

21<sup>st</sup> April 2021Taiheiyo Cement Corporation  
Marubeni Protechs Corporation  
Carbon Clean

### Installation of a Demonstration Facility for CO<sub>2</sub> Capture from Cement Kiln Flue Gas

Taiheiyo Cement Corporation (Taiheiyo Cement) will implement technology for CO<sub>2</sub> capture from the flue gas of rotary kilns used for cement production which will be the first demonstration plant (Facility) in Japan with a capacity of 10 tonnes per day. For this purpose, Taiheiyo Cement has selected the technology for CO<sub>2</sub> chemical absorption supplied by Carbon Clean of the United Kingdom, which has been awarded by Marubeni Protechs Corporation (Marubeni Protechs) in Japan. This technology will be installed at Taiheiyo Cement's Kumagaya Plant located in Kumagaya City, Saitama, and demonstration tests will begin in September 2021.

Taiheiyo Cement has positioned the reduction of CO<sub>2</sub> emissions as an important growth strategy and formulated "Specific measures of their long-term vision for greenhouse gas emissions reduction towards 2050" on March 30<sup>th</sup>, 2020. It is necessary not only to develop existing technology but to develop innovative technology in order to realize the reduction in CO<sub>2</sub> emissions stated in this long-term vision. The most important project among the innovative technologies that Taiheiyo Cement is currently working on is the development of CO<sub>2</sub> capture and carbon recycling technology suitable for cement kilns. Taiheiyo Cement has been developing this technology as a sole grant recipient of the "Development of Carbon Circulation Technology for the Cement Industry," a project funded by the New Energy and Industrial Technology Development Organization (NEDO) which was awarded in June 2020. The Carbon Neutral Technology Development Project Team which was newly launched as an internal cross-divisional project team on April 1<sup>st</sup>, 2020 has led this project.

Carbon Clean's technology enables highly efficient and low-cost CO<sub>2</sub> capture from industrial flue gases. Carbon Clean have developed innovative technologies and was awarded a "Technology Pioneer" by the World Economic Forum. It has a proven track record in the U.S., U.K., Germany, India, Norway, and the Netherlands and has developed best in class cost effective CO<sub>2</sub> capture technology.

Marubeni Protechs is a wholly owned subsidiary of Marubeni Corporation who invested in Carbon Clean, and have been involved in a variety of domestic and international projects involving equipment supply and construction beyond the scope of a conventional machinery trading company. The Facility is expected to be the first CO<sub>2</sub> capture plant that Marubeni Protechs and Carbon Clean have introduced in Japan. With this achievement as a foothold, Marubeni Protechs and Carbon Clean will continue to jointly introduce CO<sub>2</sub> capture plants in the future.

Taiheiyo Cement believed that CO<sub>2</sub> recovery technology from cement kiln flue gas would require compact equipment that could be installed in cement plants and that suitable amine solvents for cement kiln flue gas were essential conditions. Taiheiyo Cement decided to implement the Facility since Taiheiyo Cement highly rated that Carbon Clean's technology fulfills such conditions.

This project will have a significant impact since creating suitable CO<sub>2</sub> capture and carbon recycling technology for cement kilns will contribute to the future of the cement industry. Through this demonstration, TCC will establish a technology that can be implemented to help achieve carbon neutrality by 2050.

### Project Outline

Project Owner	Taiheiyo Cement Corporation
Contractor	Marubeni Protechs Corporation
	Carbon Clean
Project Name	NEDO grant projects "Development of Carbon Circulation Technology for the Cement Industry"
Project Site	Taiheiyo Cement Kumagaya Plant (Kumagaya, Saitama, Japan)
Equipment	CO <sub>2</sub> Capture Plant (10tpd by chemical absorption process)
Project Delivery	From November 2020 until September 2021