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Osaka Gas Co., Ltd.  
Mitsubishi Heavy Industries, Ltd.  
IBM Japan, Ltd.

## **Three Partners to Jointly Undertake Proof of Concept (PoC) Applying “CO<sub>2</sub>NNEX™”, a Digital Platform for CO<sub>2</sub> Accounting across its Supply Chain for Synthetic Methanes**

Tokyo, October 21, 2022 – Osaka Gas Co., Ltd., Mitsubishi Heavy Industries, Ltd. (MHI), and IBM Japan, Ltd. have agreed to jointly conduct a Proof of Concept (PoC) of a system enabling visualization of the environmental value of synthetic methane, in the context of carbon dioxide (CO<sub>2</sub>) emissions across the entire supply chain. The system will make use of CO<sub>2</sub>NNEX™, a digital platform for visualizing the CO<sub>2</sub> supply chain being developed by MHI and IBM Japan targeted at visualization and optimization of synthetic methane’s environmental value. In undertaking the PoC, the three partners will also exchange views with the Japan Gas Association, Tokyo Gas Co., Ltd., Toho Gas Co., Ltd., and INPEX Corporation aiming for increased adoption of synthetic methane and the establishment of its environmental value.

Today, discussions are underway concerning methods for counting and using CO<sub>2</sub> in the context of CCU (carbon dioxide capture and utilization: with the captured CO<sub>2</sub> used in the manufacture and usage of fuels, chemicals, building materials, etc.), including methanation, and studies are going forward into the application of the accounting methods to the use of synthetic methane, which is seen as a recycled-carbon fuel. The PoC to be jointly implemented is an initiative aimed at visualizing CO<sub>2</sub> emission volumes across the entire supply chain, from synthetic methane’s production to supply and combustion. The results of the PoC are expected to be useful for achieving visualization of the CO<sub>2</sub> supply chain within CCU, setting CO<sub>2</sub>’s trading methods, transferring its environmental value, and estimating the carbon footprint of synthetic methane supply recipients.

CO<sub>2</sub>NNEX™ is a digital platform created for CCUS (CO<sub>2</sub> capture, utilization and storage) aimed at connecting CO<sub>2</sub>-related ecosystems and accelerating the expanded use of environmental value. Under the current initiative, CO<sub>2</sub>NNEX™ will be applied to visualize original information on CO<sub>2</sub> and hydrogen – the materials from which synthetic methane is made – and the CO<sub>2</sub> emission volumes generated throughout synthetic methane’s lifecycle, from production to transport, supply and combustion. By providing this traceable data, a shared platform will be developed for realizing visualization of synthetic methane’s environmental value. The project also aims to incorporate future enhancement of trade – for example, through transfer of synthetic methane’s environmental values – and to develop a system to serve as an industry standard usable by other manufacturers of synthetic methane.

Today, a variety of demonstration projects relating to methanation are being planned, toward the production and widespread adoption of synthetic methane. Osaka Gas, MHI and IBM Japan, by applying the results of this PoC to future demonstrations of methanation, will contribute to achieving broad social adoption of synthetic methane and the realization of a carbon neutral society.

## About CO<sub>2</sub>NNEX™

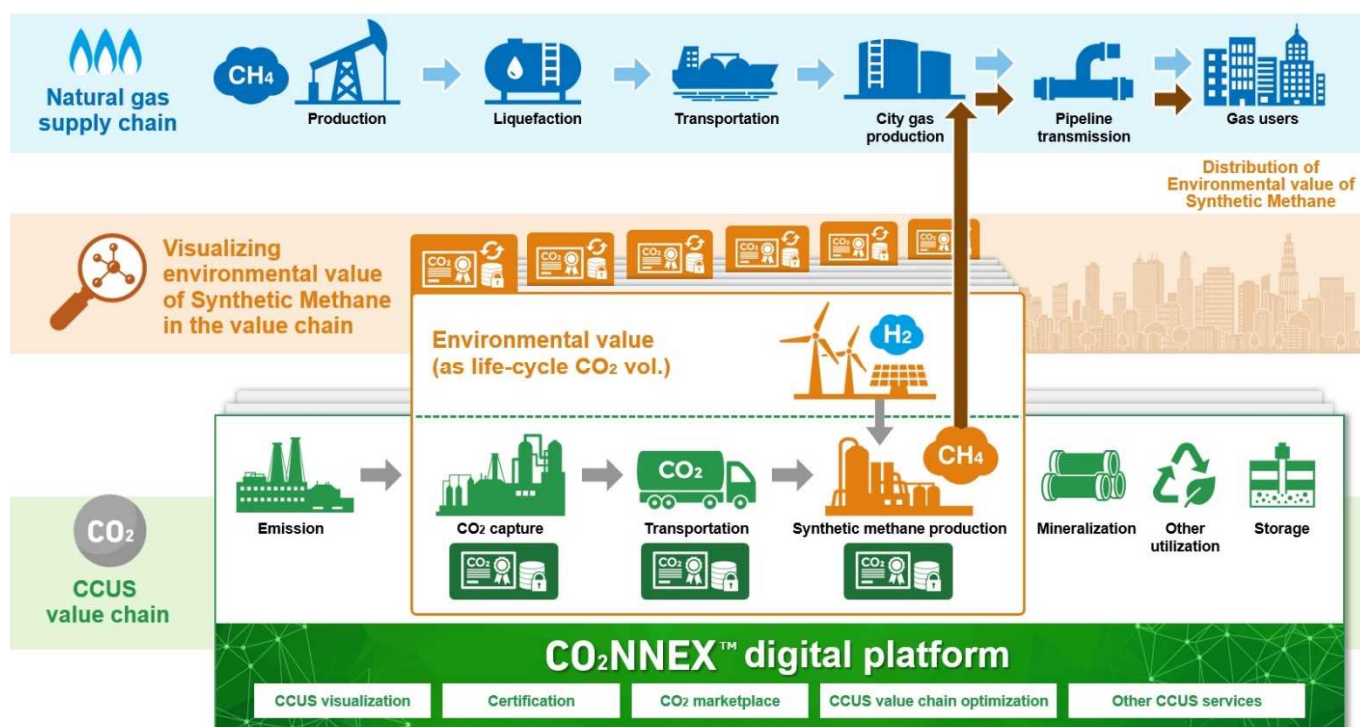
CO<sub>2</sub>NNEX™ is a digital platform that provides transparency and flexibility in the CO<sub>2</sub> supply chain and its environmental values in step with the rapid expansion of the value chain linking CO<sub>2</sub> capture, storage and utilization, toward realizing a carbon neutral society. Actual CO<sub>2</sub>-related data is interconnected through IoT, and blockchain ensures advanced security with assured neutrality and fairness.

## About methanation

Methanation is technology for synthesizing methane, a key component of natural gas from hydrogen and CO<sub>2</sub>. The resulting product is known as “synthetic methane.” Use (combustion) of this synthetic methane results in no effective increase in CO<sub>2</sub> for society as a whole because CO<sub>2</sub>, which is normally emitted into the atmosphere, is captured and recycled for use in making synthetic methane. Also, methanation is expected to be an economically efficient way of achieving carbon neutrality, with synthetic methane being distributed through the existing gas infrastructure and combusted in existing gas appliances, requiring no large-scale investment for constructing new energy systems or modifying the existing ones.

## Concept of a shared platform applying CO<sub>2</sub>NNEX™

A shared platform aims for quantification of synthetic methane’s environmental values by quantitatively documenting information for tracking and managing CO<sub>2</sub> emissions relating to the manufacture, supply (including transport) and usage of synthetic methane at multiple business operators and locations.



## Osaka Gas

In January 2021 the Daigas Group announced its “Carbon Neutral Vision” for achieving carbon neutrality by 2050 through decarbonization of the component ingredients of city gas by methanation and other means, and of its power sources primarily through use of renewable energies. The company is also considering a number of methanation projects overseas – notably, in Australia, South America and Southeast Asia – in a drive to achieve broad adoption of methanation.

**MHI**

MHI Group is actively involved in programs targeting the realization of a carbon neutral society, and building a CO<sub>2</sub> ecosystem is central to its energy transition initiative. As a global leader in CCUS, the company aims to accelerate this ecosystem development by seeking widespread adoption of related hardware as well as the CO<sub>2</sub>NNEX™ digital platform.

**IBM Japan**

Applying its experience in supporting numerous customers worldwide, IBM Japan looks to accelerate CO<sub>2</sub>NNEXT™'s development with its blockchain enabling data sharing with safety, transparency and outstanding reliability; its hybrid cloud technology for building an agile and flexible IT environment linking the cloud and existing systems; and its AI technology enabling visualization, automation and optimization of the value chain.