

Trends in hydrogen storage technology in Europe and Japan to achieve a low carbon society.

Joji Kawano
Senior Research Associate, Research Department,
Japan Electric Power Information Center
Tokyo, Japan

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Abstract

We have reported on various trends in foreign efforts of installation of batteries as a method of storing electricity. There has been already developed various technologies such as pumped hydro, however battery storage is now been researched and developed in power industry. Each type of storages has its own advantage and disadvantage particularly in respect to installation. In this report, I will introduce on R&D trends in the utilization of hydrogen as a storage technology.

In Europe, tests on the electrification of transport called sector coupling, are being conducted. This is an effort to reduce greenhouse gas emissions by generating green fuel consisting of hydrogen and circulating the green fuel in society. As an example, tests such as generating methanol by storing CO₂ released from coal-fired power plants and combining CO₂ with hydrogen generated by the electrolysis of water are being conducted in Germany.

Also, verification tests are being conducted in Japan to realize a hydrogen society in time for the 2020 Tokyo Olympic Games. As an example, research such as importing hydrogen from overseas, hydrogen production using renewable power sources, and the use of hydrogen fuel is being carried out.

This report summarizes the installation of storage devices mainly used by utilities that adopt hydrogen technologies developed in Europe and Japan. By analyzing these efforts, we will determine the direction of Europe and Japan in the area of storage technology.