

Osaka Gas to conduct a joint study on a biomass-based methanation project in Malaysia

April 10, 2023
Osaka Gas Co., Ltd.

Osaka Gas Co., Ltd. (Osaka Gas) today announced that it has entered into an agreement with IHI Corporation (IHI) and PETRONAS Global Technical Solutions Sdn Bhd (PGTSSB), the technical solutions arm of global energy group PETRONAS, to conduct a feasibility study on a methanation project to produce e-methane¹ using unutilized biomass in Malaysia. This joint study will determine whether to proceed to the FEED² phase.

Combining biomass-gasification³ technology and methanation technology, the project partners aim to establish a new method to produce e-methane with lower renewable electricity cost to generate hydrogen as a reactant of e-methane. This project intends to produce e-methane through the methanation of syngas, which consists mainly of hydrogen, carbon monoxide (CO) and carbon dioxide (CO₂), generated from biomass, such as unutilized forest resources and agricultural residues.

Cost reduction of e-methane production lessens the financial burden on society in achieving a smooth transition to net zero. e-methane can be transported and used in the existing gas infrastructure and equipment without modification to meet the heat demand of industrial and residential sectors and fuel power plants and vehicles in a carbon neutral way.

In later phases, the project partners will look into capturing and storing the biogenic CO₂, a byproduct of the e-methane production, underground (CCS)⁴ as a way to achieve negative emissions.⁵

This project is in line with the Daigas Group⁶'s initiative to achieve carbon neutrality by 2050 through the development of technologies and services that contribute to reducing carbon emissions and resolving climate change and other social issues under the Group's Carbon Neutral Vision announced in January 2021 and Energy Transition 2030 released in March 2023. Osaka Gas intends to consider importing e-methane to Japan, starting in 2030, from the overseas production sites the company is working on, including this project.

1 The common name for synthetic methane produced using non-fossil fuel-based energy

2 Front End Engineering and Design

3 Conversion of hydrocarbons such as biomass into syngas consisting mainly of hydrogen, carbon monoxide and carbon dioxide through pyrolysis and reaction with high temperature steam. Part of the hydrocarbons is burned to provide a heat source for gasification.

4 Carbon Capture and Storage

5 Emissions reduction achieved by capturing and storing biogenic CO₂ or atmospheric CO₂ and other means

6 The group brand name of Osaka Gas

1. Project Overview

- Production of syngas, which mainly consists of hydrogen, carbon monoxide (CO), and CO₂, from biomass, such as unutilized forest resources and agricultural residues, using biomass-gasification technology
- Production of e-methane through the methanation reaction between hydrogen and CO contained in syngas
- Liquefaction of e-methane at PETRONAS' liquefaction facilities to export to Japan and other markets.

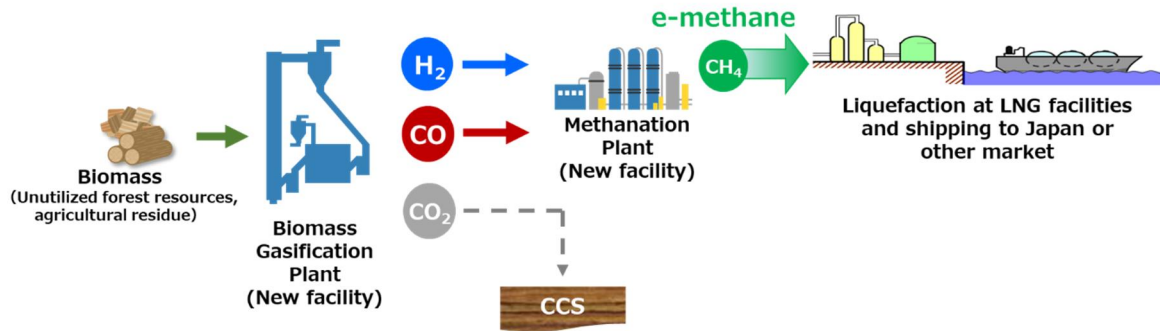


Figure. Biomass derived e-methane production flow considered in this study

2. Project Partner Profile

■ IHI

Company Name	IHI Corporation
Headquarters	Toyosu IHI Building, 1-1 Toyosu 3-chome, Koto-ku, Tokyo, Japan
Established	January 17, 1889
Representative	Hiroshi Ide, Representative Director and President

■ PETRONAS

Company Name	Petroliam Nasional Berhad
Headquarters	Tower 1, Petronas Twin Towers, Kuala Lumpur, Malaysia
Established	August 17, 1974
Representative	Tengku Muhammad Taufik, CEO

■ PGTSSB

Company Name	PETRONAS Global Technical Solutions Sdn Bhd (PGTSSB)
Headquarters	Tower 3, PETRONAS Twin Towers, Kuala Lumpur, Malaysia
Established	February 10, 2012
Representative	Annaliz Abu Bakar, Chief Executive Officer