

Commencement of Joint Study on the Capture and Utilization of CO₂ Emissions from the Senboku Industrial Complex

May 31, 2023
Mitsui Chemicals, Inc.
Osaka Gas Co., Ltd.

Mitsui Chemicals, Inc. (President and CEO: Osamu Hashimoto, hereinafter referred to as "Mitsui Chemicals") and Osaka Gas Co., Ltd. (President and Representative Director: Masataka Fujiwara) have commenced a joint study on a project to capture and utilize carbon dioxide (hereinafter referred to as "CO₂") emissions from the Senboku Industrial Complex (hereinafter referred to as "the project").

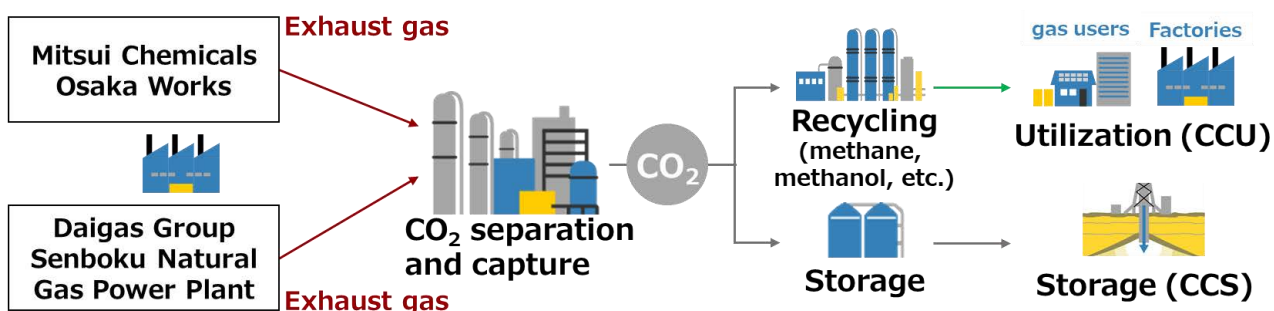
The project aims to separate and capture CO₂ from the exhaust gases of the manufacturing plant^{*1} and auxiliary facilities^{*2} at Mitsui Chemicals' Osaka Works, as well as from the exhaust gases of Daigas Group's Senboku Natural Gas Power Plant. The captured CO₂ will be utilized domestically and internationally (carbon capture and utilization, or "CCU"), as well as stored underground (carbon capture and storage, or "CCS").

In this joint study, the companies plan to conduct conceptual design and economic feasibility calculations for the project.

<Conceptual scheme of the project>

- CO₂ will be separated and captured from the exhaust gases of the manufacturing plant and auxiliary facilities at Mitsui Chemical's Osaka Works, as well as from the exhaust gases of Daigas Group's Senboku Natural Gas Power Plant.
- The captured CO₂ is envisaged to be recycled and utilized as feedstock for methane, methanol, and other materials through CCU processes, as well as considered for underground storage using CCS technologies.

Capture and utilization of CO₂ emissions from the Senboku Industrial Complex (conceptual scheme)



<Mitsui Chemicals' auxiliary facility (steam boiler)>



<Daigas Group's Senboku Natural Gas Power Plant>



In November 2020, the Mitsui Chemicals Group made a 2050 Carbon Neutral Declaration, thereby committing itself to contribute to the realization of a carbon-neutral society through the maximization of greenhouse gas (GHG) emission reductions within the group (Scope 1 and 2) and the overall lifecycle GHG reduction of its products. In terms of GHG emission reduction, the group has set a target to reduce its GHG emissions in Scope 1 and 2 by 40% by FY2030, compared to its emissions in FY2013.

The Daigas Group declared its commitment to taking up the challenge of achieving carbon neutrality by 2050 in January 2021. In addition, in the “Energy Transition 2030” plan formulated on March 9, 2023, the group declared its intention to explore the recovery of CO₂ emitted into the atmosphere from industries such as steel, cement, and chemicals, with the aim of reusing it as e-methane³ and constructing a CO₂ value chain for deep underground injection and storage. These efforts are aimed at contributing to a circular society that reduces environmental impact.

Through this joint study, both companies will promote regional collaboration in the Senboku industrial complex toward the realization of a carbon-neutral fuel supply base, which is currently being considered by the Japanese government, and continue their efforts to achieve a carbon-neutral society by 2050.

- *1: The manufacturing plant refers to the equipment where chemical reactions take place using naphtha or natural gas as raw materials. These chemical reactions often occur at high temperatures, resulting in the emission of CO₂ as a byproduct of fuel combustion.
- *2: Auxiliary facilities refer to the equipment that combusts fuel to generate steam or electricity. The exhaust gases resulting from fuel combustion in these facilities contain CO₂.
- *3: e-methane is methane synthesized through the process of “methanation,” a technology that recycles CO₂ to produce feedstock for city gas.

<Corporate Profiles>

■ Mitsui Chemicals

Company name	Mitsui Chemicals, Inc. (https://jp.mitsuichemicals.com/en/index.htm)
Head office	Tokyo Midtown Yaesu, Yaesu Central Tower, 2-2-1 Yaesu, Chuo-ku, Tokyo
Establishment	July 1, 1955
Representative	Osamu Hashimoto, President & CEO

■ Osaka Gas

Company name	Osaka Gas Co., Ltd. (https://www.osakagas.co.jp/en/)
Head office	4-1-2 Hiranomachi, Chuo-ku, Osaka
Establishment	April 10, 1897
Representative	Masataka Fujiwara, President and Representative Director