

**INPEX, Osaka Gas Commence Construction of Test Facility for
CO₂ Emissions Reduction and Practical Application of Effective CO₂ Use
Through One of World's Largest Methanation Operations**

- Targeting Practical Application of Technology Enabling Carbon Neutralization of City Gas -

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INPEX CORPORATION

Osaka Gas Co., Ltd.

[INPEX CORPORATION](#) (INPEX) and [Osaka Gas Co., Ltd.](#) (Osaka Gas) announced they jointly held a groundbreaking ceremony today marking the commencement of construction of one the world's largest CO₂-methanation test facilities capable of producing 400 normal cubic meters of methane per hour, equivalent to the amount of methane consumed by about 10,000 households in Japan per day.

This project is part of a joint technical development initiative that INPEX and Osaka Gas launched in 2021 targeting the practical application of a CO₂-methanation system aimed at the carbon neutralization of natural gas. In turn, the initiative is based on a subsidized project commissioned to INPEX by the New Energy and Industrial Technology Development Organization (NEDO).

The test facility will consist of methanation, raw material supply, utility equipment and other components, and is planned to be connected to the Koshijihara Plant at INPEX's Nagaoka Field Office in Nagaoka City, Niigata Prefecture, Japan. The Project is scheduled to consist of a demonstration test involving the production of synthetic methane (e-methane¹) using CO₂ extracted from INPEX's Nagaoka Field Office beginning in fiscal year 2025 and introducing the synthetic methane into INPEX's natural gas trunk pipeline network.

¹ In November 2022, the Japan Gas Association announced it will standardize reference of synthetic methane to "e-methane" to improve international recognition.

Preparatory construction and site preparation work for the test facility began in March 2023, and the main construction work began in October 2023. Commissioning and operational startup is scheduled for fiscal year 2025.

EPC contractors include Daigas Gas and Power Solution Co., Ltd., which is scheduled to undertake the design, equipment procurement, construction and commissioning services; Ueki Corporation, which will undertake the construction of piping connections to the Koshijihara Plant; and Chiyoda Corporation, which will supply testing infrastructure and conduct tests. In constructing the test facility, INPEX and Osaka Gas will give due consideration to safety and the environment.

Since 2017, INPEX has conducted basic technical development of CO₂ methanation at its

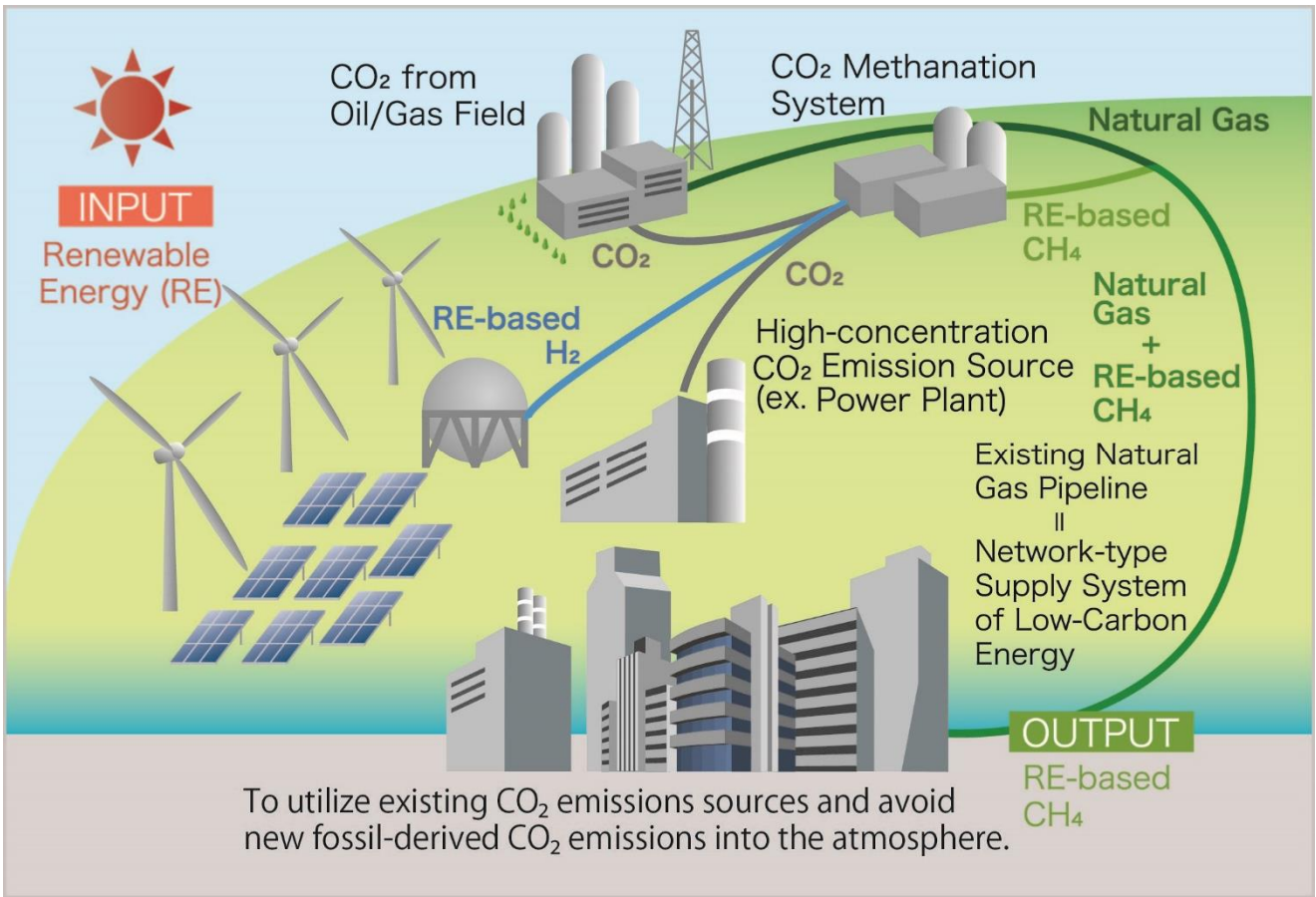
Nagaoka Field Office, achieving a synthetic methane production capacity of eight normal cubic meters per hour. INPEX will leverage this experience to oversee the joint technical development initiative and operate the test facility. Meanwhile, Osaka Gas will make use of its engineering capabilities including its design know-how concerning catalytic technology to produce synthetic methane while saving energy as well as scale ups, having nurtured these capabilities since the time it produced city gas and alternative natural gas from crude oil-based resources, to oversee the design of the CO₂ methanation facilities as well as the optimization of the process.

Through the joint technical development initiative, INPEX and Osaka Gas will work toward the early-stage adoption of city gas carbon-neutralized through CO₂ methanation.

1. Overview of the methanation demonstration business

The Project	Development of CO ₂ utilization technology for gaseous fuel and development of practical technology for pipeline injection using large-scale CO ₂ -methanation system
Parties and areas of responsibility	INPEX CORPORATION (subsidized by NEDO): evaluation of commercial scale applicability Osaka Gas (outsourced from INPEX): development of reaction process technology Nagoya University (outsourced from INPEX): development of simulation technology
Timeline	Second half of fiscal year 2021 until end of fiscal year 2026 (scheduled, Processing applications for NEDO subsidy projects from 2024 onwards)
Location	Newly built location connected to the Koshijihara Plant at INPEX's Nagaoka Field Office
Key components	1) Development of reaction simulation technology with the objective of understanding the reactive behavior of CO ₂ methanation against catalysts 2) Development of large-scale CO ₂ methanation reaction process technology with the objective of evaluating and establishing the basic process performance and the long-term durability of catalysts 3) Evaluation of applicability of reaction system with the objective of reviewing commercial scale expansion, applicability and economics, etc.

2. Graphic illustration of the joint technical development initiative



3. 3D model of the test facility

