

Transition Finance | Case Study 7: Tokyo Gas Co., Ltd.

Case Study Overview

■ Corporate Profile

Industry	Gas
Location	Japan
Business	Japan's major gas company. The company operates in gas, electric power, overseas, energy-related, and real estate businesses.

■ Bond Outline

Issue Date	• March 1, 2022
Issue amount	• 20 billion yen
Evaluation agency	• DNV Business Assurance Japan Co., Ltd.

3rd Party Evaluation

- Confirmed that the transition strategy based on the transition roadmap for carbon neutral developed by Tokyo Gas is consistent with METI's gas sector roadmap, etc., and is a strategy that will contribute to the realization of the goals of the Paris Agreement.
- In addition, under the circumstances where Scope 3 will increase in the medium term as a result of the gas utility's contribution to the transition to society as a whole, the medium-term target to achieve net zero CO2 emissions in 2050 is quantitatively presented. In doing so, we commend the fact that it also sets targets for partial reduction of Scope 3 and efforts to contribute to its reduction.
- Tokyo Gas has a plan to invest 2 trillion yen in growth areas including decarbonization by 2030, and it is confirmed that Tokyo Gas plans to implement the transition strategy in line with the timeline.
- Confirmed that Tokyo Gas has quantitatively estimated the environmental improvement effects (CO2 emission reductions) of the projects included in the transition strategy based on detailed plans.

Major Use of Proceeds (Bold: Use of Proceeds this time)

Use of Funds Category		Major Projects
Use natural gas as Low-carbon solution	Advanced use of natural gas	<ul style="list-style-type: none"> • Fuel conversion to gas <ul style="list-style-type: none"> - New LNG terminal, pipeline extension, etc. - Installation of high-efficiency gas appliances - For industrial, commercial and domestic use
	Power generation and cogeneration	<ul style="list-style-type: none"> • Conventional fuel cell (ENE-FARM) • Gas cogeneration, VPP • Construction, maintenance and renewal of high-efficiency LNG-fired power stations
	Area energy use	<ul style="list-style-type: none"> • Smart Energy Networks, etc.
	Use of CCUS technology	<ul style="list-style-type: none"> • CCU system at the customer sites and CCS
Decarbonize gas and electricity	Decarbonization of gaseous energy	<ul style="list-style-type: none"> • Hydrogen utilization <ul style="list-style-type: none"> - New hydrogen stations - Hydrogen pipeline installation, etc. • Development of technology for decarbonization of gaseous energy <ul style="list-style-type: none"> - Green hydrogen production by water electrolysis - Innovative methanation, etc.

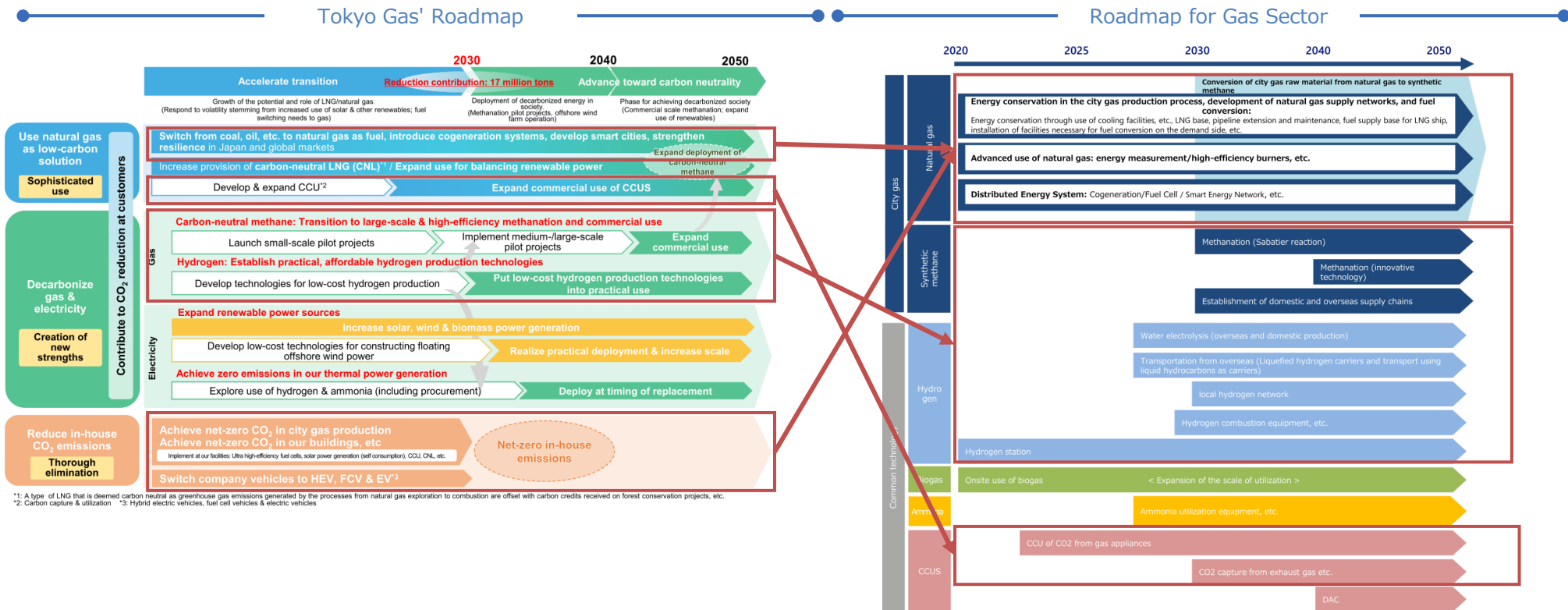
*While the above focuses on decarbonization in the gas sector, Tokyo Gas' transition roadmap (Compass Action) also includes decarbonized power (renewable energy, zero emission gas-fired power) and the use of offset LNG.

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Alignment with the Four Elements in Basic Guidelines on Climate Transition Finance

<p>Element 1 (Transition Strategy and Governance)</p>	<ul style="list-style-type: none"> Transition strategy: Transition roadmap to achieve net zero CO2 emissions in 2050 is formulated. Achieve decarbonization without locking in natural gas by progressively introducing hydrogen and synthetic methane after 2030, while promoting low carbonization with natural gas. Governance: Established a structure to promote the transition strategy at the management level. 	<p>Element 3 (Science based Targets & Pathways)</p>	<ul style="list-style-type: none"> Scope 1, 2, and 3 mid-term targets are set to achieve net-zero CO2 emissions in 2050. The low-carbon and decarbonization efforts to achieve these targets are aligned with the transition roadmap for gas sector by METI.
<p>Element 2 (Materiality)</p>	<ul style="list-style-type: none"> As the most important management issue, the company aims to "lead in net zero CO2 emissions as a leading natural gas company." 	<p>Element 4 (Transparency)</p>	<ul style="list-style-type: none"> Plans to invest approximately 2 trillion yen in growth areas including decarbonization by 2030; plans to invest 1 trillion yen in the medium-term management plan for FY2020-FY2022, including growth areas such as decarbonization. Annual reporting of the environmental improvement effects of the project is planned (until bond redemption).

Transition Strategy and Science-based Targets (Elements 1 and 3) | Alignment of Tokyo Gas' Roadmap with Roadmap for Gas Sector



¹: A type of LNG that is deemed carbon neutral as greenhouse gas emissions generated by the processes from natural gas exploration to combustion are offset with carbon credits received on forest conservation projects, etc.
²: Carbon capture & utilization ³: Hybrid electric vehicles, fuel cell vehicles & electric vehicles

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Key Points in the Case Study (Element 3: Science based Targets & Pathways)

- Tokyo Gas has set mid- and long-term emission reduction targets for Scope 1, 2 and 3. For 2030, the company has also set a target to reduce emissions in society as a whole through fuel conversion in the demand sector (reduction contribution). The company is aiming to achieve net zero emissions by 2050, including Scope 3.
- Transition targets and pathways are also consistent with the content of METI's roadmap for gas sector, which is aligned with the goals of the Paris Agreement.

Tokyo Gas' Mid- and Long-term Targets

Target year	Scope 1,2	Scope 3	Reduction contribution
2030	Net zero emissions for city gas production, company-owned buildings, and company vehicles	Reduction of 750,000 tons (from existing scope3 part)	Reduction of 17 million tons (including Scope 1 - 3 reduction)
2050	Net zero (including power generation and heat supply)	Net zero	-

Tokyo Gas' GHG Emissions Breakdown (FY 2020)

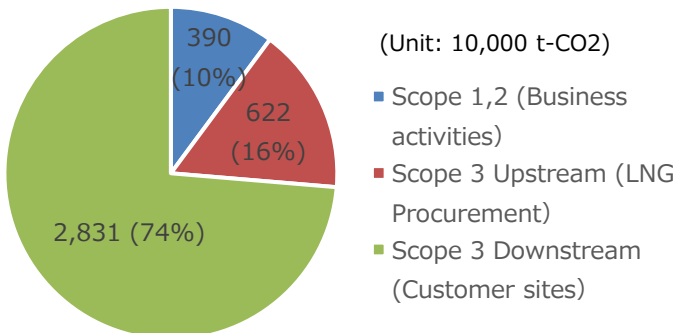
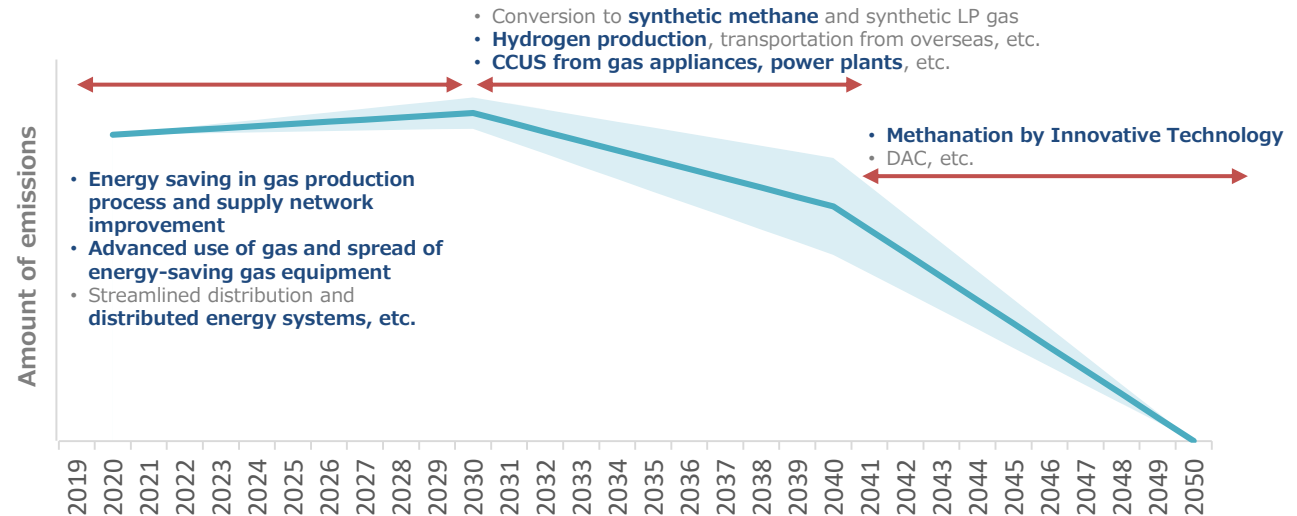


Image of Reducing CO₂ Emissions (METI Gas Sector Roadmap)



1 2020~2030

It should be noted that, although there is a possibility of an increase in emissions in the gas sector by promoting **fuel conversion to gas** through **the development of gas supply networks and advanced use of gas**, **the contribution (reduction contribution) to low-carbon emissions in other sectors is more significant** than this increase. In addition, while promoting **energy conservation in the gas manufacturing process and reduction of emissions through the popularization of energy-saving gas equipment, technologies for synthetic methane and other products for the future** will be developed.

2 2030~2040

Production technologies for **synthetic methane** and synthetic LP gas **will be established**, and decarbonization by converting fossil fuel-derived gas to carbon-neutral gas will be promoted. **Hydrogen supply chains and CCUS will be practically applied and expanded.**

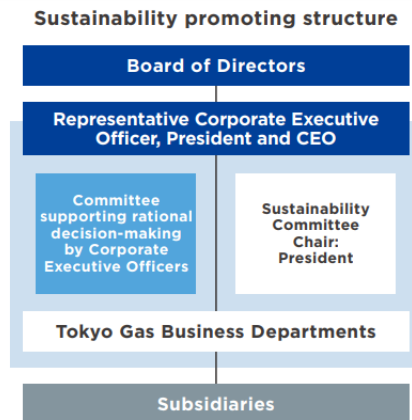
3 2040~2050

Conversion to synthetic methane and synthetic LP gas will be further promoted and carbon neutrality will be realized through the practical application of **innovative technologies such as DAC.**

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Key Points in the Case Study (Element 1: Transition Strategy and Governance, Element 4: Transparency)

- Recognizing the implementation of the transition strategy as one way to promote sustainability, establish a system and structure to promote such efforts at the management level.



As of June 29, 2021

Environmental improvement effects of projects

- The three projects funded by the newly issued transition bonds will contribute to reducing CO2 emissions by approximately 310,000 tons per year by 2030.
- Environmental improvement effects will be reported on an annually basis until the bond redemption.

Project (1)

Niihama LNG Project
(New LNG terminal)

Project (2)

Smart Energy Network

Project (3)

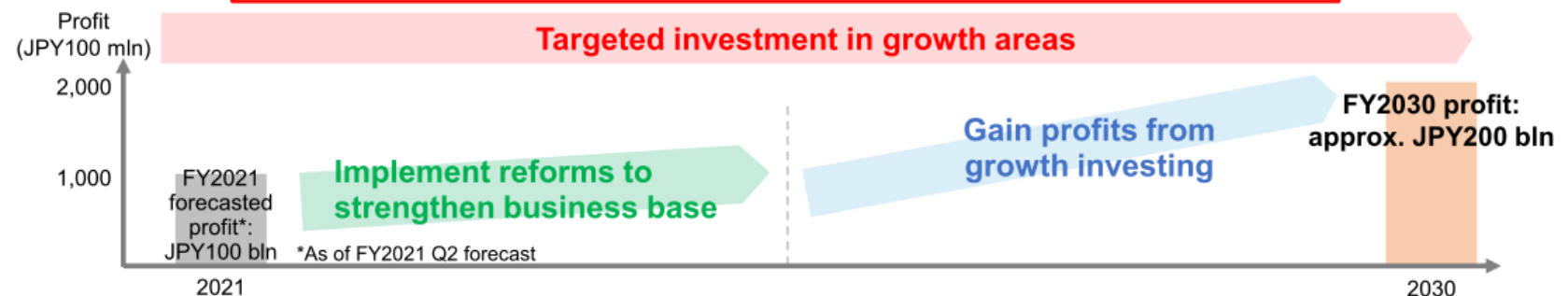
Harumi Hydrogen Project
(Construction of hydrogen pipelines)

By 2030
Contributing to the reduction of approx. 310,000 t-CO2 annually

(Achieving net zero CO2 emissions in the medium to long term through practical application and utilization of methanation)

- Plans to invest approx. 2 trillion yen in growth areas, including decarbonization by 2030 (Upfront investment in decarbonization areas + active investment in other growth areas).
- Medium-term management plan for FY2020-2022 also plans to invest 1 trillion yen, including in growth areas such as decarbonization.

By 2030:
Invest approx. JPY2 trillion in decarbonization & other growth areas



Governance

Investment plan

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Case Study: Tokyo Gas Co., Ltd. Transition Bond

Modelability Review Results: Approval

This is the first transition bond in the gas sector, and is appropriate as an example of transition efforts with a view to future CN.

Main Opinions

Transition strategy

- The company's strategy toward carbon neutrality (CN), which began relatively early in 2019, is an excellent example for other companies to follow.
- The GHG reductions from fuel conversion to gas are very large and typical of transitions. In addition, methanation is also assumed in the future, paving the way for future CN realization without lock-in.

Scientific basis

- By setting a long-term goal of achieving net-zero emissions by 2050 and a mid-term goal that includes Scope 3 as a milestone, a transition path consistent with the roadmap has been clarified.
- The inclusion of Scope 3 reduction targets in the mid-term goal is important in terms of alignment with the ICMA Handbook and Basic Guidelines, and is commendable.

Other factors/Others

- Given that funding from foreign institutional investors is expected to be provided in the future, this case is considered to have sufficient modelability in light of international guidance such as the ICMA Handbook.
- The fact that the projected environmental improvement effects of the procured funds are presented and explained in a manner that ensures the transparency of information disclosure is a model case for other companies.
- It is important to note that progress will be managed while disclosing the effects of environmental improvements to the extent possible after funding is obtained.