



Oil and Gas

Transformation options for a decarbonized society in
2050

Mizuho Bank Industry Research Department
Research & Consulting Unit
Mizuho Financial Group

Private and confidential

[Link to survey](#)



Summary

- **As the oil and gas industry faces electrification pressures, demand is expected to decline in the future.**
 - The oil and gas industry is facing three changes following as a result of the trend toward decarbonisation;
 - 1) Electrification: Demand is expected to decline due to the electrification
 - 2) Need to establish a carbon-neutral fuel supply chain: Companies need to provide a solution for future customers
 - 3) Carbon Pricing: Penalising GHG emissions or providing incentives for GHG reduction.

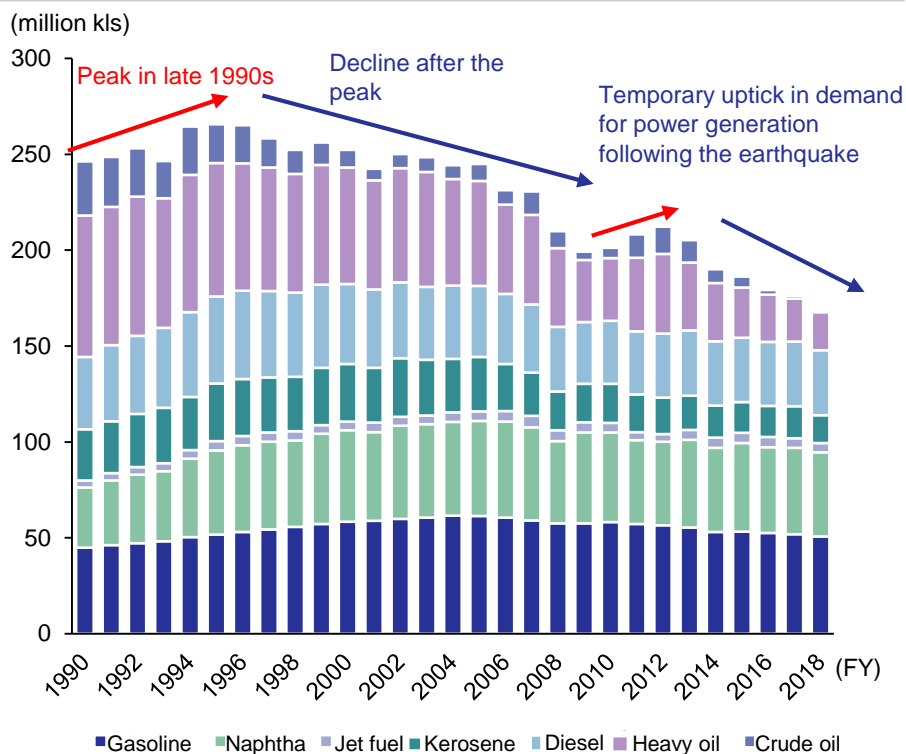
- **Oil and gas industry need to transform their business models.**
 - There are three options for transformation;
 - 1) Integrated: Build a comprehensive energy supply system including electricity to be an integrated energy company
 - 2) Specialized: Establish a carbon-neutral fuel supply solutions to meet demand where electrification is difficult
 - 3) Shifting: Establish a “Carbon Neutral as a service” business, or to be a “local platformers”

- **The action for the transformation**
 - Integrated: Consider to make large investments and acquisition of existing players to catch up with the leaders in electricity
 - Specialized: Quickly build a small ecosystem of allied pioneers to create initial demand
 - Shifting: Alliances with other industries or acquisitions to secure capabilities to shift

Review of the industry: Oil

- Japanese domestic oil demand peaks in the late 1990s, with a continued declining trend since then.
- By oil type, there has been a decrease in demand for heavy oil used mainly in electricity generation and industrial applications, due to factors such as the fuel shift, and an overall increase in the proportion of light oils (gasoline, naphtha, etc.) .

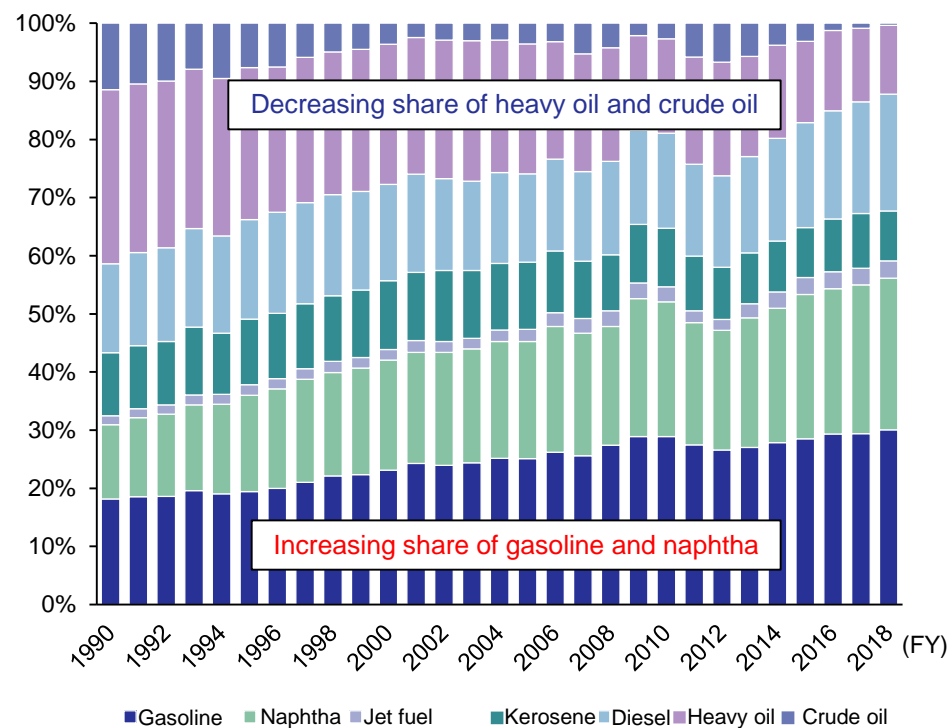
Japanese domestic oil demand volume trend (by oil type)



Note: Petroleum Association of Japan data. May not reflect retroactive changes in government statistics.

Source: Compiled by Mizuho Bank Industry Research Department based on Petroleum Association of Japan's Oil Statistics

Japanese domestic demand volume trend (by oil type share)

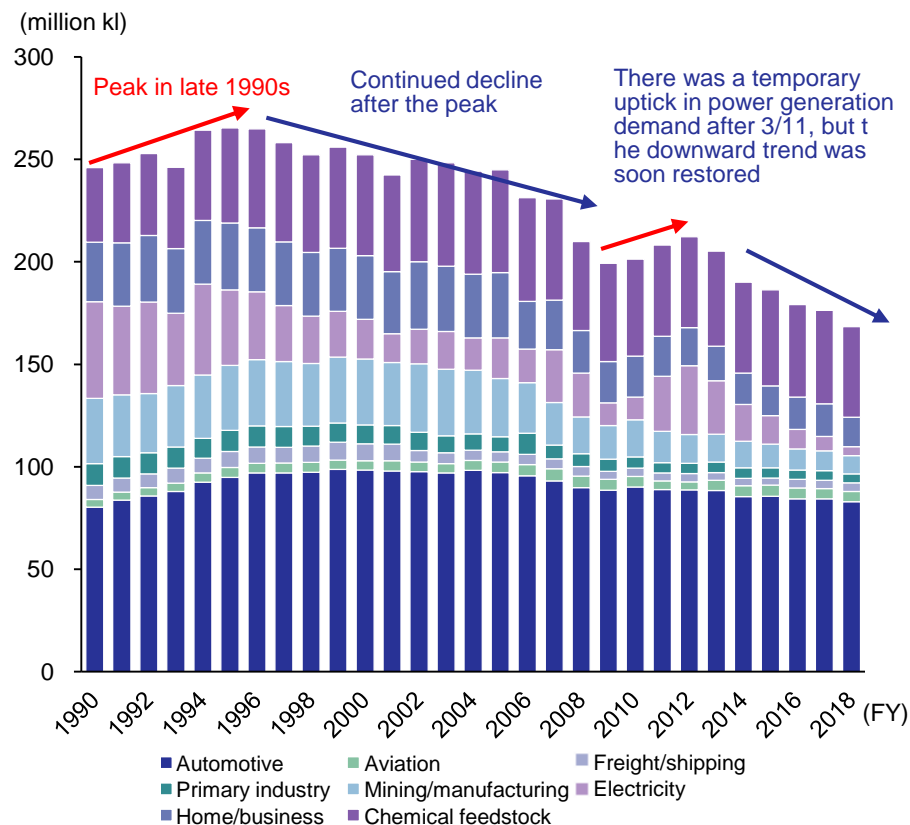


Source: Compiled by Mizuho Bank Industry Research Department based on Petroleum Association of Japan's Oil Statistics

Review of the industry: Oil

- Demand decreased in agriculture, forestry, fisheries, mining, manufacturing, and power industries who used heavy oil mainly.
- Gasoline demand for automotive declined since the peak around 2000.

Domestic oil demand trend by industry



Note: Petroleum Association of Japan data. May not reflect retroactive changes in government statistics.

Source: Compiled by Mizuho Bank Industry Research Department based on Petroleum Association of Japan's Oil Statistics

30-year assessment of oil demand features by industry

Passenger cars (Gasoline, diesel)	<ul style="list-style-type: none"> • Core segment accounting for about half of overall oil demand • Declining trend since peak around 2000, due to improved fuel efficiency reflecting the regulations
Aviation (Jet fuel)	<ul style="list-style-type: none"> • Demand affected by number of flights (reflecting status of the economy) and fuel efficiency • After pre-GFC peak in late 2000s, demand has basically flat lined
Freight, shipping (heavy oil)	<ul style="list-style-type: none"> • Demand affected by level of economic activity and fuel efficiency • Declining trend since peak around 2000
Agriculture, forestry, fisheries (kerosene, heavy oil)	<ul style="list-style-type: none"> • Used as fuel for various equipment, heating hothouses, etc. • Declining trend since 1990s as industry activity has fallen
Mining, manufacturing (kerosene, heavy oil)	<ul style="list-style-type: none"> • Used as fuel for various equipment, boilers, etc. • Declining trend since the early 2000s, reflecting downward pressure on demand from improvement of energy efficiency and fuel switching
Electricity (heavy oil)	<ul style="list-style-type: none"> • Declining since the 1990s with the decline of oil thermal power generation (with a brief rise after the 2011 Earthquake)
Home and SME (kerosene, heavy oil)	<ul style="list-style-type: none"> • Used as fuel for home heating, boilers, etc. • Declining trend since peak in the early 2000s, due to improved energy efficiency of home appliances, etc. • Downward pressure on demand from electrification and fuel switching
Chemical (naphtha)	<ul style="list-style-type: none"> • Demand is defined by petrochemical industry activity and production volumes • Has basically flatlined since mid-2000s peak

Source: Compiled by Mizuho Bank Industry Research Department

Review of the industry: Oil

- With domestic demand trending down since the late 1990s, the oil industry has maintained corporate profits.
 - Industry supply side timely responses by industry restructuring, as well as equipment and operational efficiency improvements.
- The oil industry has adapted to changes in the external environment while fulfilling its social responsibility as a stable energy supplier to Japan.

30-year assessment of the oil industry

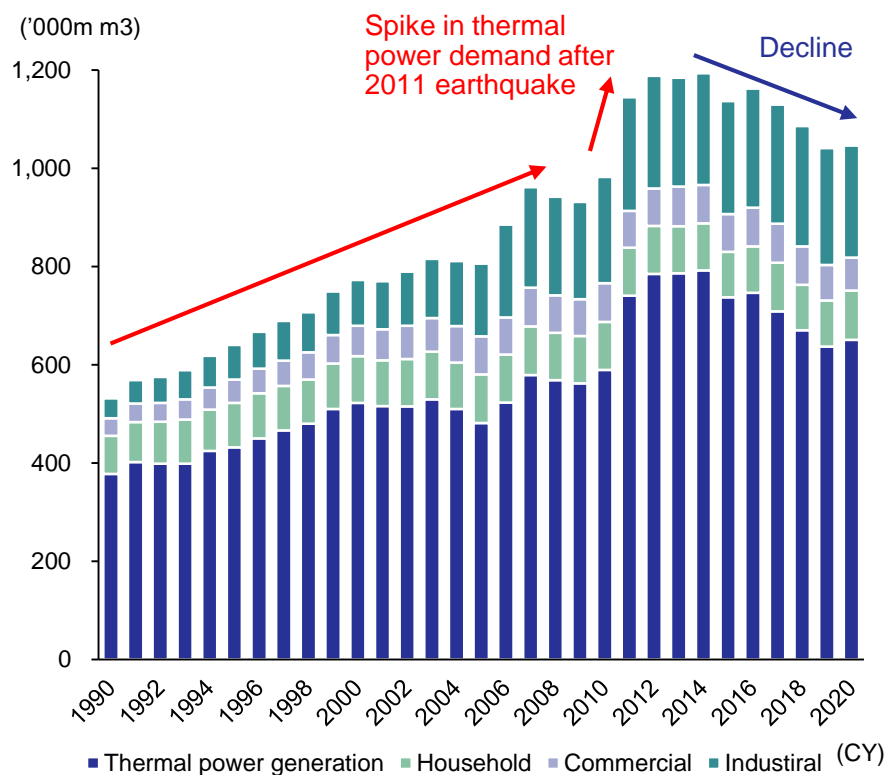
Category	1990s	2000s	2010s	2020s (now)
Demand	Peaked late 1990s	Declining trend	Declining trend (temporary uptick after earthquake)	Declining trend
	Decade average demand : 270m kL	Decade average demand : 240m kL	Decade average demand : 190m kL	2020 demand : 150m kL
Supply capacity	Industry restructuring to boost competitive strength amid deregulation	Continues	Further industry restructuring due to regulatory factors, integration of companies into the current three wholesalers	Stalling of horizontal restructuring by company, optimization of equipment, further consideration of merger or elimination
	13 companies 35 refineries (1999)	10 companies 29 refineries (2009)	3 wholesale distributors 22 refineries (2019)	3 wholesale distributors 21 refineries (2021)
Profitability	Worsening margins due to flattening demand and high crude oil prices from mid 1990s	Low margins from fierce competition and overcapacity in refining	Improvement in late 2010s due to industry restructuring and refinery capacity optimization	Maintained at good level thanks to late 2010s industry restructuring and optimal refining capacity
	—	Decade average wholesale margin : 13.9 yen/L	Decade average wholesale margin: 15.8 yen/L	Decade average wholesale margin: 18.3 yen/L
Regulation	Global deregulation trend reaches Japan, first wave of deregulation (from 1987, refining and retail) and second wave of deregulation (from 1996, product importation)		Optimization of refinery equipment is promoted to ensure efficient use of crude oil in an environment of falling demand	Sophisticated Methods of Energy Supply Structures Act helps to reduce carbon emissions
Focused Issue	Securing stable and efficient supply of deregulated petroleum products	A globally competitive petroleum products industry through collaboration and amalgamation of petrochemical complexes	Productivity to attain overall competitiveness with imports in Japan and export-level productivity in some refineries	Balancing stable supply and transformation of business portfolio for decarbonization

Source: Compiled by Mizuho Bank Industry Research Department based on Petroleum Association of Japan documents, RING website, and Agency for Natural Resources and Energy documents

Review of the industry: Gas

- Japanese domestic gas demand was rising from the 1990s until the 2011, driven by the demand from electricity and industries.
- After 2011 Earthquake, gas demand was spiked due to the closure of the nuclear power generation and need of gas-fired power.

Japanese domestic demand of gas (by use)



Source: Compiled by Mizuho Bank Industry Research Department based on *Energy and Economic Data List*, Institute of Energy Economics and *World Energy Statistics*, IEA

30-year assessment of gas demand features by use

Thermal power generation	<ul style="list-style-type: none"> • Used as a fuel in gas thermal electricity generation. • Demand is affected by changes in overall electricity demand, which reflects the ratio of gas-fired power generation and economic conditions • Demand is increasing due to the rise in overall power generation and the increased ratio of gas-fired power generation • Demand spiked after the Earthquake due to the nuclear plant shutdown and the need to increase the ratio of gas-fired power generation • From 2014, there was a decline in demand for natural gas due to fall-off in some temporary factors, yet demand continued at a higher level than before the earthquake
Household	<ul style="list-style-type: none"> • Used mainly in water heating, room heating and kitchens. Demand is also affected by changes in gas used per household and number of households using gas • Gently rising trend up to mid 2000s • Since the mid 2000s, demand has been pushed down by improving energy efficiency
Commercial	<ul style="list-style-type: none"> • Used mainly for air-conditioning and kitchens in retail and services, and air-conditioning in office buildings and entertainment facilities • Since the mid 2000s, demand has been pushed down by improving energy efficiency and electrification
Industrial	<ul style="list-style-type: none"> • Used in industrial furnaces, boilers and power generation to supply heat and steam for production processes • Demand is trending up with the adoption of gas by large users. Gas is meeting the need for low carbon fuels, due to its low carbon emissions compared to other fossil fuels

Source: Compiled by Mizuho Bank Industry Research Department

Review of the industry: Gas

- Diversification of energy mix and requirement of the low carbon have driven increasing demand for the gas industry.
- Due to the change of environmental aspiration from “low carbon” to “zero carbon”, future demand forecast has been changed.

30-year assessment of the gas industry

Category	1990s	2000s	2010s	2020s (now)
Demand	Rising trend	Rising trend	Spike in demand for gas to generate electricity after 2011 Earthquake	Resilient
	Decade average demand : 63.3b m ³	Decade average demand : 84.8b m ³	Decade average demand : 112.5b m ³	2020 demand: 104.6b m ³
Supply capacity	LNG import infrastructure and increased imports, conversion of city gas feedstock (coal, oil→natural gas)	Acceleration in tie-ups with players in other industries and expansion beyond home area, based on gas retailing and power retailing liberalization		Full shift to gas underway, introduction of carbon neutral LNG, promotion of CCU, etc.
	1999: 23 primary LNG receiving terminals 1999: 1,397km of high-pressure transmission pipelines	2009: 27 primary LNG receiving terminals 2009: 2,066km of high-pressure transmission pipelines	2019: 37 primary LNG receiving terminals 2019: 2,431km of high-pressure transmission pipelines	2020: 36 primary LNG receiving terminals 2020: 2,387km of high-pressure transmission pipelines
Profitability	Stable due to regional monopolies and rate-of-return regulation	Continued stability, but the environment is gradually becoming more competitive with the increasing scope of gas retailing liberalization		
Regulation	Partial opening of heavily regulated industry where one company holds monopoly in each region	Reform of gas system, starting with gas retailing liberalization		Promotion of further competition in gas retailing
Objective	Diversification of energy mix and decarbonization perspective drive increasing demand for the gas	Development of efficient gas supply infrastructure, enhancement of competitive strength based on fiercer competition with other industries		Decarbonization, strengthening resilience, strengthening business foundations

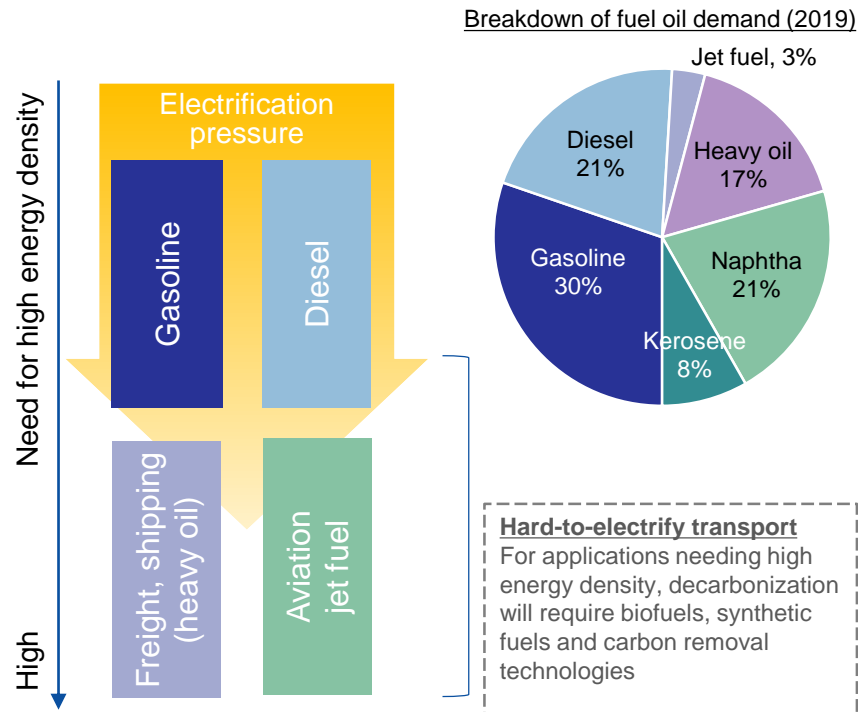
Source: Compiled by Mizuho Bank Industry Research Department based on *Overview of Japan's Trade and Industry Policy*, RIETI, Gas Business Bulletin, Energy White Paper, and documents from the Conference on the Gas Business toward 2050, the Agency for Natural Resources and Energy and the Japan Gas Association

Changing Trends: Electrification

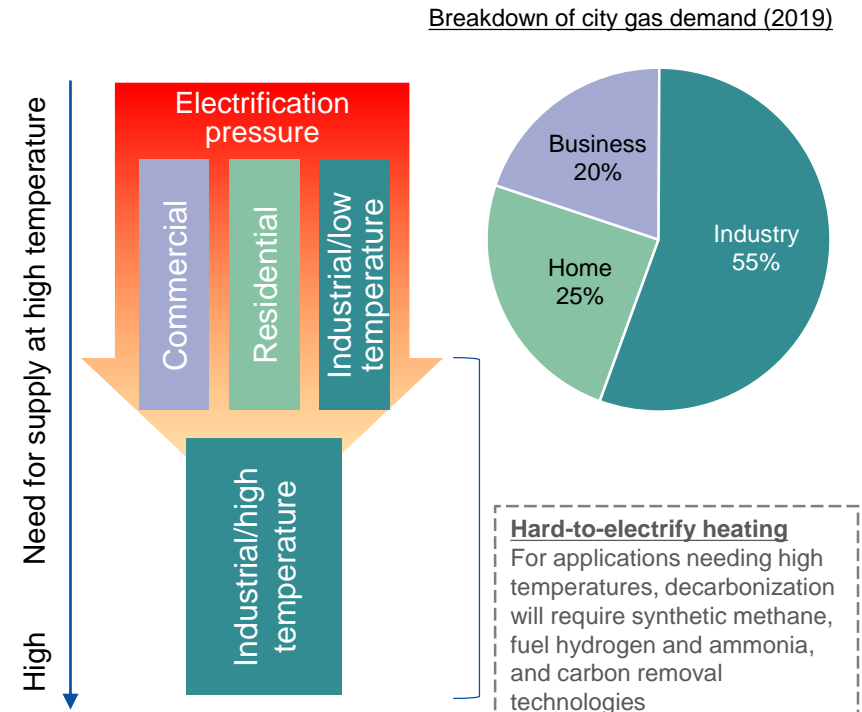
- The government has set out policy for non-electric sector electrification toward achieving carbon neutrality in 2050.
- For the oil industry, electrification of transport and for the city gas industry, electrification of heating will be major demand reduction pressures.

Impact of electrification on oil and city gas industries

Downward pressure on demand in oil industry due to 'electrification' of transport



Downward pressure on demand in city gas industry due to 'electrification' of heating

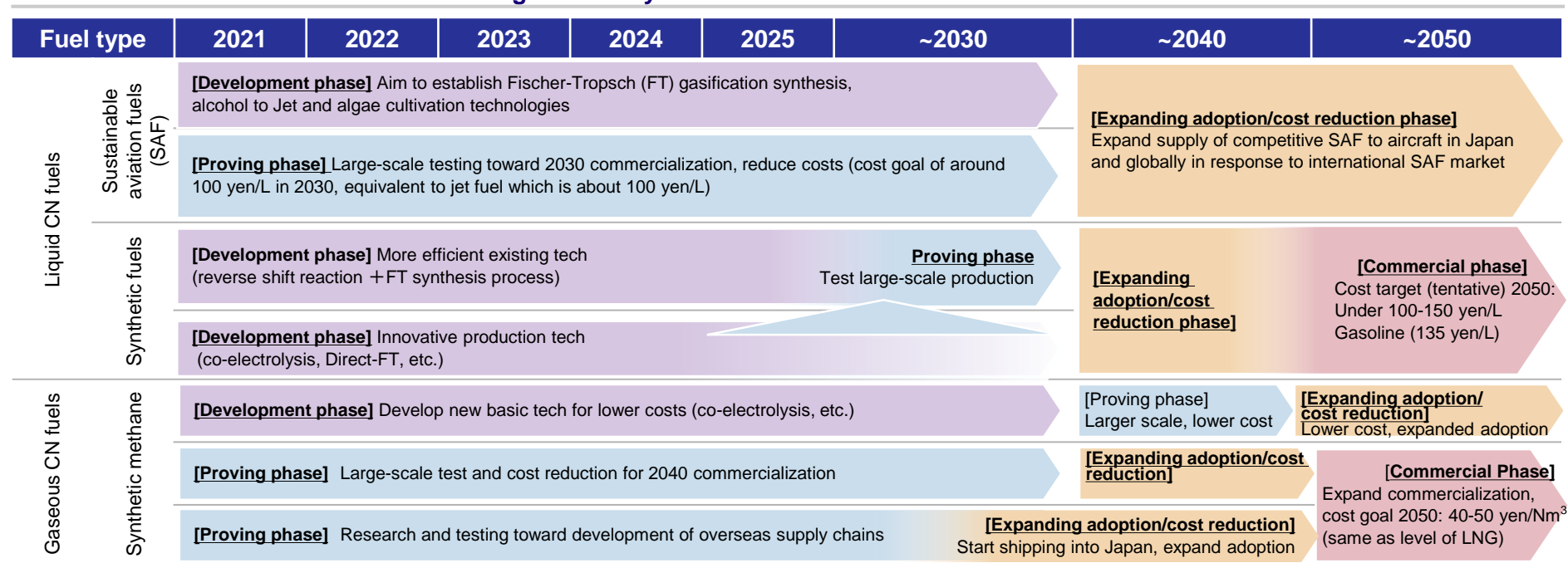


Source: Compiled by Mizuho Bank Industry Research Department based on *Comprehensive Energy Statistics*, Agency for Natural Resources and Energy, *Energy Sangyo 2030 e no senryaku*, Takeuchi Junko (ed.)

Changing Trends: Need to establish a carbon-neutral fuel supply chain

- Neither the oil industry nor the city gas industry have established a carbon neutral fuel supply system.
 - There are many obstacles to overcome to reach the self-supporting commercial phase, including development of elemental technologies and research of innovative technologies, and reducing costs through higher efficiency and larger scale.
- On the other hand, future demand for carbon neutral fuels depends largely on the extent of electrification.
 - Oil and gas companies are facing difficult decisions on capital investment.

Direction on carbon neutral fuels in oil and gas industry



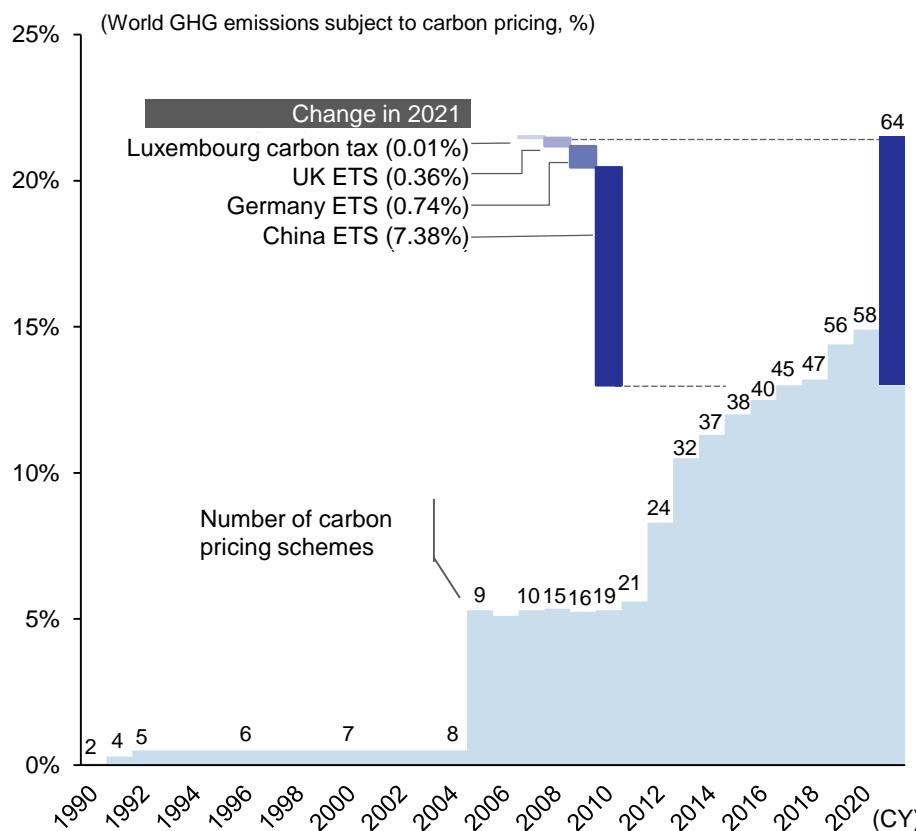
Note: SAF: Sustainable Aviation Fuel. FT gasification synthesis: a technological process that produces SAF by steam heating (gasifying) organic matter such as wood chips, then liquifying it using a catalyst. Alcohol to jet: technology to upgrade bioethanol to SAF using a catalyst. Reverse shift reaction: Reaction generating CO and water vapor from CO₂ and hydrogen. Co-electrolysis: Technology producing H₂ from water electrolysis and CO from CO₂ electrolysis. Direct-FT: Technology producing hydrocarbons directly from CO₂ and hydrogen, by simultaneous reverse shift reaction and FT synthesis.

Source: Compiled by Mizuho Bank Industry Research Department based on *Green Growth Strategy Through Achieving Carbon Neutrality in 2050* and *List of projects of the Green Innovation Fund*, METI.

Changing Trends: Carbon Pricing

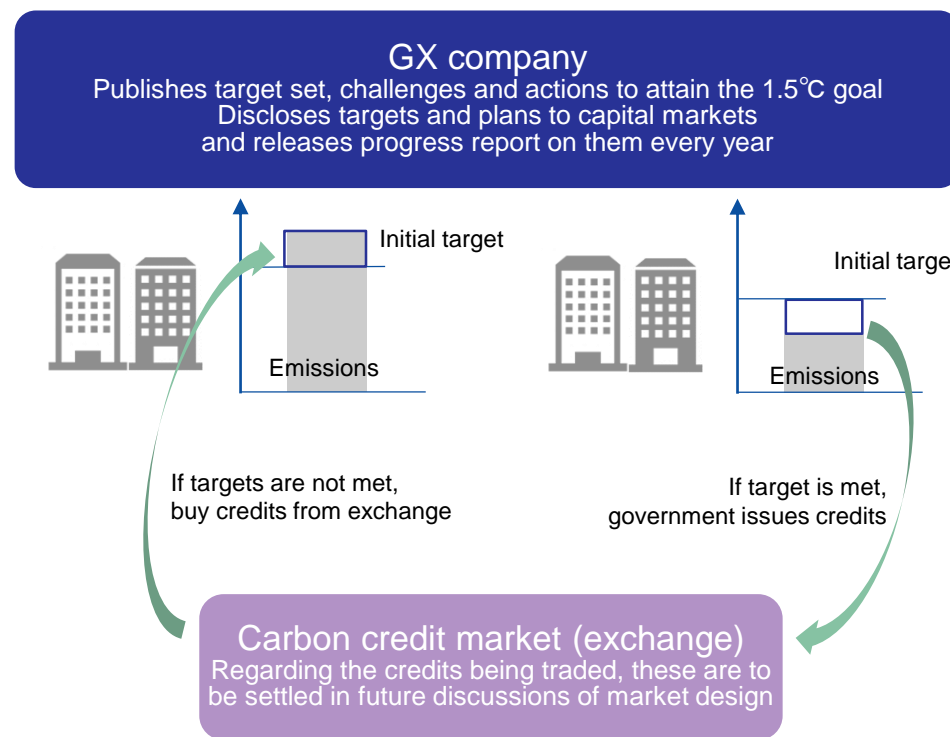
- Growing momentum to regulate GHG emissions and establish incentives to reduce emissions.
 - Globally, carbon pricing is gaining ground. Japan is also considering this framework to help reduce GHG emissions.
 - Through political pressure, there is an increasing movement to place a price on costly GHG emission reductions (emission reduction value).

Percentage of GHG emissions subject to carbon pricing



Source: Compiled by Mizuho Bank Industry Research Department based on World Bank, *State and Trends of Carbon Pricing 2021*

GX League concept

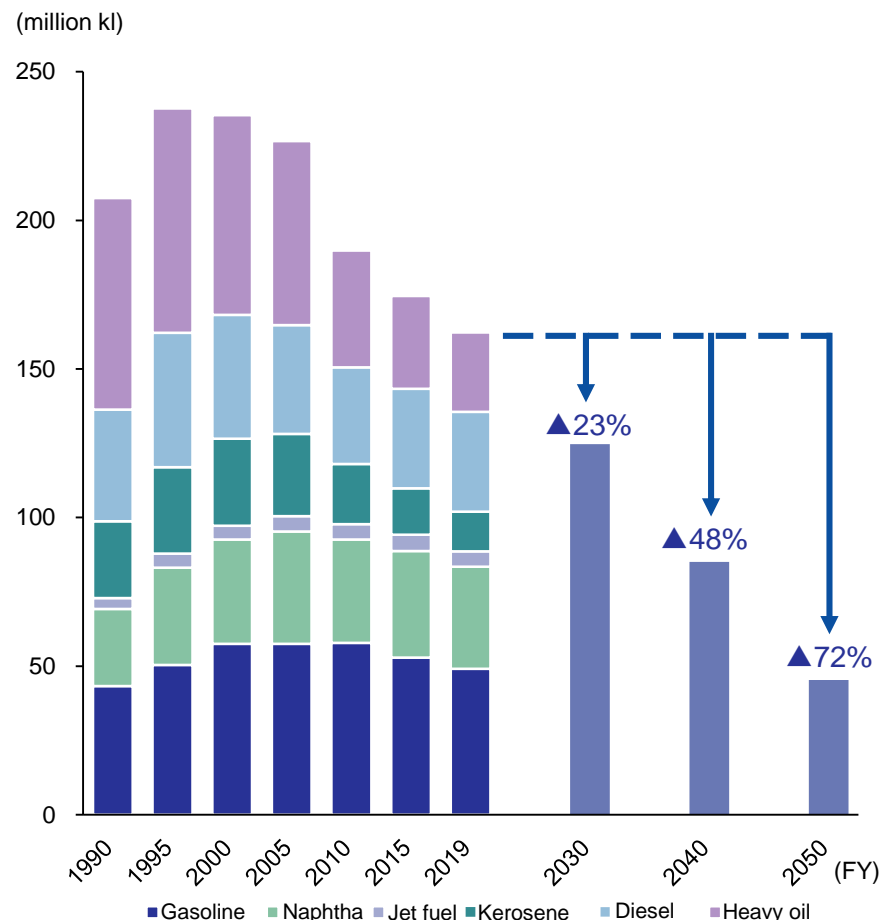


Source: Compiled by Mizuho Bank Industry Research Department based on METI document, *Study group on ideal economic and other approaches for achieving worldwide carbon neutrality*

Outlook of Japanese domestic fuel oil demand in 2050

■ Demand for fuel oil in Japan is seen falling around 70% by 2050.

Domestic demand forecast for fuel oil



Source: Compiled by Mizuho Bank Industry Research Department based on *Comprehensive Energy Statistics*, Agency for Natural Resources and Energy

Domestic demand forecast for fuel oil by fuel type

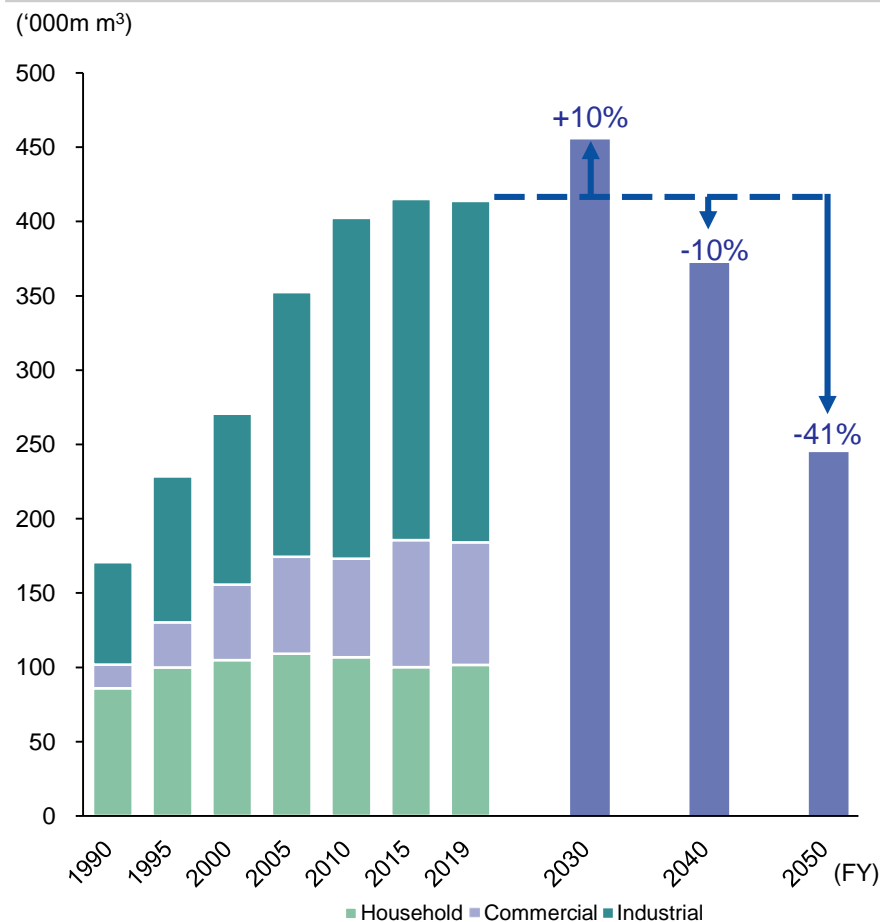
Gasoline	<ul style="list-style-type: none"> Decreased vehicle fleet due to demographic change Big decline in gasoline demand also due to improved fuel efficiency and EV uptake. Following the 2035 ban on sales of new ICE cars, demand is forecast to be limited to existing ICE cars and hybrids
Naphtha	<ul style="list-style-type: none"> Declining production amid reduced exports of naphtha products and demographic change
Jet fuel	<ul style="list-style-type: none"> Jet fuel is difficult to electrify. Demand expected to continue for liquid fuels
Kerosene	<ul style="list-style-type: none"> The household sector is key for demand. Overall demand is expected to fall due to the declining number of households as a result of demographic change, as well as electrification of room heating, even though kerosene use is likely to stay in some cold regions
Diesel	<ul style="list-style-type: none"> Decreased commercial vehicle fleet due to demographic change. Downward pressure on diesel demand also due to improved fuel economy and EV uptake. However, the pace of electrification is expected to trail passenger cars due to the needs to drive long distances with heavy loads
Heavy oil	<ul style="list-style-type: none"> In the commercial heating sector, demand is expected to fall due to electrification in cold zones and conversion to gas in warm zones

Source: Compiled by Mizuho Bank Industry Research Department

Outlook of Japanese domestic gas demand (excluding electricity) in 2050

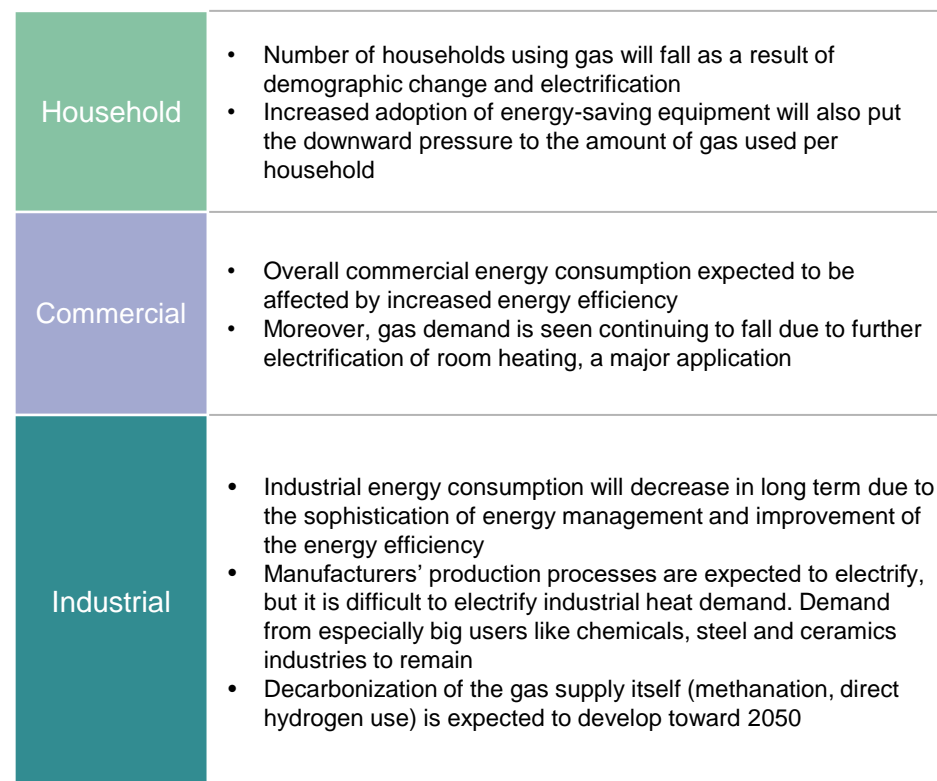
- While demand for gas is expected to rise until 2030, the forecast is for around 40% decline in demand by 2050 compared to 2019.

Domestic city gas demand forecast



Source: Compiled by Mizuho Bank Industry Research Department based on *Comprehensive Energy Statistics*, Agency for Natural Resources and Energy

Domestic demand forecast for city gas by user



Source: Compiled by Mizuho Bank Industry Research Department

Oil and gas industry need to transform their business models

- To survive in a carbon-neutral society, oil and gas companies must achieve transformation.

Transformation options for a decarbonized society

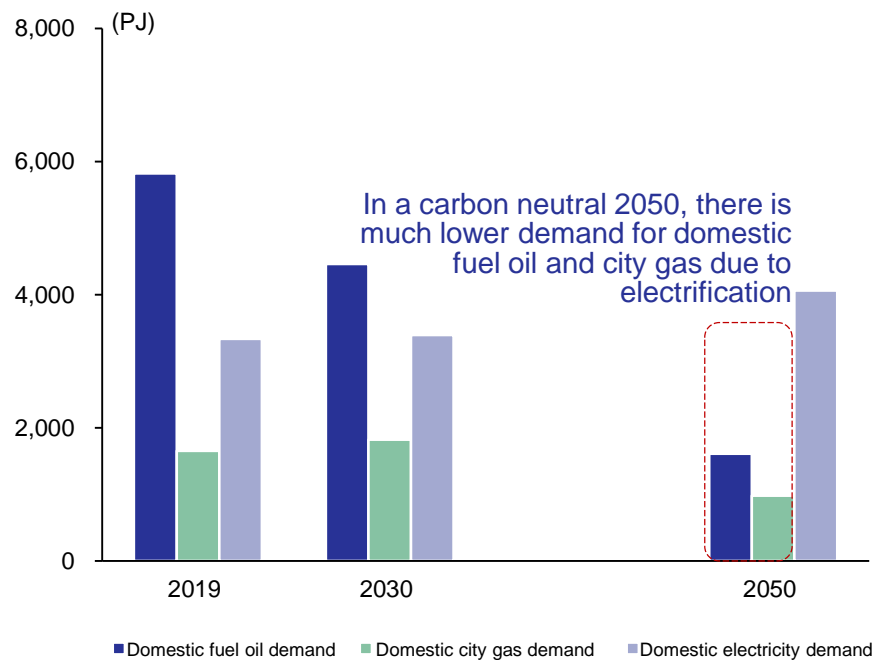
Focus		Options	Goal
1	Continue existing role as <u>energy supplier</u>	<u>Integrated</u> Build a comprehensive energy supply system including electricity to capture the demand of electrification	Hold a large share of overall 2050 final energy consumption as an <u>Integrated Energy Company</u>
2	Utilise existing <u>oil and gas supply assets</u>	<u>Specialize</u> Establish a carbon-neutral fuel supply solutions to meet liquid fuel demand where electrification is difficult (Oil), and to meet demand for high-temperature heating in industry (Gas)	A competitive Specialized Energy Company specialized in delivering decarbonization solutions such as synthetic fuels and syngas
3	Utilise existing <u>Technology and portfolio</u>	<u>Shifting 1</u> Achieve transformation of business into a comprehensive support industry to meet demand for carbon neutrality among client companies	A “Carbon Neutral as a Service Company” that offers comprehensive support to clients from planning to execution of carbon neutrality, using decarbonization solutions
		<u>Shifting 2</u> Find demand outside the energy sector by diversifying, harnessing B to C customer connections in the sector	Local platformer/operator delivering comprehensive lifestyle services linked to the community

Source: Compiled by Mizuho Bank Industry Research Department

Integrated: Build a comprehensive energy supply system

- To be a Integrated Energy Company (IEC), energy companies need to make large-scale capital investments to catch up with the frontrunners of the electricity sector or acquire existing players to gain inorganic growth.
- The European majors have announced business strategy transformations and in particular, large investments in renewables.
 - BP is making a series of major investments in offshore wind generation in the US and UK as it aims to transform from an IOC (International Oil Company) into an IEC.

Demand forecast for domestic fuel oil, gas and electricity



Source: Compiled by Mizuho Bank Industry Research Department based on *Comprehensive Energy Statistics*, Agency for Natural Resources and Energy

BP's moves to expand renewable energy business

From International Oil Company to Integrated Energy Company

(announced August 4, 2020)

Developed renewable capacity: 50GW in 2030 (a 20-fold increase from 2019's 2.5GW)

Low carbon business investment: an 8-fold increase from about \$500m in 2019 to 2025 (about \$4bn/year), to a 10-fold increase in 2030 (about \$5bn/year)

(Announced Feb 8, 2022)	2019	2021	2022-25 target	2030 target
Developed renewable capacity	2.5GW	4.4GW	20GW	50GW
Low carbon business investment	\$500m	\$1.6bn	2022: ~\$2.5bn 2023-25: \$3-5bn	2026-30: \$4-6bn

[Major recent projects]

	Type	Location	Seller	Cost	Outline
9/2020	Offshore wind	US	Equinor	\$1.1bn	Acquired 50% equity in Equinor's US offshore wind project
2/2021	Offshore wind	UK	UK government	\$1.3bn	Acquired lease in UK offshore wind power development zone
2021/6	Solar power	US	7X Energy	\$220m	Bought 9GW solar power generation portfolio

Source: Compiled by Mizuho Bank Industry Research Department based on *Full year & 4Q 2021 financial results & update on strategic progress*, BP

Specialize: Supply chain investment for CN fuel supply

- In order to supply carbon neutral fuels, companies need to build supply chains for each product.
- SAF, synthetic fuels, and synthetic methane can utilize existing assets.
- However, future carbon neutral fuel demands are highly uncertain. To secure demands, companies need to find early adaptors for carbon neutral fuels.

Supply chain investment for carbon neutral fuels

Carbon neutral fuel		Raw materials	Production	Transportation and supply infrastructure	User side
Liquid	Sustainable aviation fuel (SAF)	Vegetable oil, waste cooking oil, waste, cellulose, microalgae Necessary for procurement routes for each methods	Different equipment is required for each method, such as equipment for hydrogenation treatment and FT synthesis tanks	SAF can use existing jet fuel infrastructure	User side can use each carbon neutral fuels with existing equipment
	Synthetic fuels	Hydrogen + CO2 Hydrogen production equipment and supply of CO2 as a raw material are needed	In addition to hydrogen production equipment (see below items), production equipment is needed such as FT synthesis tanks	Synthetic fuel can use existing liquid fuel infrastructure	
Gas	Synthetic methane	Green hydrogen + CO2 Renewable energy power sources, manufacturing equipment, and supply of CO2 as a raw material for green hydrogen are needed	Green hydrogen production equipment and methanation equipment, etc.	Synthetic methane can use existing LNG infrastructure	
	Green hydrogen	Renewable energy sources	Water electrolysis tanks	Hydrogen transportation and supply (e.g. liquefied hydrogen carriers, intake facilities, etc.)	
	Blue hydrogen	Raw material gases Requires natural gas or coal for gasification	Natural gas reformers, coal gasification equipment, and CO2 separation/recovery/storage equipment, etc.		

Note: SAF: Sustainable Aviation Fuel

Source: Compiled by Mizuho Bank Industry Research Department based on "Green Growth Strategy Through Achieving Carbon Neutrality in 2050" by the Ministry of Economy, Trade and Industry

Specialize: “First Movers Coalition” to secure demand at an early stage

- Consumers who recognize the value of reductions in GHG emissions are essential for investing in supply chains for decarbonized solutions.
- However, the volume of the customers who recognize the value of reductions in GHG emissions are highly uncertain.
- First Movers Coalition is notable initiative to create demand of low-carbon technologies and solution.
- Launching an initiative similar to "First Movers Coalition" would be an effective measure to establish an early ecosystem & business models.

First Movers Coalition framework for stimulating demand in low-carbon technologies

Group	First Movers Coalition	Participating Companies	A.P. Møller – Mærsk	Holcim
Established	2021 (COP 26)		Aker ASA	Invenergy
Founders	World Economic Forum (organization that manages the Davos Forum), and US Ambassador to the UN Kelly Croft		Agility Logistics	Johnson Controls
Purpose	Established for the purpose of stimulating demand in advanced low-carbon technologies that are needed for global decarbonization by 2050		Airbus	Mahindra Group
Mission	Through the First Movers companies that support this framework, contribute to establishing emissions control measures in carbon-rich industries by 2030 and achieving net zero by 2050 by creating initial demand for the low-carbon technologies currently in the development stage.		Amazon	Nokia
Fields	Eight fields: Steel, cement, aluminum, chemicals, maritime shipping, aviation, truck shipping, and direct air capture (direct recovery of carbon dioxide from the atmosphere)		Apple	Ørsted
			Bain & Company	ReNew
		Bank of America	Salesforce	
		Boston Consulting Group	Scania	
		Boeing	SSAB Swedish Steel	
		Cemex	Trafigura Group	
		Dalmia Cement (Bharat) Limited	Trane Technologies	
		Deloitte	United Airlines	
		Delta Air Lines	Vattenfall	
		Deutsche Post DHL Group	Volvo Group	
		Engie	Yara International	
		Fortescue Metals Group	Western Digital	
			ZF Friedrichshafen AG	

Source: Compiled by Mizuho Bank Industry Research Department based on First Movers Coalition homepage

Shifting: “Carbon Neutral as a Service”

- there is an opportunity of comprehensive support business to meet demand among client companies aiming to be carbon neutral.
 - This strategy is to establish competitive advantage by capturing the first step of the needs of client.
- Some companies are already working on a multilayer concept as same as “Carbon Neutral as a Service”.

The Concept of Carbon neutral business

Planning flow for client to be “carbon neutral”		Carbon neutral business possibilities	
		Theme	Recent examples
1	GHG emissions measurement	Support measurement of emissions, provide system and platform	<ul style="list-style-type: none"> • KEPCO - Zero Board • Deloitte - Wastebox • Mitsubishi Heavy Industries – IBM
2	GHG emissions direct reduction	Provide zero carbon solutions contributing to direct reduction of emissions	
3	Offset unavoidable emissions with carbon credits, etc.	Support creation, trading management and procurement of carbon credits	<ul style="list-style-type: none"> • Mitsubishi Corporation • Mizuho Bank • Tokyo Gas, INPEX and others working toward carbon neutral LNG

Source: Compiled by Mizuho Bank Industry Research Department based on company IR documents

Occidental’s net zero goal and key initiatives

Period	Net zero goal	Key initiatives
2020 - 2025		<ul style="list-style-type: none"> • More efficiency in own business • Expand volume of industry-emitted CO₂ captured, start operating CO₂ storage and commercial-scale Direct Air Capture (DAC) facilities, etc.
2025 - 2030	Net zero Scope 1, 2 emissions by 2040 (Ambition: achieve by 2035)	<ul style="list-style-type: none"> • Operate several large-scale CO₂ storage facilities, expand DAC facilities, extend CO₂ pipelines • Adopt renewables and other emissions-free energy sources, expand their applications
2030 - 2040		<ul style="list-style-type: none"> • Expand CO₂ storage facilities, expand application of DAC facilities in US, consider global testing • Expand use of CO₂ beyond EOR and menu of low-carbon fuel products, consider production of chemical products using CO₂ as feedstock
2040 - 2050	Ambition: Net zero Scope 1, 2 and 3 emissions by 2050	<ul style="list-style-type: none"> • Large-scale development of DAC, CCUS in Japan and worldwide • Own US oil and gas production to go carbon neutral • Harness CO₂ feedstock in US manufacturing • Mass uptake of CO₂ storage facilities for industry

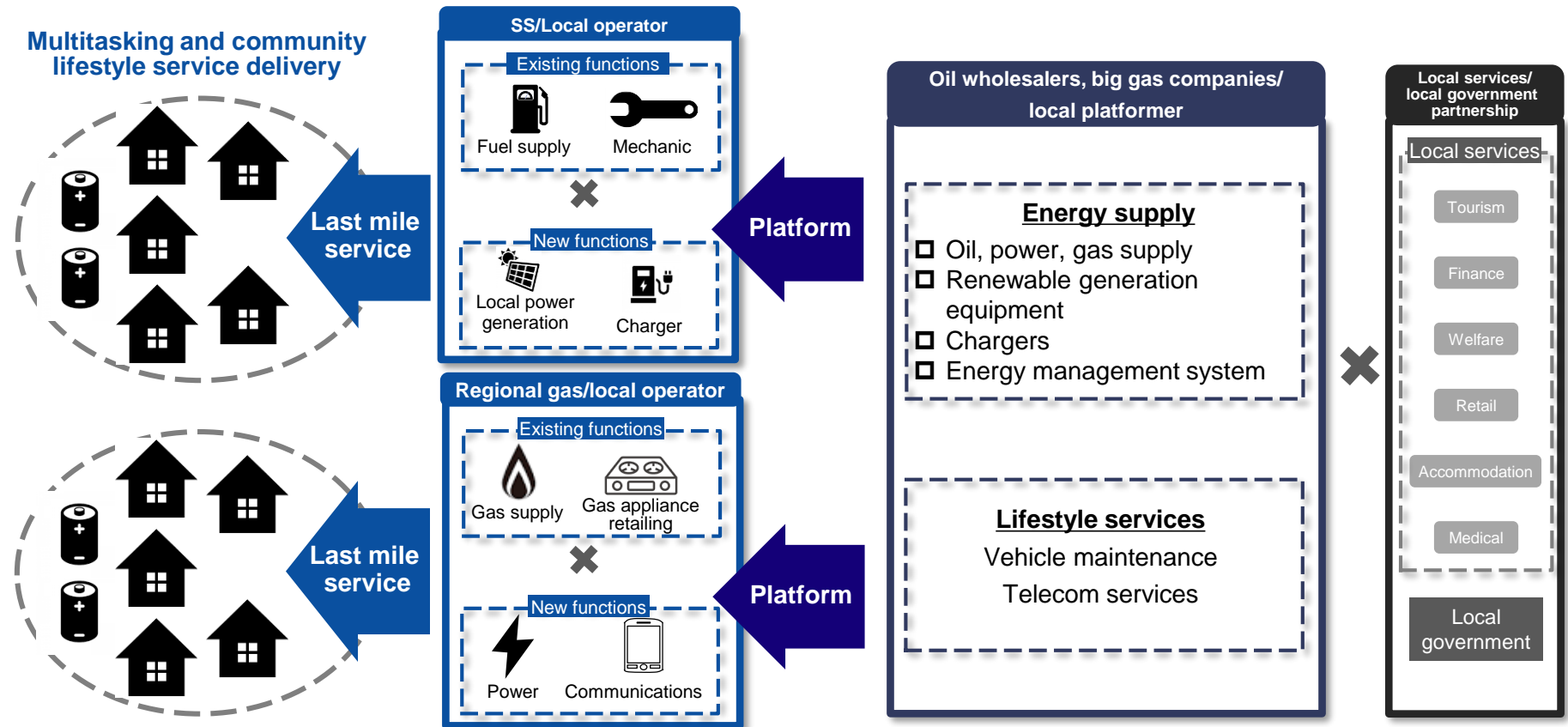
Note: EOR (Enhanced Oil Recovery): method of injecting CO₂ into an oil well to increase production of oil

Source: Compiled by Mizuho Bank Industry Research Department based on company IR documents

Shifting: Local platformer/operator

- Transform the business to providing comprehensive lifestyle services in addition to supplying energy.
 - Existing connection with the customers will be advantage to diversity their revenue.

Concept of local platformer/operator delivering comprehensive services to the community

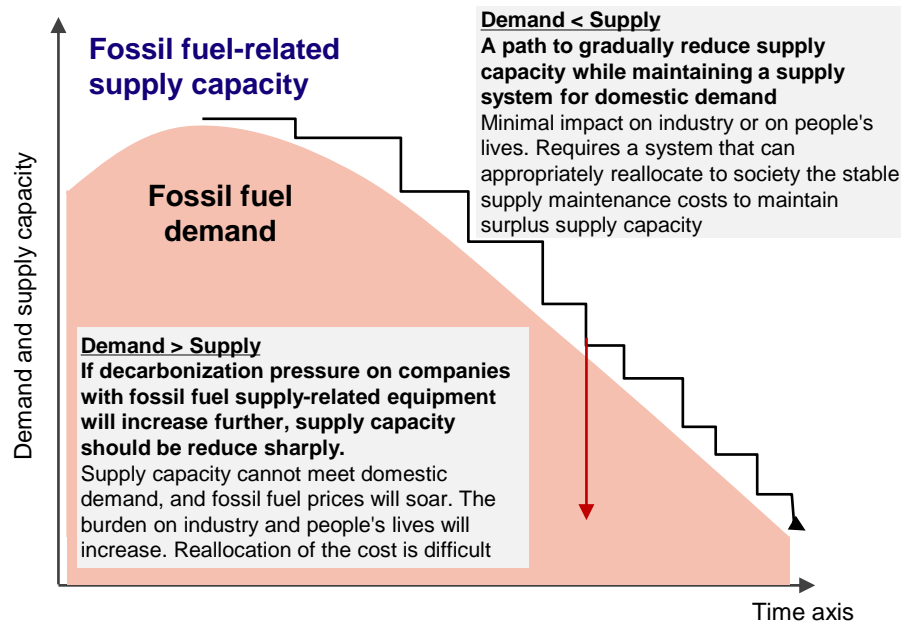


Source: Compiled by Mizuho Bank Industry Research Department based on "Transformative steps needed for Japanese industry to show a strong global presence"(Oct 6, 2020), Mizuho Industry Research No.65, Mizuho Bank

How to optimize the existing assets size for fossil fuels

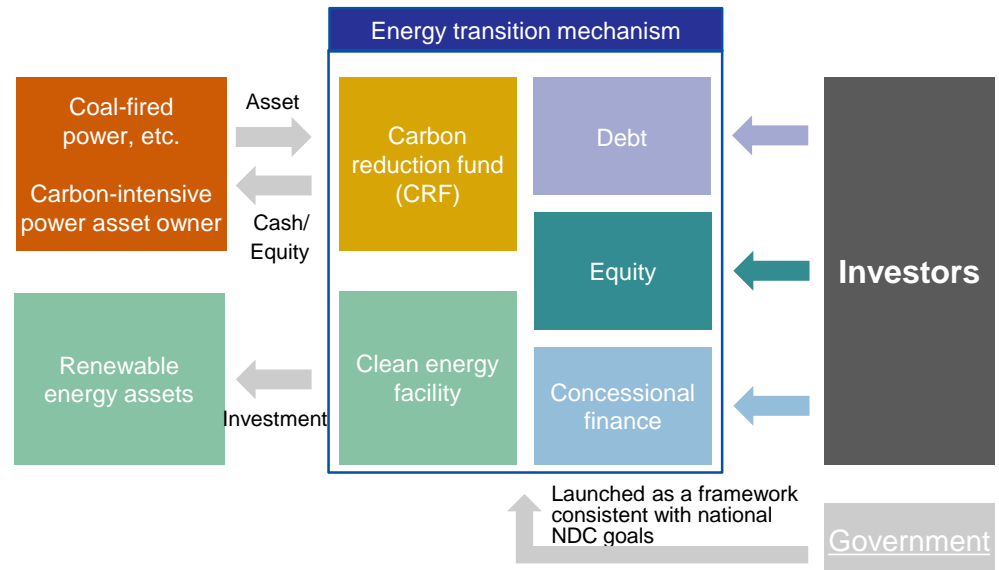
- Converting infrastructure for a decarbonized society need considerable time. However, companies are confront with the pressures to shorten the transition periods.
 - Although companies are considering optimal transition plans, there are concern of further increases of decarbonization pressure from financial markets and shareholders.
- To avoid the unintended shortage of the fossil fuels supply infrastructure, government can take further efficient support.
 - ADB Energy Transition Mechanism is an effort to support an appropriate energy transition for Asia region.

Decreased fossil fuel demand and supply capacity



Source: Compiled by Mizuho Bank Industry Research Department

ADB energy transition mechanism



Source: Compiled by Mizuho Bank Industry Research Department based on the "Expert Panel on Climate Change (2nd Meeting)" materials by the Cabinet Secretariat

[Link to a survey](#)



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