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Strategies and Projects for Inter-Country Carbon Dioxide Capture and Storage (CCS) Technology

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Recently, most countries have been making extensive efforts to reduce carbon dioxide emissions to cope with climate change. These are mainly focusing on clean energy conversion from fossil fuel-based energy and carbon capture, utilization, and storage (CCUS) technology. To achieve carbon neutrality through greenhouse gas reduction, industrial facilities or technology that removes and processes carbon dioxide from the air is attracting attention as a commercially applicable technology. In the concept of carbon dioxide removal, technology for large-scale removals, such as underground storage using gas reservoirs, is very important.

Currently, 66 CCS projects are in progress worldwide, of which 26 are commercial operations. Considering the global net-zero target, the CCS industry will grow dramatically.

The United States continues to make related investments, including completing the world's largest CCS facility. China and Japan also promote CCS demonstration projects and participate in large-scale overseas projects. Major European countries actively using renewable energy have also succeeded in commercializing CCS technology, and Australia is also expanding its CCS business through various projects.

In particular, South Korea is working on a CCS project using the East-sea gas field. It applies CCS technology to sites cooperating with countries like Australia to secure insufficient storage in South Korea. In addition, a project linked to the production of blue hydrogen is also being carried out.

In this presentation, I want to introduce the inter-country CCS technology and projects by the Korea Institute of Geoscience and Mineral Resources (KIGAM) in South Korea.

KIGAM, a leading research institute related to CCS technology, is conducting several projects in South Korea and two major projects below.

- Development of offshore CO_2 monitoring technology and transboundary CCS business models through Australia project participation
- Development of carbon-reduced gas reservoir combined operation technology for blue hydrogen production

Based on the above projects, I would like to present strategies for transboundary CCS project causes using overseas CO_2 storage, technology related to storage technologies, and economic feasibility.