Invest KOREA Market Place

Invest KOREA Market place (IKMP) is an online business matching platform available on Invest KOREA's website with information on approximately 300 Korean companies seeking to partner with foreign investors. This month, we introduce some outstanding companies in Korea's hydrogen industry.

COMPANY A

Fuel Cell Model

MEGA FC 2.0
(20FT Containerized)

Lithium-Ion Battery

Electric Propulsion Module

Investment Requirement		Company Profile	
Amount	USD 27 million	**Patents and Certificates**	- Registered 11 domestic patents incl. marine battery systems and electric vessels - Registered 5 overseas patents, 12 designs, 2 trademarks - Applied for 26 domestic patents, 19 overseas patents, 13 designs, 3 trademarks
Investment Structure	Equity Investment	**Financial Performance**	(Sales in 2022) USD 1.09 mn

Investment Highlights

- **Marine hydrogen fuel cell market**
  According to the recent results of the International Maritime Organization's 80th MEPC (July 2023), the goal is to go carbon neutral by 2050. So far, technology that can realize this aim is quite limited, and hydrogen fuel cells are emerging as one of them. Among the various types of fuel cells, PEMFC is known to be the most suitable for ship propulsion systems but it is still limited to small output, so several companies are looking for ways to achieve high output. The company has signed a contract with a world-renowned company in August 2022 for the supply of one set of hydrogen fuel cell and ancillary equipment for the purpose of demonstration and is scheduled to test and deliver the product in factory in Sept. 2023. In addition, it plans to obtain a type approval certificate from the Korea Register for MEGA FC 2.0, which can be applied to large ships, and to commercialize it within 2024.

- **Battery electric propulsion ships & systems**
  In the case of small vessels (within 20m), 100% carbon neutrality can be realized by applying a system using an electric battery. To implement electric propulsion ships, stable supply and safe products of marine electric batteries, which are the source of electric energy, and stabilization of the entire electric propulsion system are the key technologies. The company has developed its own marine electric batteries and obtained type approval from the Korea Register, which can only be obtained by passing various tests to ensure safety. In order to stabilize the system, two ships were manufactured and operated for 2 years, and based on this, several national projects were carried out.

COMPANY B

Hydrogen Removal Catalyst
Hydrogen removal catalyst with unique terrace expansion structure

Hydrogen Sensor
Hydrogen sensor using hydrogen removal catalyst

Hydrogen Removal System
Hydrogen and oxygen are reacted to convert into harmless water vapor

Investment Requirement		Company Profile	
Amount	USD 1 million	**Patents and Certificates**	Registered/applied for 9 patents incl. that of a catalyst for volatile organic compound reforming and its manufacturing method
Investment Structure	Equity Investment	**Financial Performance**	(Sales in 2023) USD 0.39 mn

Investment Highlights

- **Hydrogen Industry Market**
  Hydrogen is recognized as a key energy source in many countries among the various energy sources mentioned to achieve carbon neutrality. As the global hydrogen application fields diversify and production costs are reduced, the demand for hydrogen is increasing every year. Especially since the 2020s, discussions about green hydrogen and sustainable hydrogen have been rapidly gaining momentum. The hydrogen industry market is estimated to reach USD 500 billion by 2030 and USD 2.5 trillion by 2050. The hydrogen safety market is expected to be worth USD 3.6 billion by 2030.

- **Hydrogen Safety System**
  In order to respond to climate change, the world, including Korea, is accelerating decarbonization policies. Hydrogen is attracting attention as one of the eco-friendly energy sources to replace fossil fuels, and the transition from a carbon economy to a hydrogen economy is taking place in various industries such as electric vehicles and factories, but safety management is essential due to the risk of explosion. Using the principle of catalytic technology that helps the chemical reaction between two substances, the company has developed a system that detects or treats gases. It is an all-in-one system that automatically detects and simultaneously removes hydrogen leaking from manufacturing sites such as hydrogen charging stations, power plants, and semiconductor lines, and can be applied to automobiles, ships, forklifts, and power plants, etc.