

## Tokyo Gas, Osaka Gas, Toho Gas and Mitsubishi Collaborate to Produce e-methane in the US and Transport It to Japan, Utilizing Cameron LNG in Louisiana

November 29, 2022

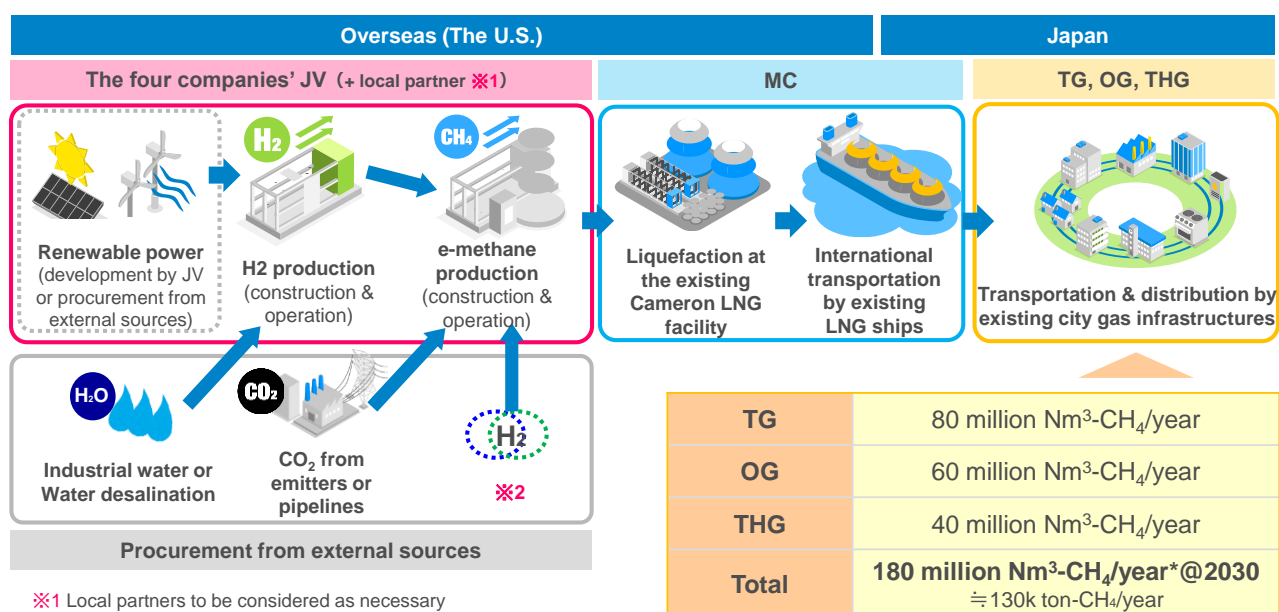
Tokyo Gas Co., Ltd. (TG), Osaka Gas Co., Ltd. (OG), Toho Gas Co., Ltd. (THG) and Mitsubishi Corporation (MC) have entered into an agreement and commenced to conduct a detailed joint feasibility study on a project to produce synthetic methane (e-methane) in Texas or Louisiana, liquefy it at the existing Cameron LNG facility, and transport it to Japan utilizing other existing infrastructure, including LNG ships and receiving terminals in Japan. The targeted e-methane production volume is 130,000 tons per year<sup>1</sup> to start in 2030.

This project is in line with the Japanese government's goal to achieve carbon neutrality in 2050, for which it is crucial to introduce carbon neutral gas that can meet the heat demand in the country. e-methane can be transported via the existing gas infrastructure and combusted in the present gas appliances without enormous costs of replacing or modifying them, which would be required to introduce other decarbonized gaseous energy carriers, such as hydrogen. Therefore, the government supports e-methane initiatives as a potential solution to transition into the net zero society smoothly, and it has been discussed intensively how to initiate and develop e-methane supply chain in Japan's Public-Private Council for the Promotion of Methanation, an organization established in June 2021, where TG, OG, THG and MC have participated.

For e-methane's better visibility, it is effective to promote the synthetic methane in Japan and overseas simultaneously and important to establish cost-competitive e-methane supply chain from overseas where renewable power is accessible at low cost. While the four companies are respectively conducting feasibility studies on various locations for e-methane outside Japan, they have selected areas near to the existing Cameron LNG facility as most suitable as of now for e-methane production by their joint venture. This decision was made in light of accessibility to the infrastructure for feedstock procurement and high possibility of achieving early establishment of the supply chain. The four companies will continue to conduct feasibility studies on other promising locations to expand its e-methane procurement capabilities for enhanced energy security of Japan.

The four companies intend to accelerate the detailed study to realize the world's first large-scale production and international supply chain of e-methane while working to achieve a carbon neutral economy in Japan utilizing e-methane.

<sup>1</sup> 130,000 tons is equivalent to 1% of the total annual city gas demand of TG, OG, and THG combined.

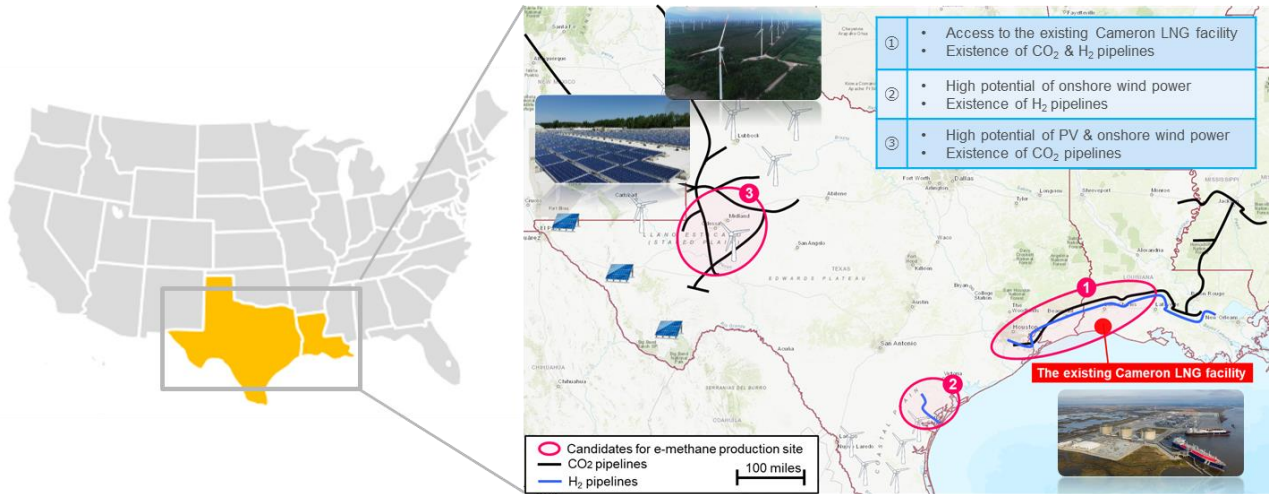


※1 Local partners to be considered as necessary  
 ※2 H<sub>2</sub> procurement from external sources to be assessed (both blue & green H<sub>2</sub> in initial production period)

\*Equivalent to 1% of city gas demands for TG, OG and THG

### Candidate Areas for Detailed Feasibility Study

Texas and Louisiana, the candidate states for e-methane production sites in this study, have a high potential for sustained availability of abundant renewable energy and easy access to the existing Cameron LNG facility, of which MC owns equity. Furthermore, existing pipelines of carbon dioxide and hydrogen are also accessible.



### Project Schedule

The four companies intend to start with onsite surveys for securing a project site and procuring feedstocks, namely renewable power, water, hydrogen and carbon dioxide, and initiate the discussions with relevant administrative authorities and industrial companies. The four companies expect to finalize the detailed joint feasibility study by the end of fiscal year 2023 based on the results of onsite surveys and discussion on the rules and systems necessary for the development of e-methane supply chain. The project aims for FEED entry in 2024, FID in 2025, first e-methane production in 2029 and the commencement of export to Japan in 2030.

(Fiscal Year)								
2022	2023	2024	2025	2026	2027	2028	2029	2030
Onsite surveys by the 4 companies	Detailed joint FS	FEED			EPC		Start production	Start export to Japan

Introduction and wide use in Japan of e-methane produced overseas requires the certificates of origin to differentiate e-methane from natural gas, internationally-recognized accounting rules of carbon emissions from e-methane combustion, and economic incentives for production and utilization of e-methane. The four companies plan to cooperate with stakeholders in the U.S. and Japan to promote the creation of necessary rules and systems in line with the project schedule.

Through this initiative, TG, OG, THG and MC will further promote the introduction and wide use of e-methane to steadily contribute to the enhancement of Japan's stable energy supply and the realization of carbon neutrality in 2050.