 2025. Deployment at scale will help meet data center customers’ sharply increasing AI loads and rapidly enable AEP to meet the energy and economic development goals of its customers and stakeholders.
SOEC (Electrolyze) Solid Oxide Electrolyzer Cells	<ol style="list-style-type: none"> 1. BE announced on 8/28 that it signed an 18MW agreement with its ammonia production client in Estonia, Europe.
Carbon Capture Solid Oxide Fuel Cells	<ol style="list-style-type: none"> 1. June 6, 2024 – BE announced today a groundbreaking collaboration with Sembcorp Industries (Sembcorp) at the sidelines of the 2024 Clean Economy Investor Forum. The Bloom-Sembcorp collaboration will involve Sembcorp’s potential utilization of Bloom’s proprietary solid oxide fuel cell technology and third-party proven carbon capture technologies to produce reliable, low-carbon electricity to meet Singapore’s changing energy needs.

Hydrogen Clean Energy

2025 Outlook — Recycle exhaust hydrogen & Realize circular economy

Solution	Development Perspective	Growth Momentum
 <p>Industrial exhaust hydrogen – purification and recycle</p>	<ul style="list-style-type: none"> • High recycle rate and low energy consumption for reducing cost and carbon emission. • Cost saving from hydrogen purchasing to achieve 80% to well justify capital investment with ROI around 2.5 years with carbon tax not counted in. • Automatic operation with safety interlock without influencing existing processes. 	<ul style="list-style-type: none"> • Industrial applications : heat treatment, powder metallurgy, metal threading and steel manufacturing that consuming huge amount of hydrogen. • Already proven applications at metal treatment and sea-water electrolysis, and to be expanded in capacity.
 <p>Methanol reforming hydrogen generator</p>	<ul style="list-style-type: none"> • To replace hydrogen cylinder usage with ROI around 0.5~2 years, depending on consumptions. • Applied to weather balloon to solve Helium shortage and save cost around 90%, then expanding to portable type. 	<ul style="list-style-type: none"> • Reinforce the applications to variant industries and hydrogen fueling stations. • More than 800 weather stations globally.
 <p>Methanol reforming Fuel Cell Power Generator</p>	<ul style="list-style-type: none"> • Low noise and no emissions of NOx/SOx, ready to replace genset as emergency backup power. • Integrated with PV & wind power to supply stable power as isolated microgrid. 	<ul style="list-style-type: none"> • Taipower 100kW system under construction. • POC for Central Weather Bureau at off-shore observatories.



- **2024 Business Results and 2025 Outlook**



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Data Center Application

1. E-commerce
2. 5G Communication
3. Big Data Applications - Facial Recognition, Telemedicine
4. Virtual Reality Software - Autonomous Driving
5. Applications of Google and Baidu Maps
6. AI (Artificial Intelligence) - Industry 4.0

Friendly Natural Environment & Sustainable Development

- **2050 Net Zero Emissions in Taiwan**
 - ✓ 86% of total power will be from wind power and solar energy.
- **Improving Electricity Structure - Reducing Energy Consumption of Data Centers**
 - ✓ 2021 Chunghwa Telecom's IDC annual consumed power was 161.94 million kWh which PUE was 1.657.
 - ✓ PUE of the data center can be improved from 1.657 to 1.1 by liquid cooling technology for server which save power 33.6% and reduce 44.755 million kWh usage annually.
- **Improving Water Structure - Reducing Water Consumption of Data Centers**
 - ✓ Data center uses the liquid cooling technology can reduce 20% of water usage.

Liquid Cooling Technologies

Liquid Cooling Product Road Map

	2024 products	2025 products
Liquid cooling product (Liquid/Air)	1.RDHx、RPU&CDM *cooling capacity 30 kW	1.RDHx、RPU&CDM *cooling capacity 50 kW 2.Sidecar *cooling capacity150 kW
Liquid cooling product (Liquid/Liquid)	1.in-rack 4U80kW CDU&CDM *cooling capacity 80 kW 2.in-row 800kW CDU&CDM *cooling capacity 800 kW	1.in-rack 4U250kW CDU&CDM *cooling capacity 250 kW 2. In-row 1.5MW CDU&CDM *cooling capacity1.5 MW 3. in-row 2.0MW CDU&CDM *cooling capacity 2.0 MW
Immersion cooling product (Liquid/Liquid)	25U Tank&100kW CDU *cooling capacity100 kW	25U Tank&100kW CDU *cooling capacity100 kW

R&D Center

- Participate in ITRI's advanced project, to remove NOx with hydrogen
- Diversify catalyst applications and developing regarding process technologies
- Expand the company's patent portfolio and cultivate technical energy
- Continue to apply for and recruit R&D replacements, cultivate outstanding professionals, and improve R&D capabilities
- Extensive exposure to new technologies, in-depth evaluation of new applications, to incubate new businesses



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THANK YOU

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