

October 5, 2026
Kanadevia Corporation
Clean Authority of TOKYO

**World's First Demonstration Plant Completed to Advance
Decarbonization of Waste to Energy Plants
Completion Ceremony Held for CO₂ Enrichment Technology Designed to Enable
Carbon Circularity at Waste to Energy Plants**

Kanadevia Corporation has been developing High-CO₂-Concentration Waste Incineration Technology under a Green Innovation Fund project commissioned by the New Energy and Industrial Technology Development Organization (NEDO) since FY2024. The project aims to separate and capture carbon dioxide (CO₂) from flue gas generated during waste incineration. With the cooperation of the Clean Authority of TOKYO, Kanadevia will begin the world's first demonstration of this technology at the Shinagawa Incineration Plant in Shinagawa City, Tokyo, in November 2026. A completion ceremony was held at the site on October 5 to mark the completion of the demonstration facility.



【Ribbon-cutting ceremony at the completion ceremony】

The demonstration project aims to commercialize an innovative technology for the efficient capture of CO₂ from waste-incineration flue gas. The demonstration facility, which serves as a pilot-scale plant, comprises an incinerator capable of processing 2 tons of waste per day and a CO₂ separation and capture system. By replacing combustion air with oxygen and recirculated flue gas, the technology increases the CO₂ concentration in the flue gas to several times that of conventional waste incineration systems. The project is scheduled to continue through FY2030 as part of a government-supported technology development initiative involving collaboration between the public and private sectors. The demonstration facility has been installed on the premises of the Shinagawa Incineration Plant, where the Clean Authority of TOKYO will provide waste for testing and technical advice.

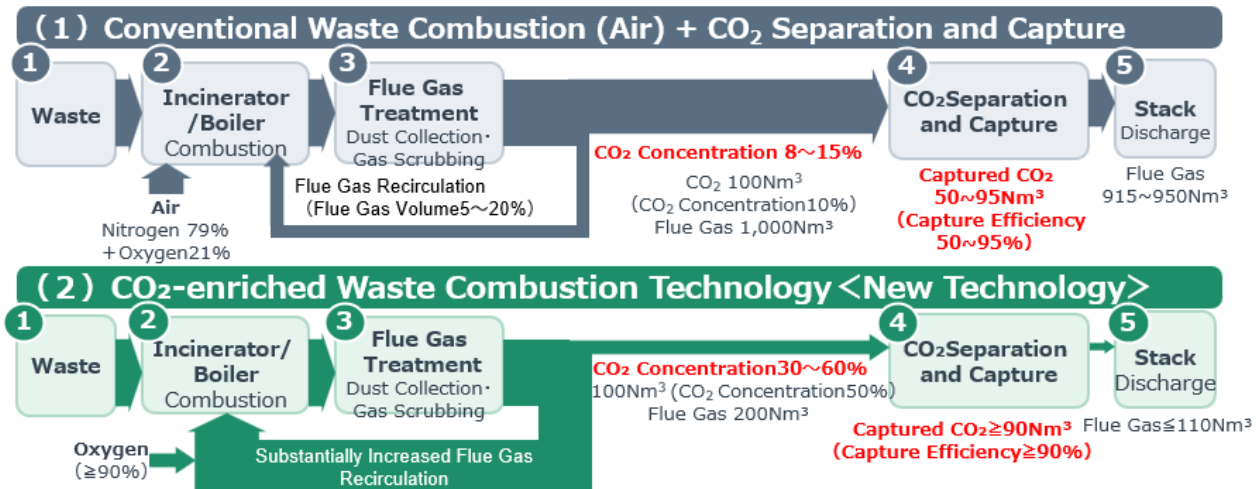
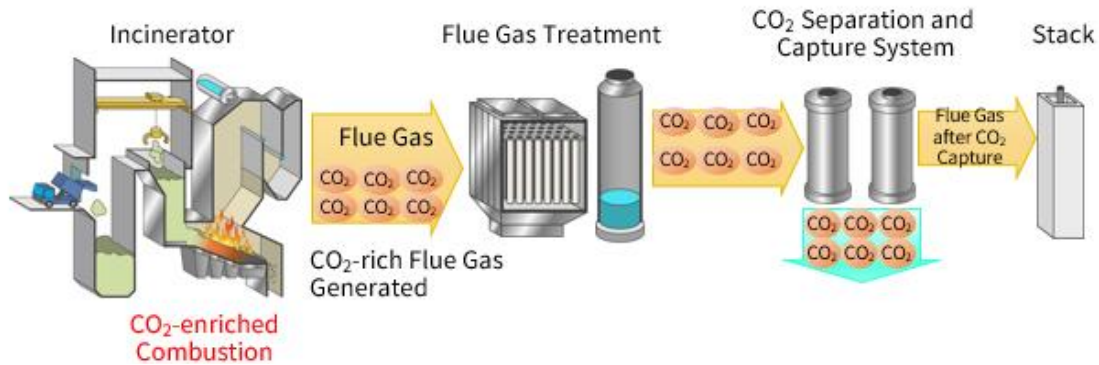
Currently, CO₂ is not separated and recovered from flue gas at Waste to Energy (WtE) plants. With conventional waste combustion technology, the CO₂ concentration in flue gas is generally limited to approximately 8% to 15%. By raising this concentration to 30% to 60%, the new technology is expected to improve the efficiency of CO₂ separation and capture, regardless of the capture method used. The captured CO₂ can then be liquefied or used as feedstock for methanation, adding a carbon circularity function to WtE plants and enabling them to operate as carbon-neutral carbon circularity plants. Compared with conventional waste combustion technology, the new technology can reduce the volume of flue gas sent to CO₂ separation and capture systems to only a fraction of the conventional level. It is therefore also expected to reduce the space required for CO₂ capture equipment compared with simply adding a CO₂ separation and capture system to a conventional WtE plant.

Laboratory-scale testing has already demonstrated a CO₂ recovery rate of more than 90% and CO₂ purity of more than 95%. The project ultimately aims to achieve a stable capture rate of more than 90% from CO₂-enriched flue gas.

To achieve the Japanese government's goal of carbon neutrality by 2050, WtE plants, like facilities in other sectors, must be decarbonized. However, the quantity, composition, and moisture content of incoming waste are constantly changing. These variations affect both the volume and characteristics of the resulting flue gas, making the stable and efficient capture of CO₂ a significant technical challenge.

Once commercialized, the technology is expected to add a carbon circularity function to WtE plants. In addition to generating electricity using heat from waste incineration, these facilities would be able to capture CO₂ and use it as a resource or feedstock for fuel.

Conceptual Diagram of the Technology



Approximately 30 representatives from Japan's Ministry of the Environment, NEDO, the Clean Authority of TOKYO, and other organizations attended the completion ceremony. The event included a ribbon-cutting ceremony and a tour of the demonstration facility.

The Kanadevia Group has delivered more than 1,600 waste treatment and WtE plants worldwide. Building on the results of this demonstration project, the Group will continue to advance the technology to achieve highly efficient recovery and beneficial use of CO₂ emitted from WtE plants, thereby contributing to the realization of carbon neutrality in the waste management sector.

Overview of the Demonstration Project

Location: Shinagawa Incineration Plant, Clean Authority of TOKYO (Shinagawa City, Tokyo)

Facility Capacity: Incinerator: 2 tons/day

Demonstration Period: November 2026 to March 2028



【(Top) Demonstration facility
(Bottom left) Incinerator (Bottom right) CO₂ separation and capture system】



Reference

Kanadevia News Release (February 16, 2024):

“Green Innovation Fund Project: Achieving Carbon Neutrality in Waste and Resource Circulation ~ Development of Waste Incineration Plant Based on CO₂ Separation and Capture~”