

July 13, 2023

Started selling hydrogen produced by AEM water electrolyzer at hydrogen refueling station

Tokyo Gas Co., Ltd.

Tokyo Gas Co., Ltd. (President: SASAYAMA Shinichi, hereinafter "Tokyo Gas") announced today that it will start production and sales of hydrogen using an AEM^{*1} water electrolyzer at the "Senju Hydrogen Refueling Station" (hereinafter "this station") for the first time in Japan.

Since the start of operations in 2016, the station has sold hydrogen produced from city gas on the premises. Along with electricity which is essentially renewable energy with a non-fossil certificate^{*2}, which was switched at the end of last year, we will produce and sell CO₂-free hydrogen by utilizing the newly introduced AEM water electrolyzer manufactured by Enapter.

The main feature of the AEM water electrolyzer is that it is possible to obtain an arbitrary amount of hydrogen production by combining small modules, and because of its simple structure, it can be expected to be installed in places where space is limited. In addition, there are a wide range of materials to choose for the cell components^{*3}, and the cost of the cell stack can be reduced.

Going forward, Tokyo Gas will promote the CO₂ reduction business at factories and hydrogen refueling stations by introducing AEM water electrolyzer that scales according to customer usage. In addition, we will consider selling the AEM water electrolyzer based on the Operations & Maintenances knowledge gained through this installation.

■ Specification of AEM water electrolyzer

Maker	Enapter
Discharge pressure	0.8 MPa
Hydrogen purity	> 99.999% ^{*4}
Power consumption	4.8 kWh/Nm ³
Water consumption	0.4 L/Nm ³
Hydrogen production	0.5 Nm ³ /module



Appearance of AEM module

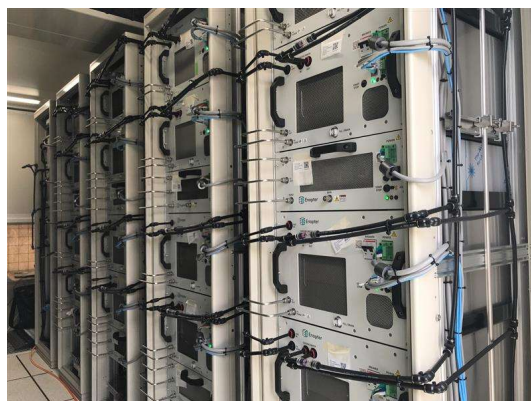
■ Overview of the installed AEM water electrolysis system

We installed a facility with 30 modules in one container. The total hydrogen production capacity is 15 Nm³/h. Every module can be controlled respectively, then the system is redundant to be operated even if something is wrong with a module.

In addition, in order to increase the operating rate of the hydrogen production equipment, hydrogen will be produced even at night and stored at less than 1 MPa in a hydrogen tank that has been installed together.

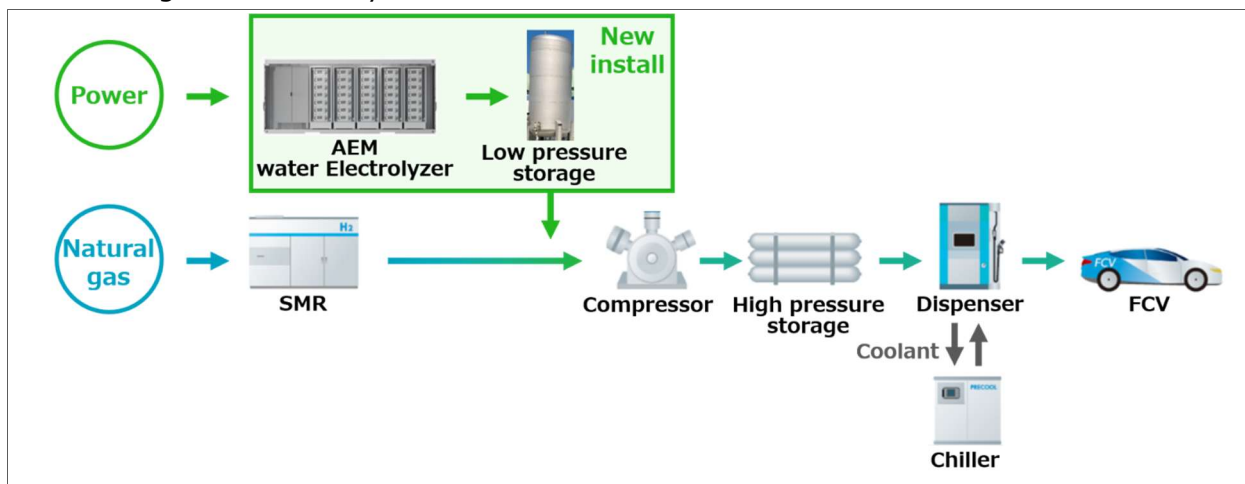


View of AEM water electrolyzer and low pressure hydrogen storage tank



AEM water electrolyzer and dryer in container

■ Flow diagram of the system



We will realize technology for decarbonization and lead net zero CO₂ to achieve the "challenge to net zero CO₂" set forth in our management vision "Compass 2030", and will contribute to "carbon-neutral, decarbonized society by 2050".

- *1: Abbreviation for Anion Exchange Membrane.
- *2: Non-fossil certificate with renewable energy.
- *3: Cell components such as catalysts, separators, ion-exchange membranes, current collectors, etc.
- *4: Purity after water is removed with a dryer (optional accessory).

Overview of Senju Hydrogen Refueling Station

Business start date	January 12, 2016
Location	3-28-1 Minamisenu, Arakawa-ku, Tokyo
Site area	approx. 950 m ²
Fueling pressure	82 MPa
Hydrogen supply	On-site production