

Member Economy Report

Current Status of Gas Industry in Japan

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1. Present conditions of Japan's energy and economy

- (1) General information about Japan
- (2) Primary energy supply and energy self-sufficiency rate
- (3) Final energy consumption

2. Gas industry in Japan

- (1) Overview of the city gas business
- (2) Environment surrounding the city gas industry

3. Energy policy issues since 3.11 and efforts by the city gas industry

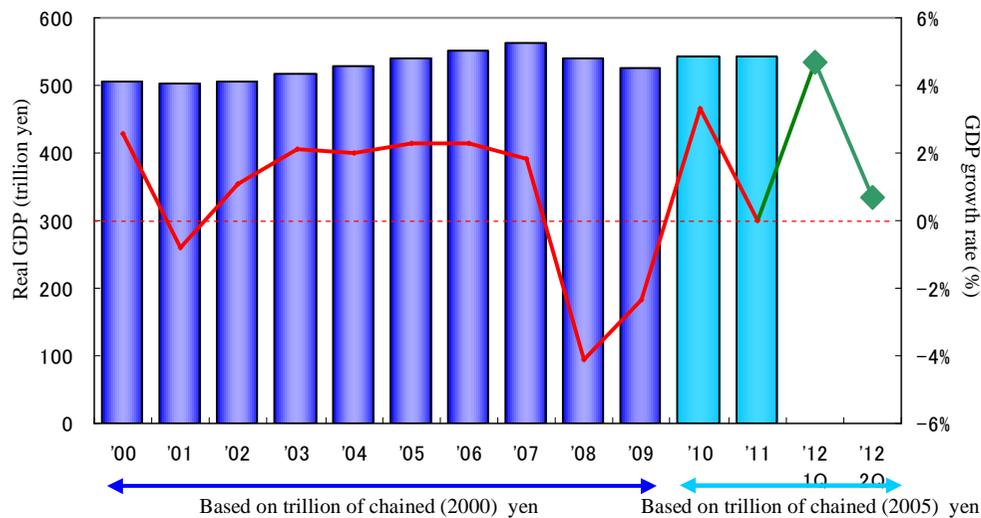
- (1) Shift to natural gas and promotion of advanced uses
- (2) Expanded use of distributed energy systems
- (3) Building of next-generation energy systems

General information about Japan

General information

Area	377,950 km ²
Population	128 million people
Real GDP (FY2011)* *Chained (2005) yen	JPY 511.5 trillion US\$ 6.56 trillion (as of Sep. 2012)
GDP growth rate (Apr.-Jun. 2012)	+0.2% (annual rate: +0.7%)
Primary energy supply (FY2010)	569.9 million KLOE
Final energy consumption (FY2010)	386.3 million KLOE
Amount of LNG import (FY2011)	83 million tons (+18% y/y)

Trend of read GDP and growth rate



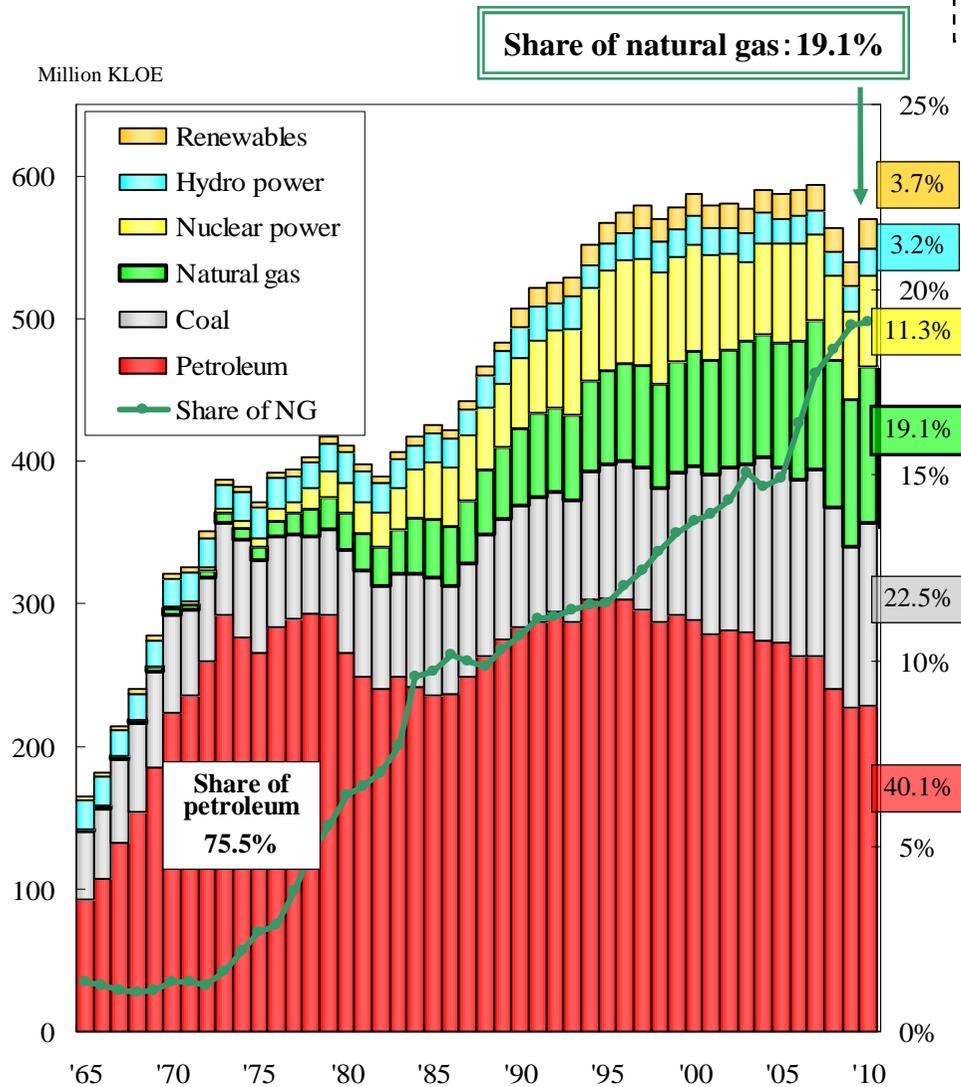
*GDP growth rates in the first and second quarters of FY2012 are annualized.



Sources: Ministry of Internal Affairs and Communications, Cabinet Office, Agency for Natural Resources and Energy, Ministry of Finance, EDMC of IEEJ

(1)-1 Primary energy supply

Primary energy supply (FY1965-2010)

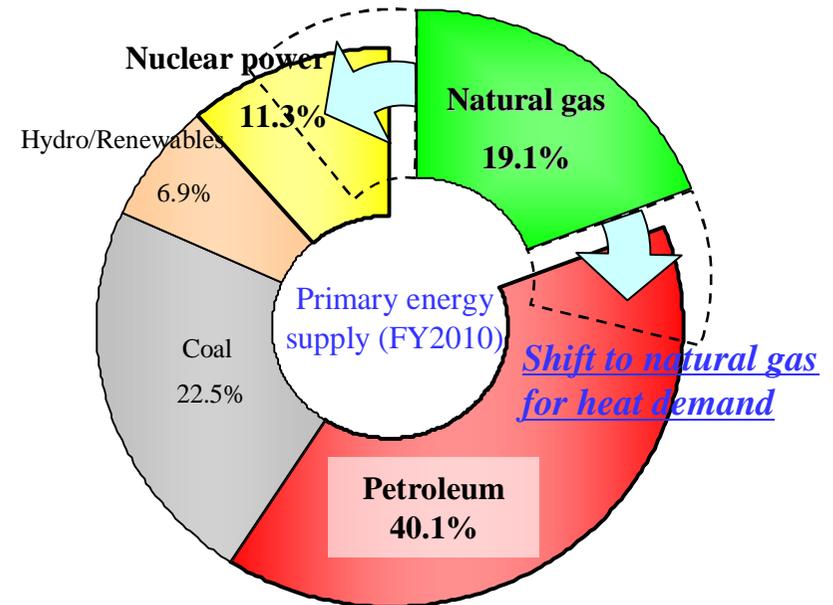


ü Primary energy supply: 569.9 million KLOE

ü Natural gas: 109.1 million KLOE

The share of natural gas is expected to rise from increased LNG-fired thermal power generation and the shift of heat demand to natural gas.

Growth in demand of LNG for power generation

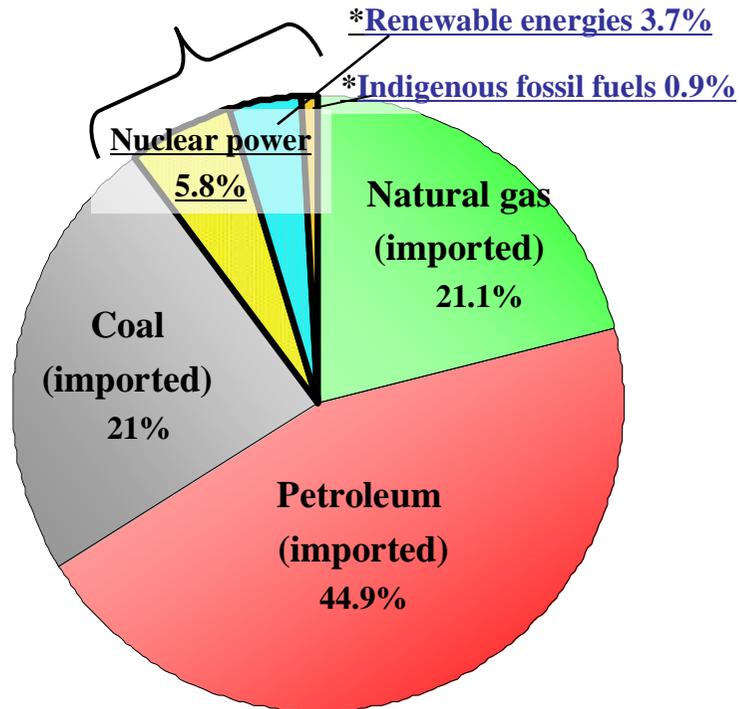


Sources: "Energy supply and demand results of fiscal 2010" and "Energy white paper 2010", Agency for Natural Resources and Energy, METI

(1)-2 Energy self-sufficient rate

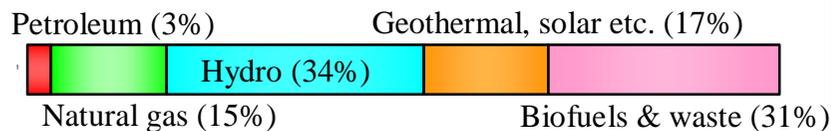
Energy self-sufficient rate (FY2011 estimated)

10.4% (includes nuclear power)



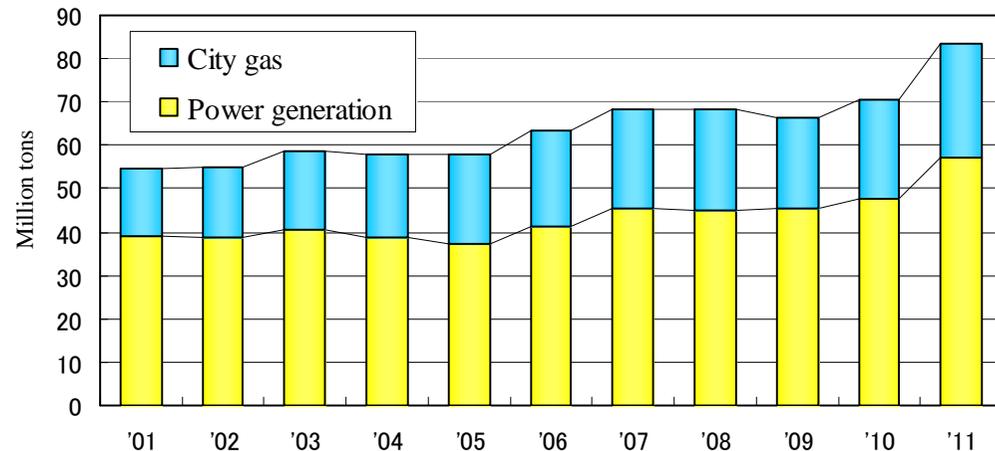
*Breakdown of renewable energies and indigenous fossil fuels

:21.1 million KLOE

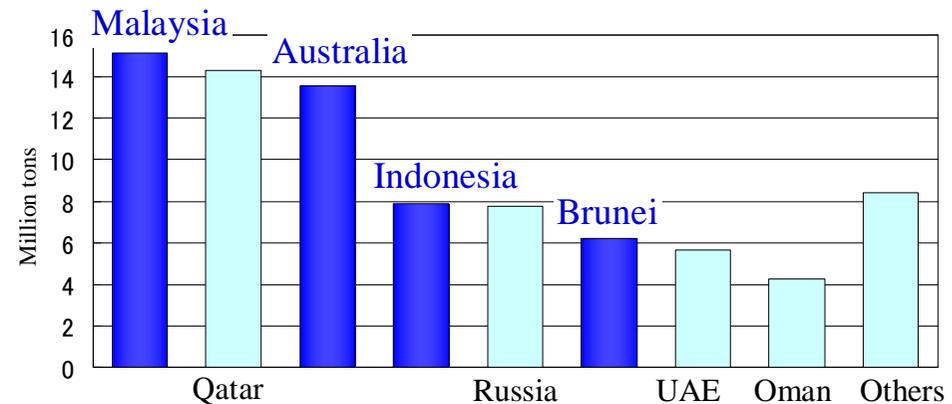


Incremental LNG import (FY2001-2011)

- ü 30% of LNG is used for city gas production.
- ü In FY2011, LNG import increased 12.6 million tons from previous fiscal year and reached 83 million tons.



Major LNG exporters to Japan (FY2011)



Source : IEA Energy Balances of OECD Countries 2012

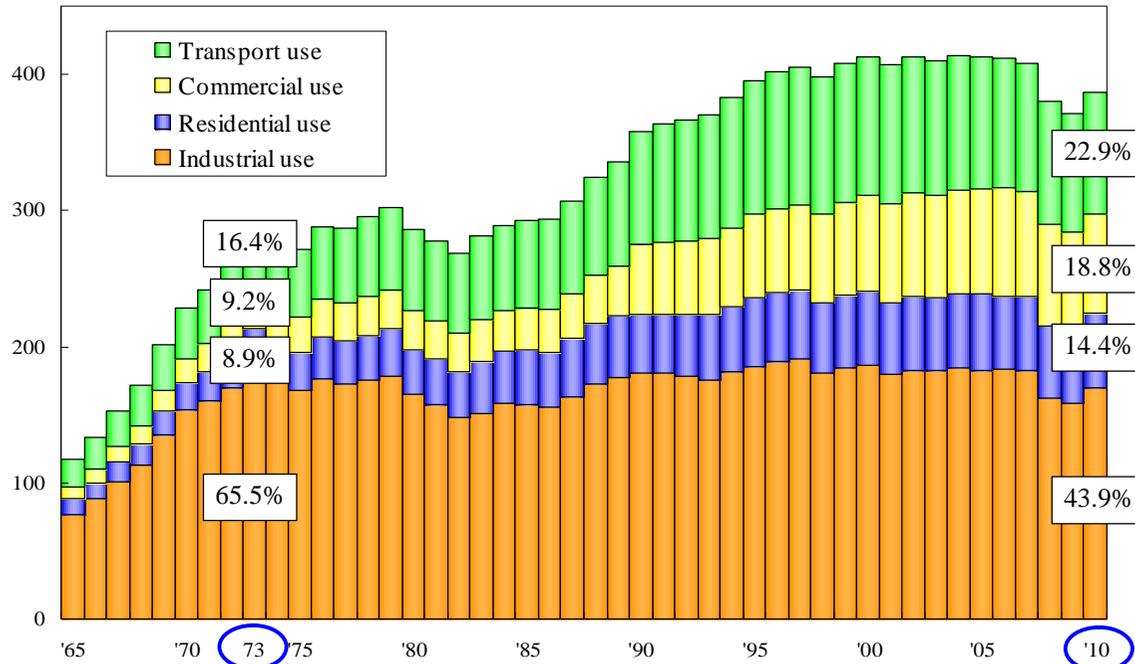
Sources : "Electric Power Statistics", Agency for Natural Resources and Energy, "Trade Statistics of Japan", Ministry of Finance

(2) Final energy consumption

Final energy consumption by sectors

386.3 million KLOE (FY2010)

Million KLOE



Changes in final energy consumption

a. From FY1973 to FY2010, total final energy consumption increased by 35%

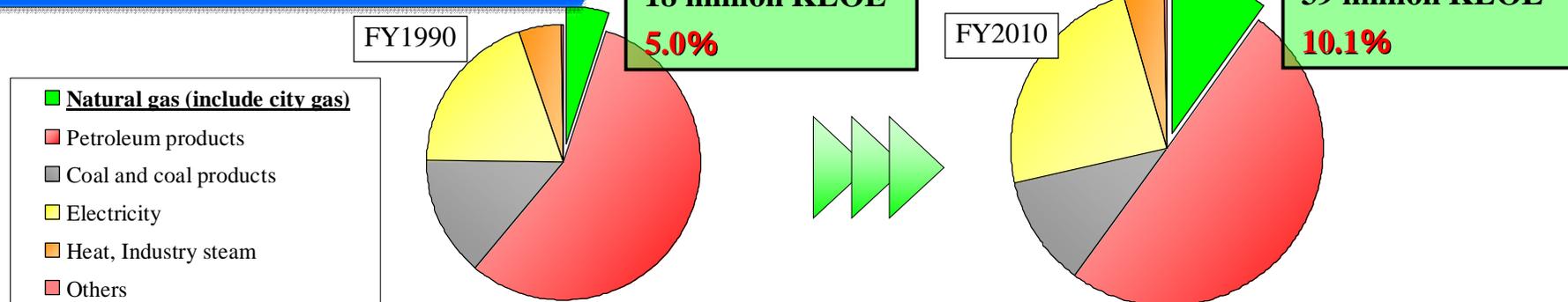
By sectors:

Transportation sector	+89%
Commercial sector	+176%
Residential sector	+118%
Industrial sector	-10%

+147%

b. From FY2000 to FY2010, final energy consumption is broadly flat

Changes by energy sources

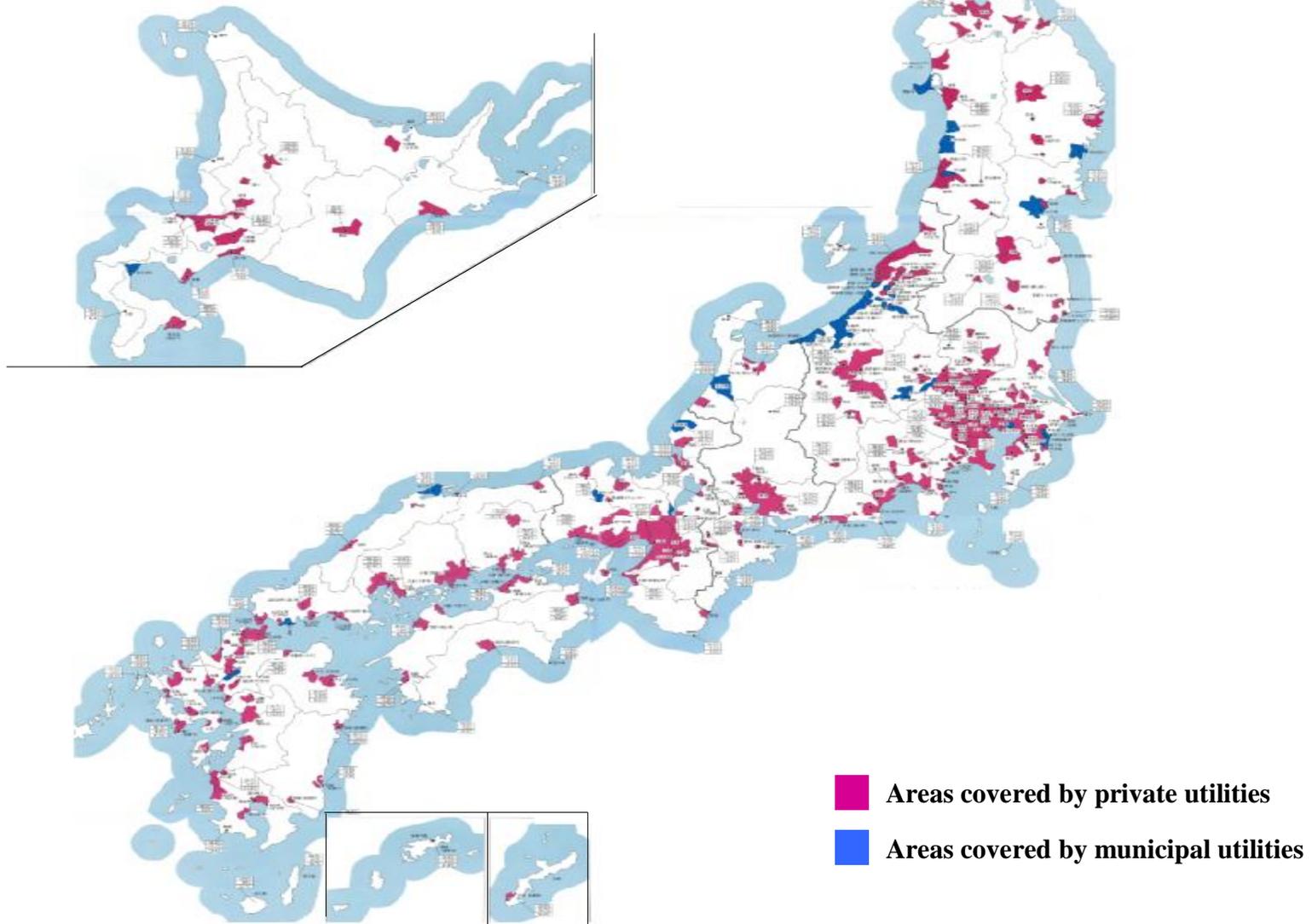


Sources: "Energy supply and demand results of fiscal 2010" and "Energy white paper 2010", Agency for Natural Resources and Energy, METI

(1)-1 Overview of the city gas business (Utility)

Areas covered by city gas utilities

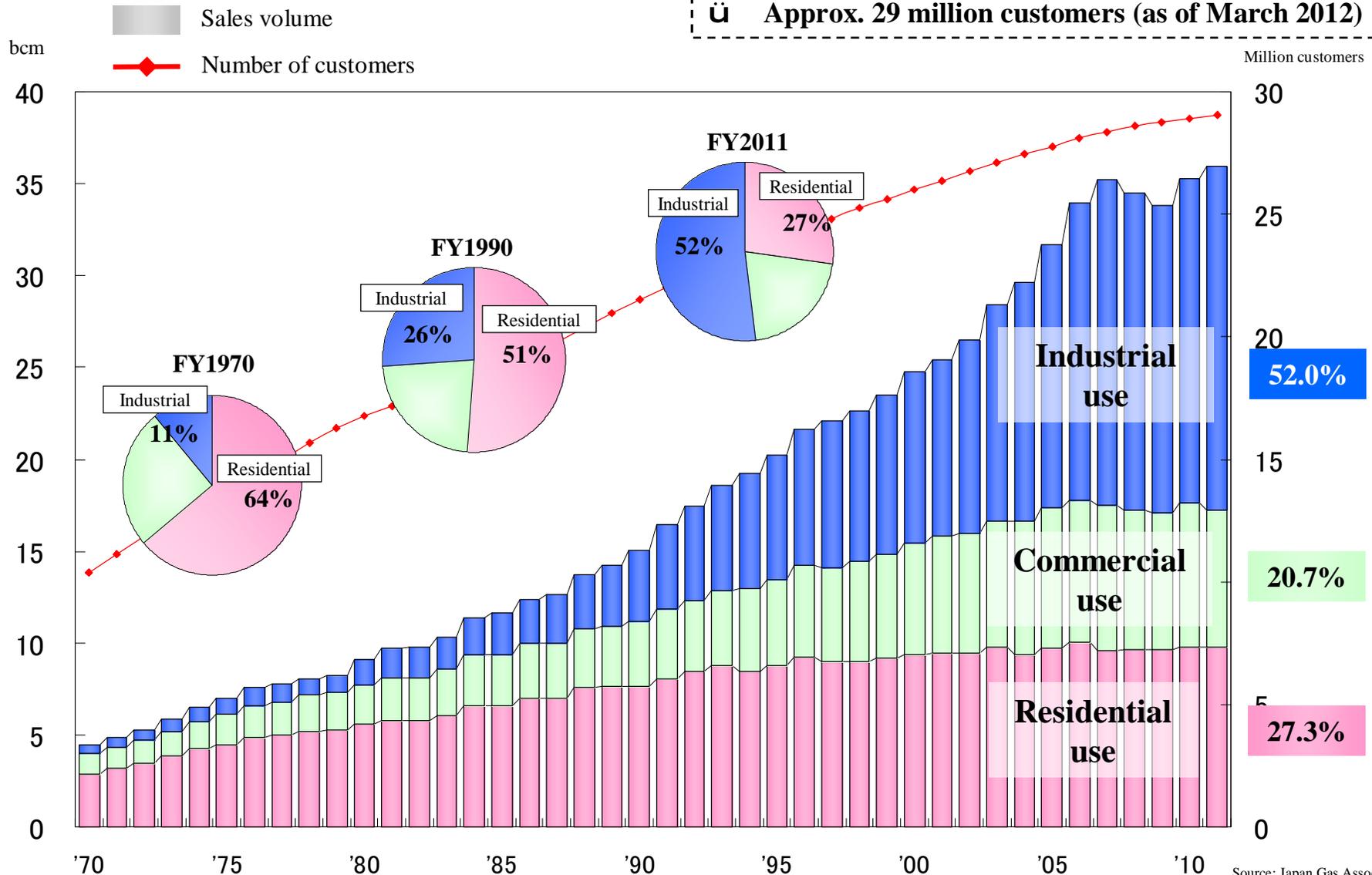
- ü 209 city gas utilities
- ü City gas is available only in 5% of the country



(1)-2 Overview of the city gas business (Sales volume)

City gas sales trends in Japan

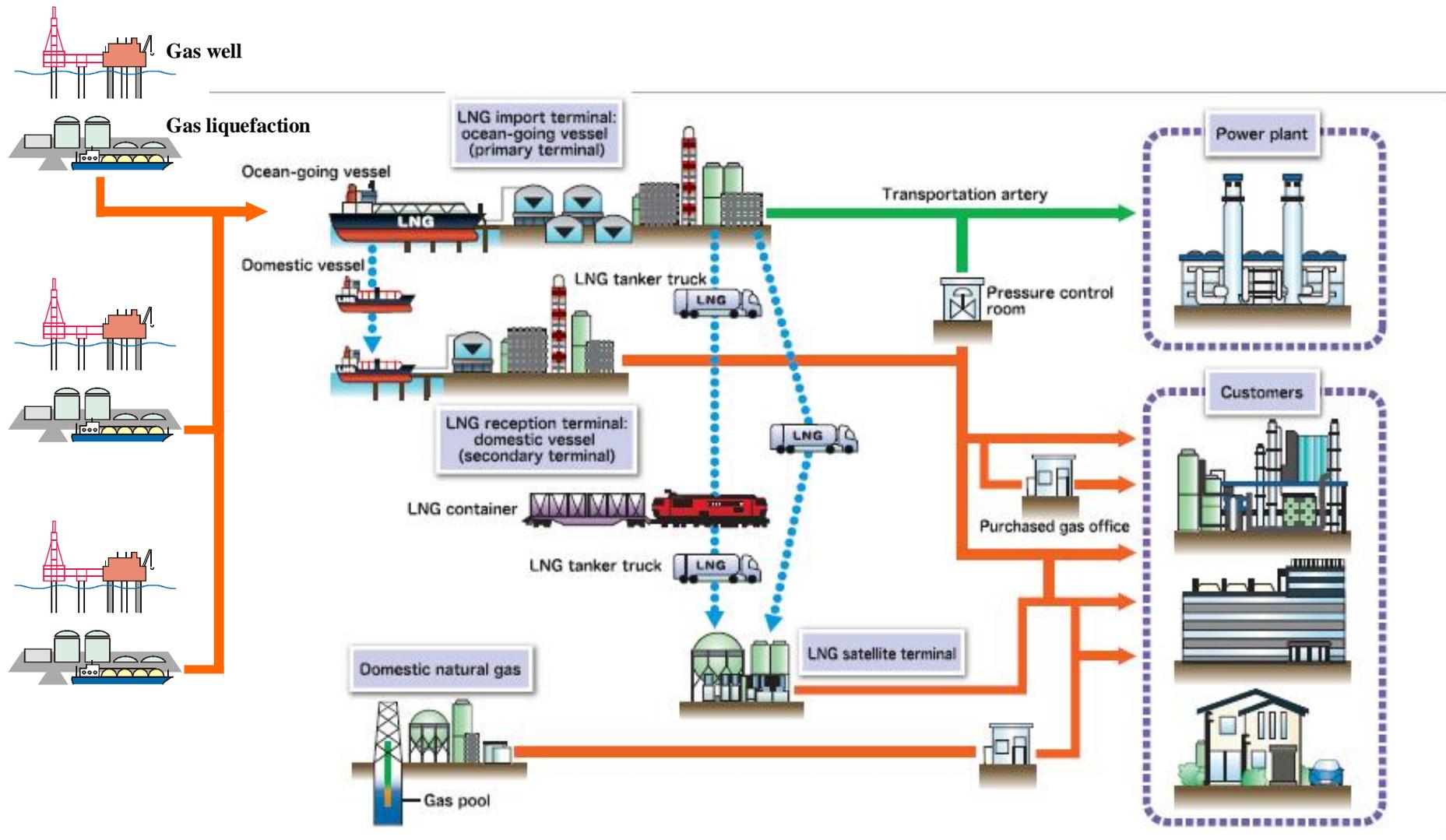
◌ Sales volume: 35.9 bcm (FY2011)
 ◌ Approx. 29 million customers (as of March 2012)



Source: Japan Gas Association

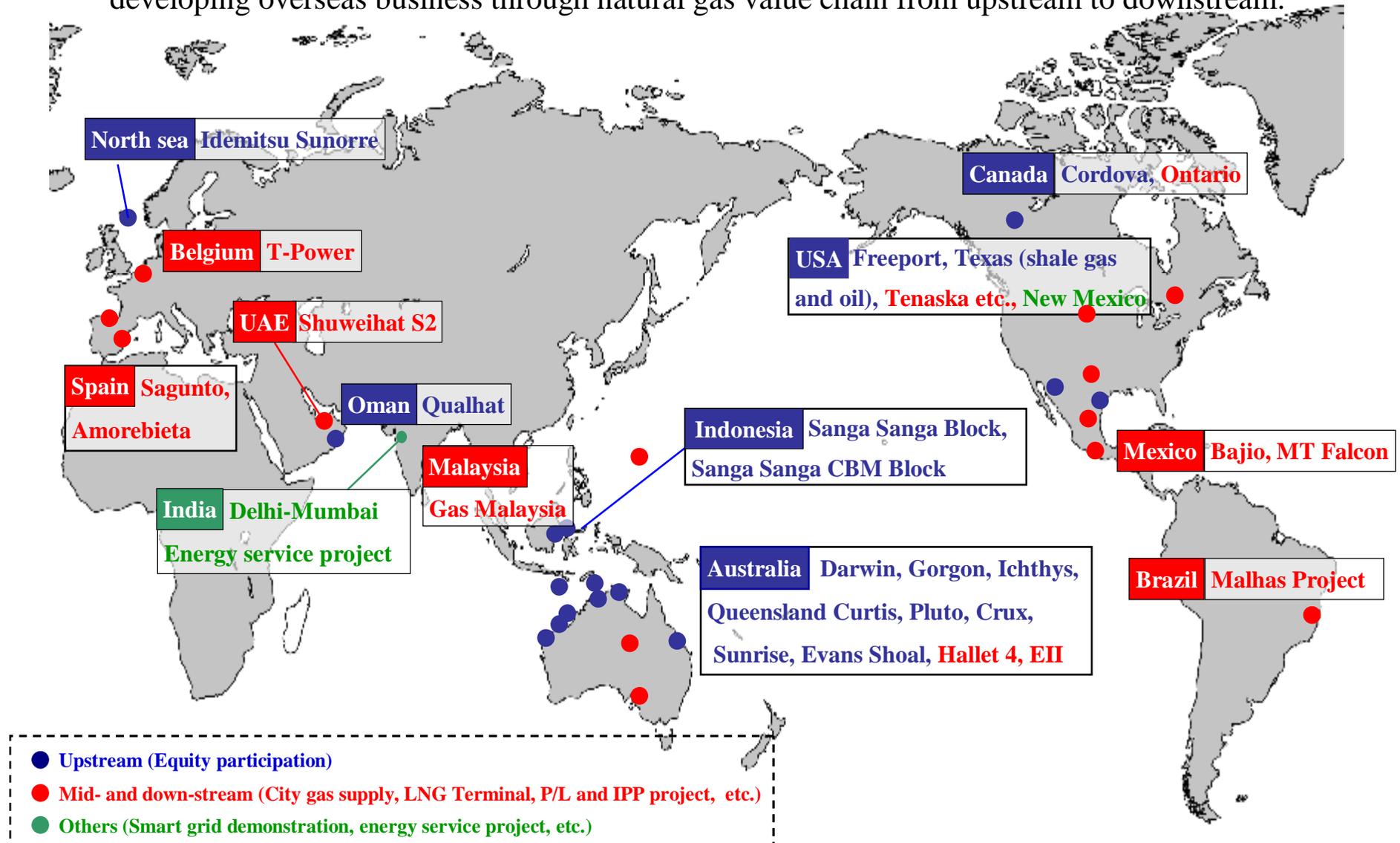
(1)-3 Overview of the city gas business (Company supply flow)

Gas utilities in Japan handle everything from the production of city gas through to supply and sales.



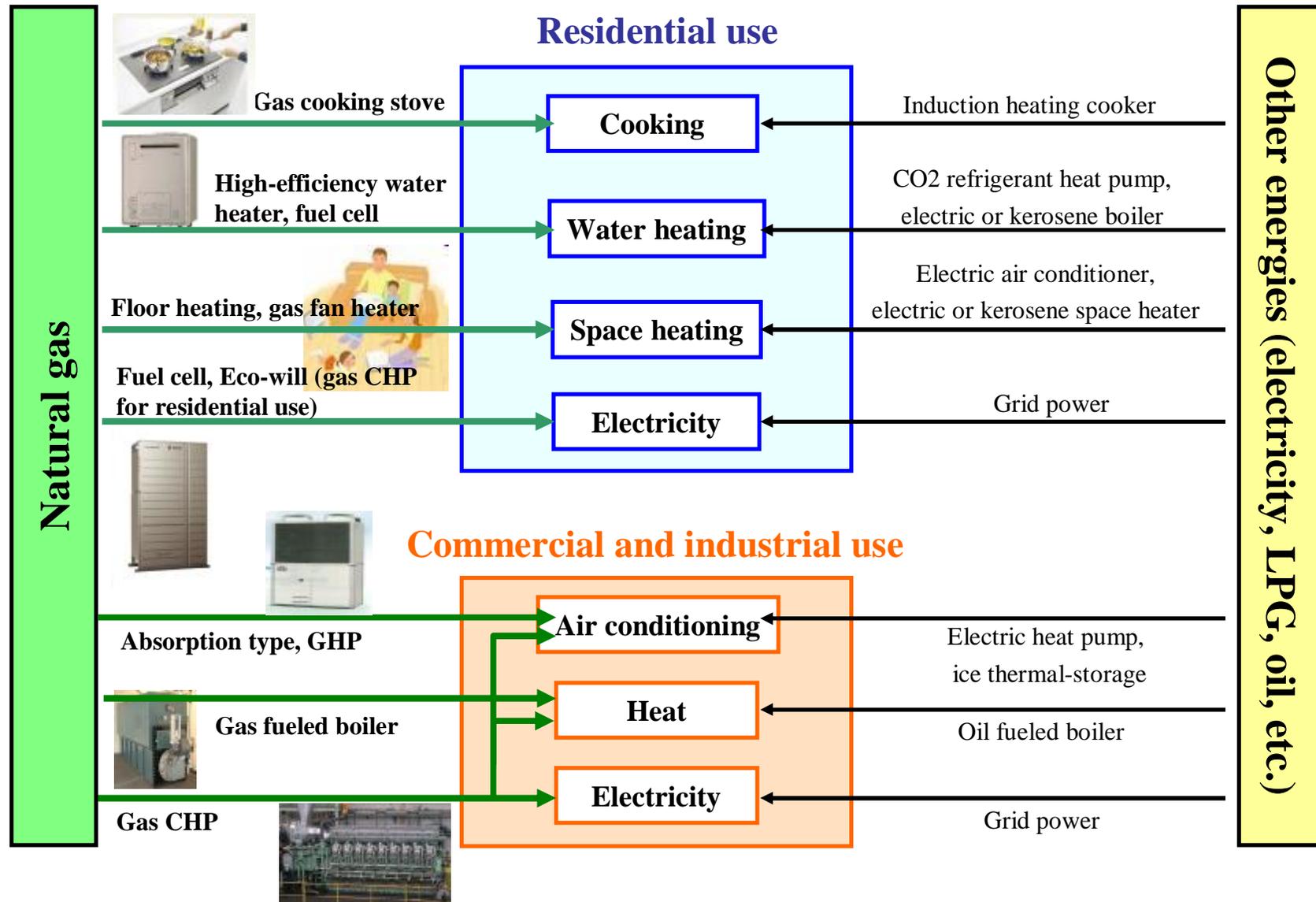
(1)-4 Overview of the city gas business (Development of overseas business)

Utilizing know-how and networks accumulated through gas business, leading gas companies are developing overseas business through natural gas value chain from upstream to downstream.



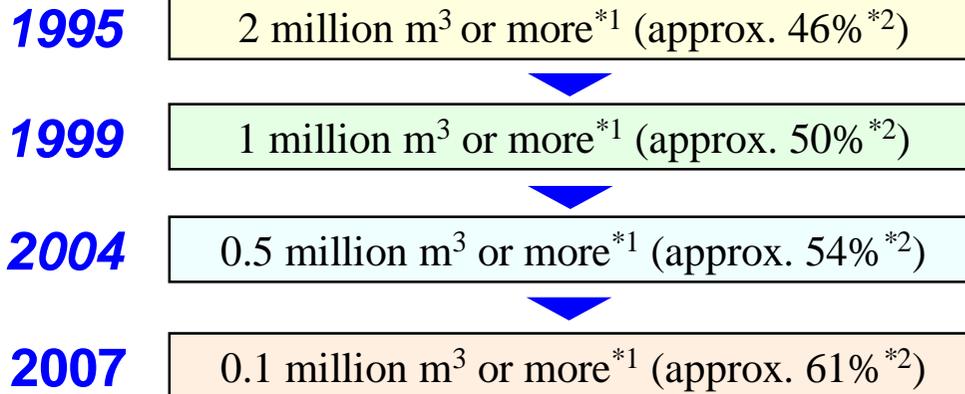
(2)-1 Environment surrounding the city gas industry (Competition)

Natural gas is in competition with other energies in every fields.



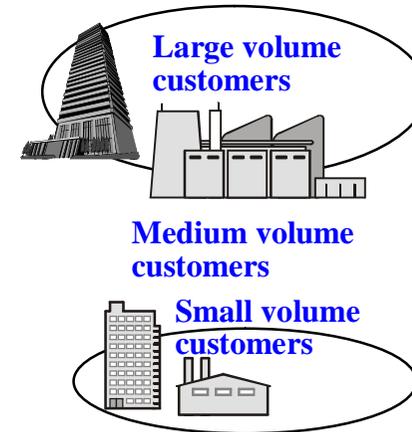
(2)-2 Environment surrounding the city gas industry (Market liberalization)

Liberalization of city gas retail market



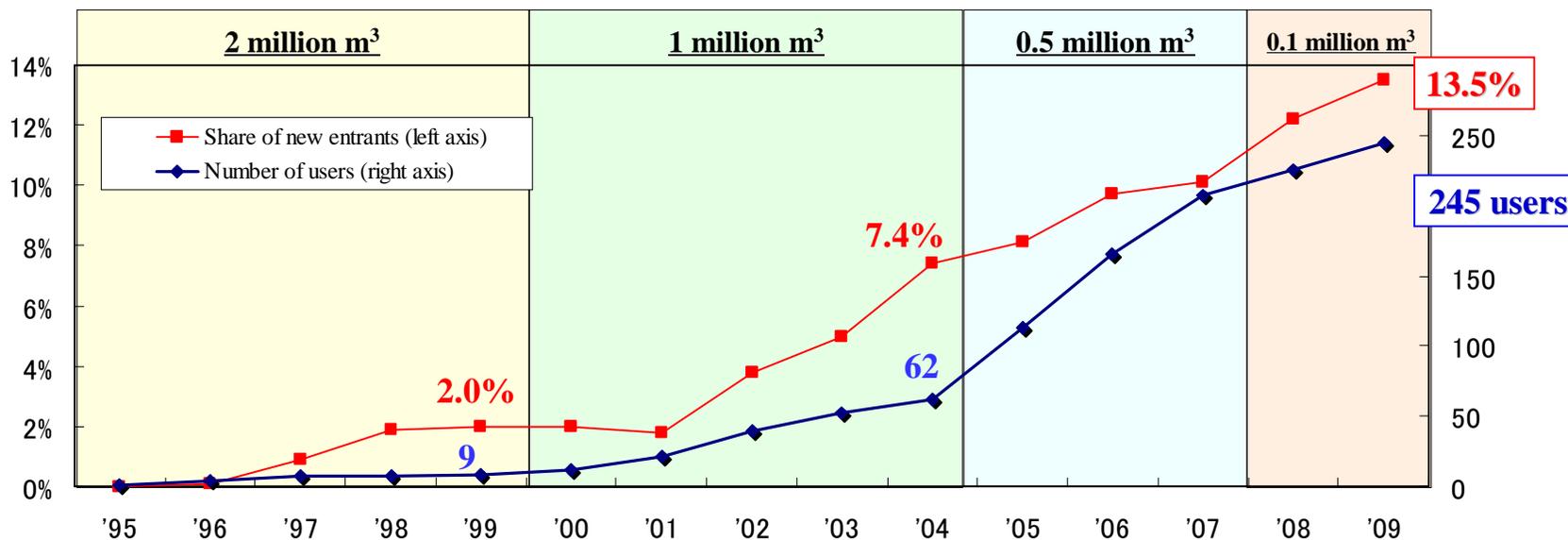
*¹ Annual contracted volume

*² Share of gas sales by large-volume supply among total gas sales by the ten major gas companies



Share of new market entrants

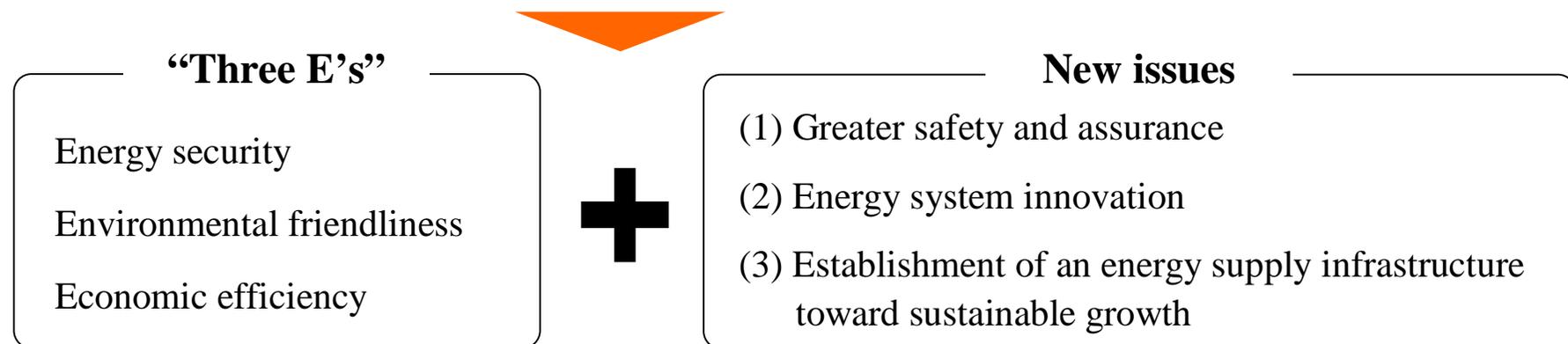
Source: Urban Heat Energy Committee, Feb. 2011



Energy policy issues since 3.11 and efforts by the city gas industry

Energy policy issues since 3.11

1. Electric power
 - Fukushima nuclear power plant accident
 - Major electric power supply shortage due to halting of nuclear power plant operation across Japan
2. Petroleum
 - Shortages of gasoline and kerosene, etc. , in and around disaster areas
3. Gas
 - Supply stopped due to damage from tsunami to LNG receiving and satellite terminals



City gas industry's efforts to address medium- to long-term issues

- (1) Promoting a shift to natural gas and advanced uses
- (2) Expanded use of distributed energy systems
- (3) Building next-generation energy systems

(1) Promoting a shift to natural gas and advanced uses

Efforts in industrial use sector

Shift to natural gas enabled by carrying out advanced use engineering.

Sales and marketing

Thermal measurement and energy diagnosis at user sites



Maintenance

Maintenance and regular inspections
Response to failure and trouble



Technology development

Burner device prototype
Combustion simulation



(2) Expanded use of distributed energy systems

Advantages of natural gas cogeneration and fuel cells

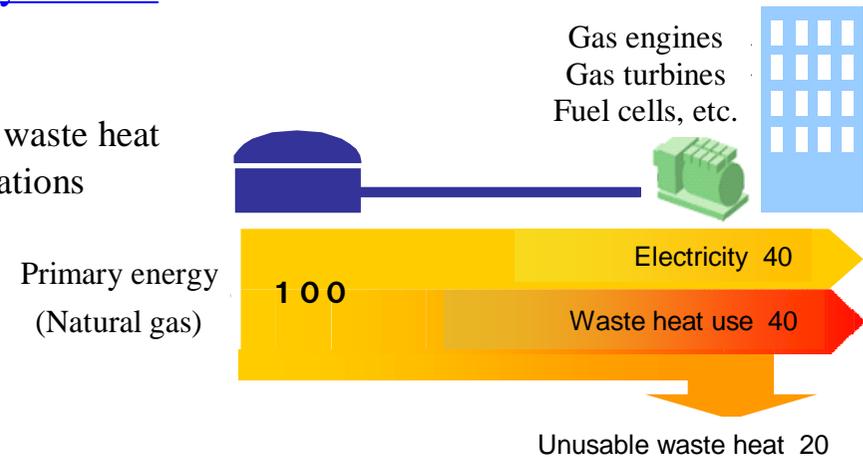
(a) Greater energy security from having multiple energy sources

(b) Outstanding energy efficiency

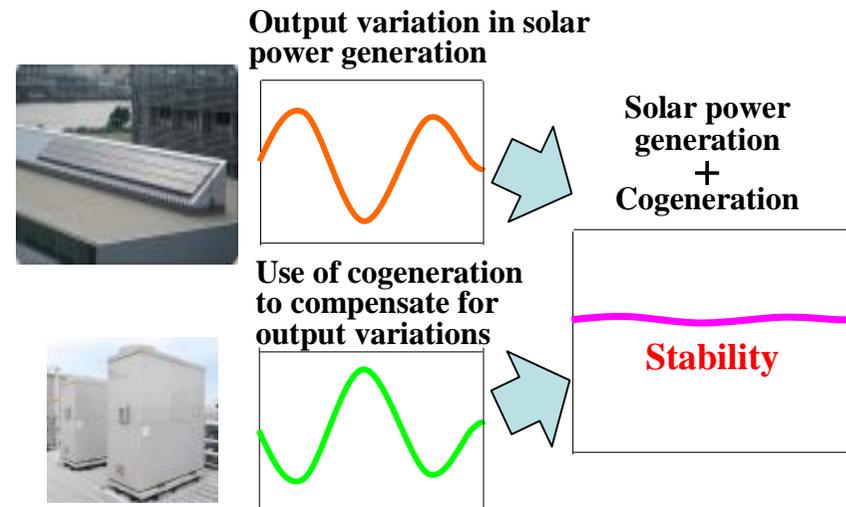
- High supply efficiency achieved by making effective use of waste heat
- Help to lower peak of grid power demand and reduce fluctuations

(3) Affinity with renewable energy

- Expansion of renewable energy use made possible by stabilization of output (adjust for output variation in renewable energy by controlling cogeneration operation)

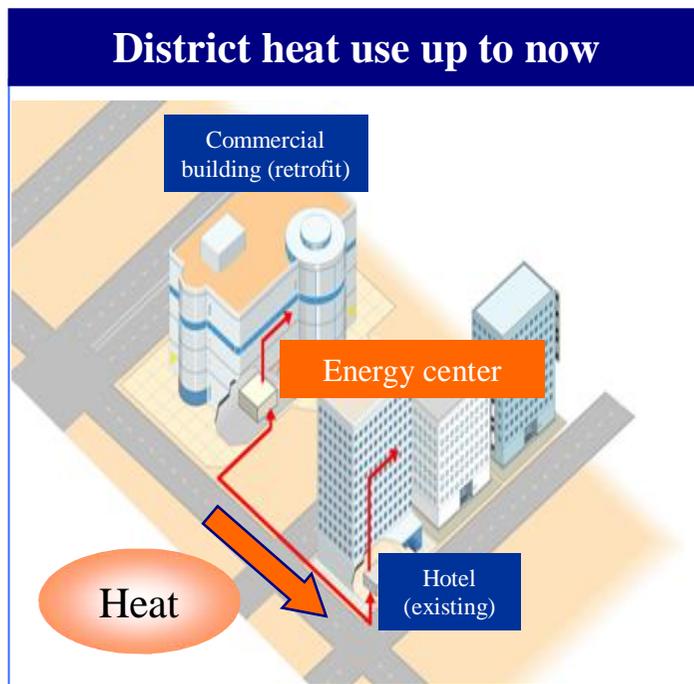
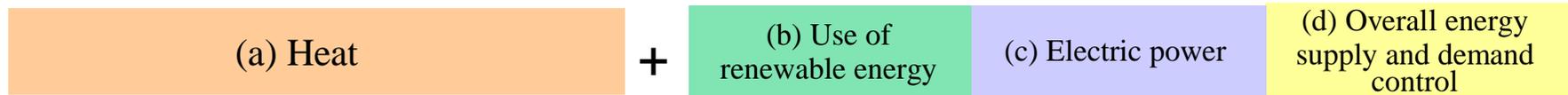


Wider variation of cogeneration systems



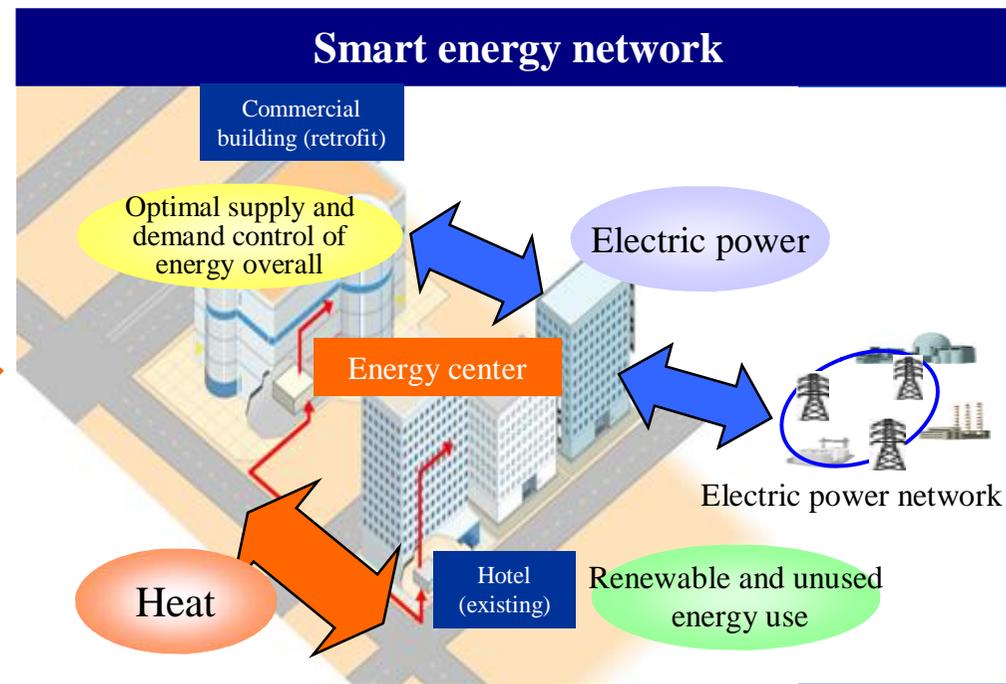
(3) Building of next-generation energy systems

Building comprehensive systems for effective use of energy, from local area heat use to renewable and unused energy use.



Energy saving rate 14.6%
CO2 reduction rate 19.2%

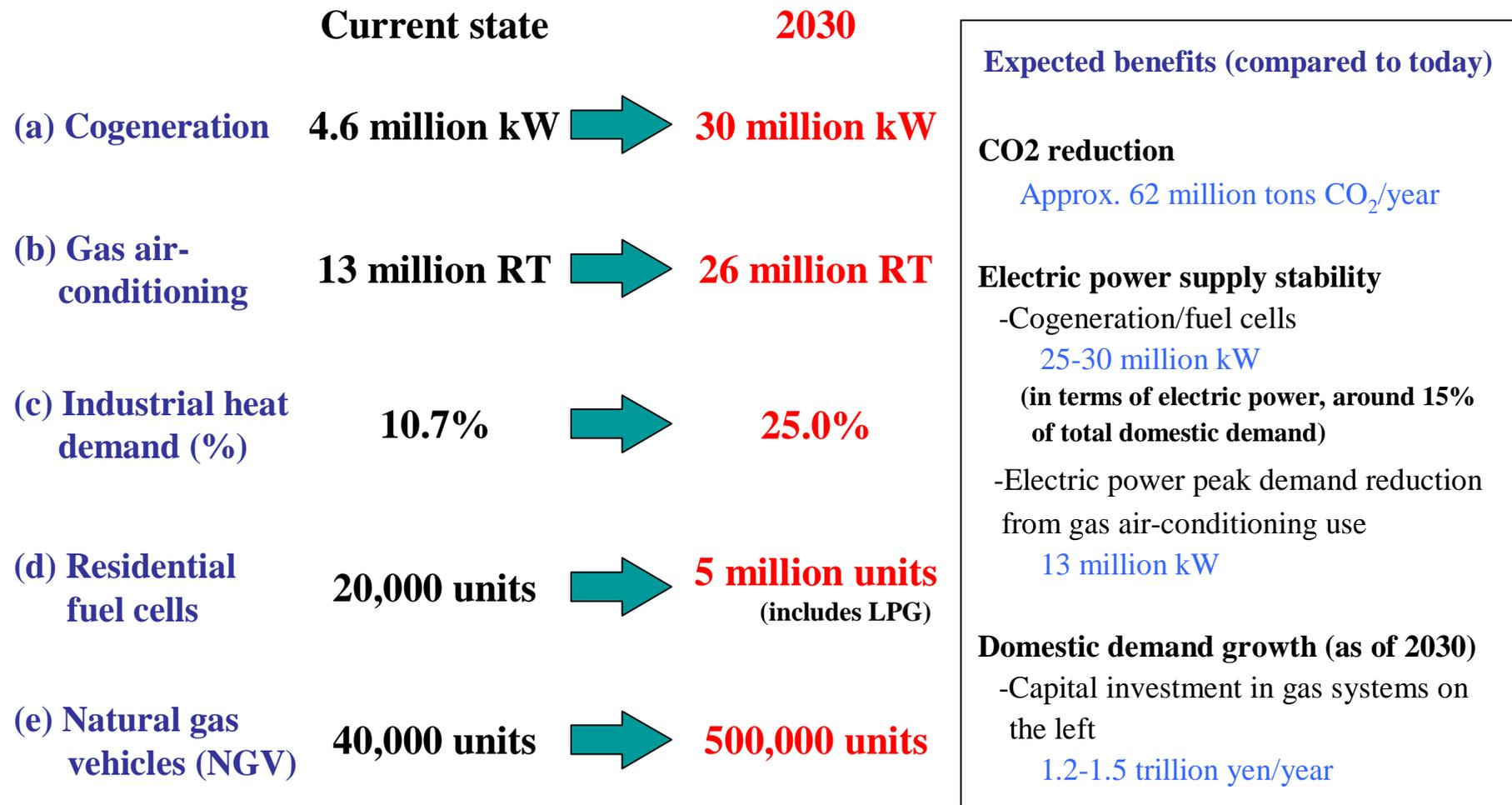
(Planned values at model project introducing district energy networks [model project implemented at six locations])



Energy saving rate 16.4%, CO2 reduction rate 30.2%
(Planned values for distributed energy optimization demonstration project)

Expansion of natural gas use to 2030

Assumes maximum penetration of various gas systems by 2030
(Japan Gas Association trial calculations)



Terima kasih di atas perhatian.

Thank you for your attention.

 **THE JAPAN GAS ASSOCIATION**