

INDONESIAN GAS/LNG INDUSTRY EXECUTIVE COURSE

7-9 October 2024

Botan Room 2nd Floor, Rihga Royal Hotel, Osaka, Japan



1. Foundational LNG Knowledge
2. Global LNG Outlook
3. Indonesia Gas Industry Outlook
4. Technological Trends
5. Strategic Decision in Developing Gas Business
6. Sharing Session
7. Site Visit

Courtesy Photo: www.daigasgroup.com

- **Monday - Tuesday, 7-8 October 2024**
Botan Room 2nd Floor, Rihga Royal Hotel, Osaka, Japan
- **Wednesday, 9 October 2024 - Day Trip Technical Visit**
 1. Senboku LNG Terminal
 2. Osaka Gas Carbon Neutral Research Hub

Further Information:



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Day One

1. Foundational LNG Knowledge

LNG Supply Chain: Understanding the entire process from gas field exploration and liquefaction to transportation, regasification, and delivery
LNG Contracts and Trade Practices: Common types of contracts, risk management strategies, and trading fundamentals. Pricing mechanisms and geopolitical influences

2. Global LNG Outlook

A significant wave of new LNG supply was come online in late 2023 and throughout 2024, leading to increased competition, and put downward pressure on prices, especially because demand growth moderates as anticipated. **Shifting dynamics:** The emergence of new players and expansion of existing facilities could further reshape the global LNG landscape. **Uncertainties remain, geopolitical tensions, global economic slowdown, and potential project delays continue to pose risks to the future of the LNG supply outlook.**

3. Indonesia Gas Industry Outlook

Analysts predict moderate gas demand growth in the near term, followed by a more robust increase in the mid-to-long term. Indonesia is likely to remain a net gas exporter for the near future but will need to address supply gaps through exploration, technological advancements, and potentially LNG import beyond 2030

Day Two

4. Technological Trends

By investing in new technologies that can increase production capacity and make the LNG process more efficient and cost-effective, companies can position themselves to meet the growing demand and secure a competitive edge. Newer technologies can improve the efficiency of various stages in the LNG lifecycle. This includes more efficient liquefaction processes, improved ship designs for reduced boil-off, and advancements in regasification. These improvements can lead to cost savings and reduced environmental impact. New technologies also can focus on improved safety measures throughout the LNG supply chain.

5. Strategic Decision

Identifying opportunities to thrive in the market, analyzing various internal aspects to understand its strengths, and weaknesses. this self- examination helps the company identify areas for improvement, optimize operations, and make informed strategic decisions.

Scan for attractive markets globally, based on market size, growth, regulation, competition, risk etc. Review global LNG market trends, including volume, growth and price developments. Develop options for LNG portfolio strategy based on global and regional trends including asset / geographic specific portfolio strategy. Develop view on optimal portfolio mix and contracting strategy

SHARING SESSION FROM:

YUJI KUMAI

General Manager
International Relations Section
Japan Gas Association

The Japan Gas Association (JGA), an organization of city gas utilities, contributes to the economy and people's welfare in Japan by promoting the sound development of the general gas utility business as well as the major gas related projects and gas pipeline projects and by coordinating the stable supply energy supply, ensuring safety and addressing environmental issues.



THE JAPAN GAS ASSOCIATION

SHUNSUKE HAMADA

General Manager
Indonesia Business Department,
LNG Asia-Pacific Division, Environmental Energy Group
Mitsubishi corporation

Mitsubishi Corporation

Industry experts and thought leaders to share their insights and perspectives





Osaka Gas Co., Ltd. is a Japanese energy supply company based in Osaka, Japan. It supplies natural gas and electricity to the Kansai region. Osaka Gas is also engaged in upstream, midstream and downstream energy projects throughout the world, including LNG terminals, pipelines and independent power.

Corporate Profile of Osaka Gas (As of May 31, 2023)

Head Office	4-1-2 Hiranomachi, Chuo-ku, Osaka 541-0046, Japan
Establishment	April 10, 1897
Commencement of operations	October 19, 1905
Number of employees	[Non-consolidated] 1,163 (including operating officers, directors and temporary employees, and excluding employees temporarily transferred to affiliated companies) [Consolidated] 21,017

History

Osaka Gas started its vertically integrated gas supply business in 1905 with pipeline and gas generation plant in Osaka and has been expanding its pipeline network and gas supply business in greater Kansai region including Osaka, Kobe and Kyoto. Osaka Gas started LNG import in 1972 and has been expanding its LNG supply and asset portfolio as well as accumulating technical experience in LNG terminal. Osaka Gas has over 50 years of extensive track record of LNG trading, import and regasification. Osaka Gas is trading over 12 million tons of LNG per annum and supply gas to more than 5 million customers from three LNG terminals, Senboku 1, Senboku 2 and Himeji through its pipeline network with approximately 63,300 km in total length as of 2022. Since 2000s', Osaka Gas has started power generation and retail business and now has more than 9.8 million customer account. (including more than 5 million gas customers)

ITINERARY

07.50	Meeting point at Rihga Royal Hotel, Lobby
08.00	Depart by bus to Senboku LNG Terminal
09.00	Arrival at Senboku LNG Terminal Visitor Sign-in and Induction Safety Briefing
09.10	Opening by Representative from Osaka Gas representative
09.20	1. Site Tour Senboku LNG Terminal <ul style="list-style-type: none"> • View Senboku natural gas power plant • View LNG lorry shipments • View LNG cold utilization Facilities
12.00	Lunch
13.00	Transfer to Osaka Gas Carbon neutral Research Hub Technique Show Room
13.30	2. Site Tour Osaka Gas Carbon Neutral Research Hub <ul style="list-style-type: none"> • Technique Show Room
15.30	Back to Hotel



Courtesy: www.daigasqps.co.jp

1. Senboku L N G Terminal

The Senboku LNG Terminal plays a critical role in the stable supply of energy, being Osaka Gas Co., Ltd.'s largest terminal and accounting for 70% of municipal gas distributed throughout the Kansai region. The Senboku Terminal consists of Plants 1 and 2, each being connected through a submarine conduit network.

Senboku LNG Terminal 1 & 2

	Senboku I	Senboku II
Operations Start	1971	1977
LNG Storage Tank (Total Capacity)	1 unit (230,000 m3)	16 units (1,435,000 m3)
Vaporizer (Total Capacity)	5 units (280 MT/h)	12 units (1,300 MT/h)
Power Plant	277,500kW x 2 units	277,000kW x 2 units

2. Osaka Gas Carbon Neutral Research Hub

Osaka Gas established the carbon neutral technology research and development site "Carbon Neutral Research Hub" (CNRH) in the Torishima district of Konohana-ku, Osaka.

Osaka Gas works on research and development aimed at achieving carbon neutrality by 2050 and thoroughly reducing carbon dioxide (CO2) emissions by then. To accelerate these R&D activities, Osaka Gas will strengthen technical collaboration within the Daigas Group and promote joint research with its alliance partners. At the same time, it will enhance its experimental facilities for various carbon-neutral technologies.

The Torishima district is the place where Osaka Gas began its R&D activities. Since it established its first R&D site in 1947, the Company has been researching and developing technologies for producing city gas at the time from coal and oil and for making advanced use of natural gas as exemplified by cogeneration systems and Ene-Farm, a fuel cell system for residential use. Osaka Gas intends to further polish core technologies, such as catalyst technology and combustion technology, that it has accumulated so far and to proceed with research and development that contributes to carbon neutrality.

CNRH will work on the development of methanation technology to make city gas carbon-neutral and chemical looping combustion technology to produce green hydrogen. These are just a few examples of CNRH's R&D activities aimed at creating future-oriented carbon-neutral energy.

In addition, the Hub will also pursue research and development for making smart use of carbon-neutral energy. Examples include development of a small engine system that works using ammonia fuel alone, attracting attention as an alternative to fossil fuels, and a virtual power plant (VPP) that utilizes dispersed power sources to help stabilize the power grid in society equipped with a vast amount of renewable energy. Furthermore, CNRH will accelerate R&D, such as the advanced use of natural gas and the utilization of biogas, which Osaka Gas has been promoting, to thoroughly reduce CO2 emissions at the moment.

For the future, Osaka Gas expects CNRH to welcome visitors from businesses that need to address challenges toward a low-carbon society or decarbonization, government offices, universities and research institutes, companies that are expected to benefit from synergy with R&D pursued by Osaka Gas, and so on. CNRH should grow and thrive through alliances with various industry-government-academia partners. The Daigas Group, under the "Carbon Neutral Vision" that was announced in January 2021, remains committed to developing technologies and services that contribute to a carbon-free society and solving social issues, including climate change, in order to become a corporate group that helps customers both on the livelihood and business fronts for their "further evolution."

Facilitator



DJOHARDI A. KUSUMAH

Djohardi Angga Kusumah, having professional expertise for more than 26 years covering LPG & LNG and also upstream business, he has a comprehensive knowledge mainly in developing Pertamina's gas business at full value chain, from exploration until delivering the gas to its end users.

His last position in Pertamina was the Senior Vice President of Gas and Power. He has been part of the senior management in Gas, New & Renewables, and also the Upstream business of Pertamina.

He started his C – Level career in 2010, as the first President Director of PT Nusantara Regas, one of Pertamina's subsidiary which serves domestic gas demand by utilising the first Floating Storage Regasification Unit in Indonesia and South East Asia.

He Graduated from University of Padjajaran Majoring in Management studies and got Master of Management from University of Gajah Mada.

After retired from PT Pertamina (Persero) in 2017, Djohardi was hired by PPT Energy Trading as Chief of Representative Dubai Office until 2019.



AMIR HARAHAHAP

Amir has extensive experience in gas business in technology, operation, giving him good insights of this industry.

His last position in Pertamina was a Vice President of Asset, Operation, Subsidiary Management in Pertamina Gas Directorate. After retired from PT Pertamina (Persero) in 2017, he was hired as a Business Advisor in Global Venture Division of Gas Directorate.

During his more than 30 years of experience, Amir has worked for PT Badak and Pertamina. He is very familiar with Technical & Operational aspect of LNG plants, LNG Receiving Terminals and LNG FSRU. He has an expertise and also been involved in several LNG/gas project development for Pertamina's Gas Business.

He graduated from University of Indonesia Majoring in Chemical Engineering and got Master of Industrial Engineering from Institute Technology of Bandung (ITB)

