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KEPCO and MHI signed MOU on construction of a test facility and demonstration tests at the Himeji No. 2 Power Plant for CO_2 separation and recovery technology

17th January 2024
The Kansai Electric Power Co., Inc.

The Kansai Electric Power Co., Inc. (KEPCO) and Mitsubishi Heavy Industries, Ltd. (MHI) today signed Memorandum of Understanding (MOU) to construct a pilot-scale test facility[*1] (5 tons-CO_2/day scale) for the liquid amine-type CO_2 separation and recovery system[*2] at the Himeji No. 2 Power Plant of KEPCO and to conduct demonstration tests for the separation and recovery of CO_2 from the exhaust gas.

Since 1991, the two companies have installed a pilot-scale test facility (2 tons-CO_2/day scale) for the CO_2 separation and recovery system at the Nanko Power Plant of KEPCO, and have jointly developed an amine absorbent solution and a CO_2 capture process for efficient separation and recovery of CO_2 from the exhaust gas.

The two companies will install a test facility at the Himeji No. 2 Power Plant and begin demonstration tests in FY2025, with the aim of developing a CO_2 capture process that can be adapted to the currently mainstream combined cycle system in thermal power generation facilities, and an even higher-performance absorbent solution.
KEPCO will provide advice on the design of the pilot-scale test facility, the demonstration tests, etc., and supply necessary utility for the operation of the test facility, such as energy, while MHI will design and construct the test facility and conduct the demonstration tests.

"KS-1™" and its improved version "KS-21™", amine absorbent solution jointly developed by the two companies, can significantly reduce energy consumption required for CO_2 separation compared to conventional amine absorbent solution, and are used in a wide variety of fields such as power plants and chemical plants.
Through this demonstration tests, the two companies will contribute to the realization of a zero-carbon society by deploying the CO_2 separation and recovery technology not only in the energy industry but also in the transportation and manufacturing industries.

*1: A method of separating CO_2 by chemically absorbing it into an absorbent solution using a solvent such as an amine.
*2: A medium-sized test facility with performance equivalent to that of a commercial facility.

Appendix: Outline of the demonstration tests

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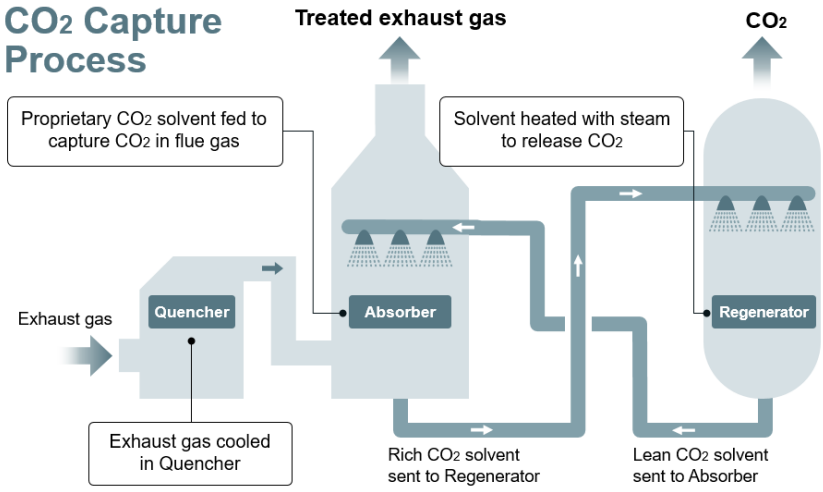
Appendix

Outline of the demonstration tests

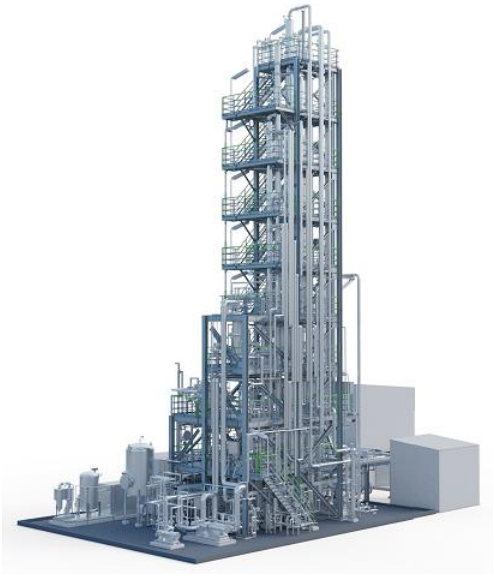
<Outline of the tests>
Test period: Beginning in FY2025 (End date-TBD)
Location: KEPCO's Himeji No. 2 Power Plant (Mega Tokiwa-town, Shikama-ku, Himeji City, Hyogo, Japan)

< Role of the two companies>
KEPCO: Advice on the design of the pilot-scale test facility, the demonstration tests, etc. and supply of necessary utility for the operation of the test facility, such as energy
MHI: Design and construction of the pilot-scale test facility and conducting demonstration tests

<CO_2 capture process>



<Image of the test facility>



<Outline of the Himeji No. 2 Power Plant>

Unit	Beginning date of Commercial operation	Generator output	Power generation method	Fuel used
Unit 1	August, 2013	486.5 MW	Combined cycle power generation	LNG
Unit 2	November, 2013	486.5 MW		
Unit 3	March, 2014	486.5 MW		
Unit 4	July, 2014	486.5 MW		
Unit 5	September, 2014	486.5 MW		
Unit 6	March, 2015	486.5 MW		