

# **Country Report**

## **- City Gas Industry in Japan -**

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# 1. Japan's National Energy Policies

(1) Current Energy Situation

(2) Current National Energy Policies

(3) Importance of Natural Gas

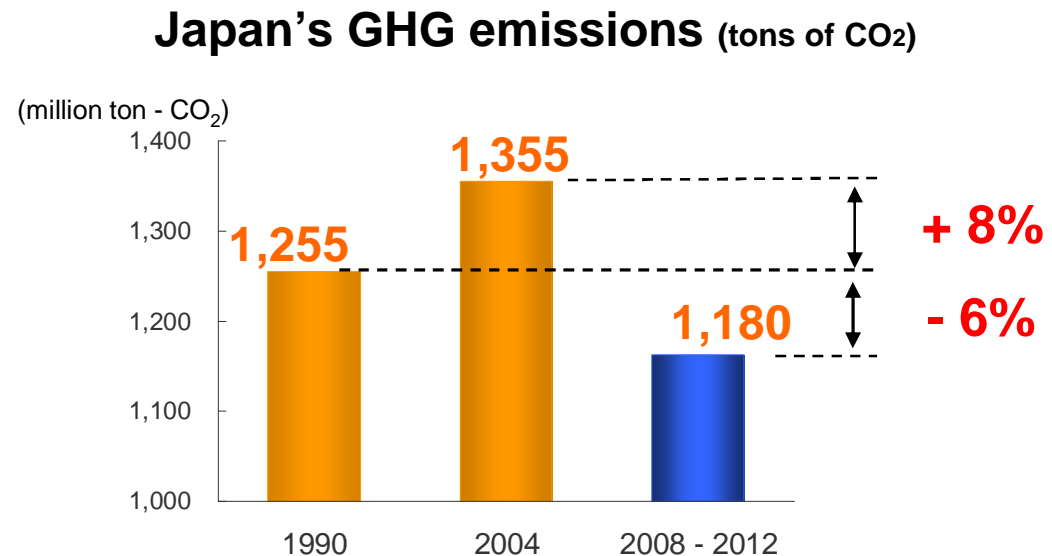
# (1) Current Energy Situation

## a) Surge in energy prices

- Structural changes in the global energy market
- Growing instability in the energy production & supply chain

## b) Kyoto Protocol

- Obligation of GHG reduction
- Rising CO<sub>2</sub> emissions



Source : Ministry of Environment's website

## (2) Current National Energy Policies

- June 2006 : New National Energy Strategy
- October 2006 : Basic Plan for Energy Supply and Demand



### Objectives:

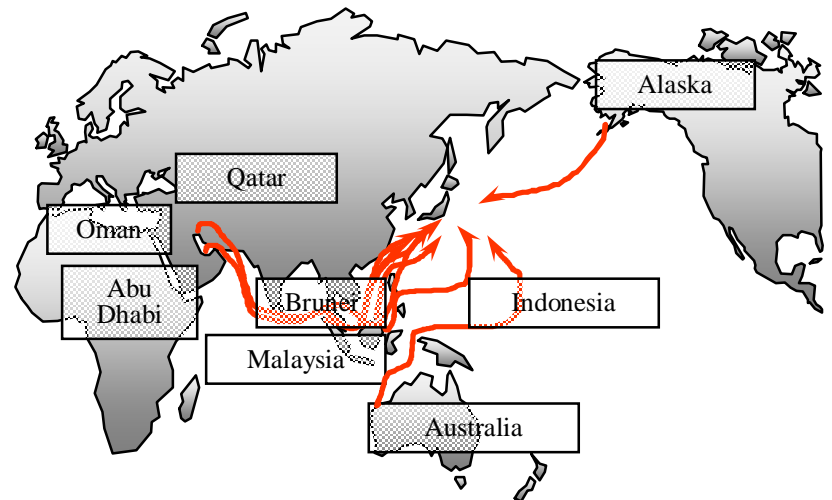
- Establish energy security
- Promote energy saving

# (3) Importance of Natural Gas

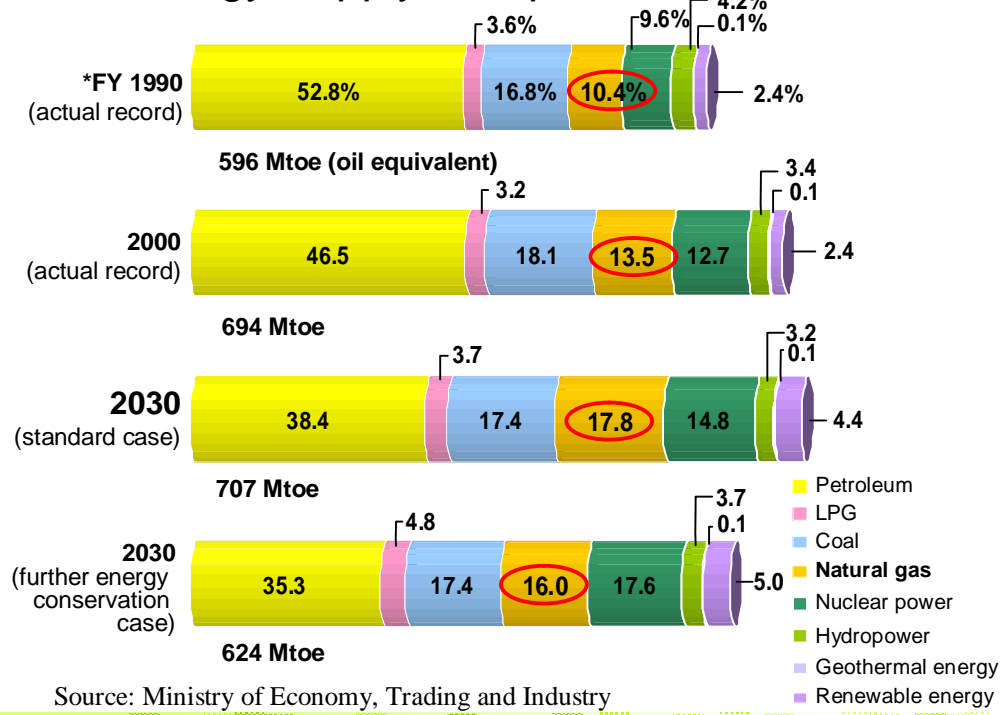
## Advantages of natural gas

- Widespread and rich reserves in various regions
- Lowest emission among other fossil fuels

- Current LNG Projects for Japan



- Trend and Outlook of Total Primary Energy Supply in Japan



Source: Ministry of Economy, Trading and Industry

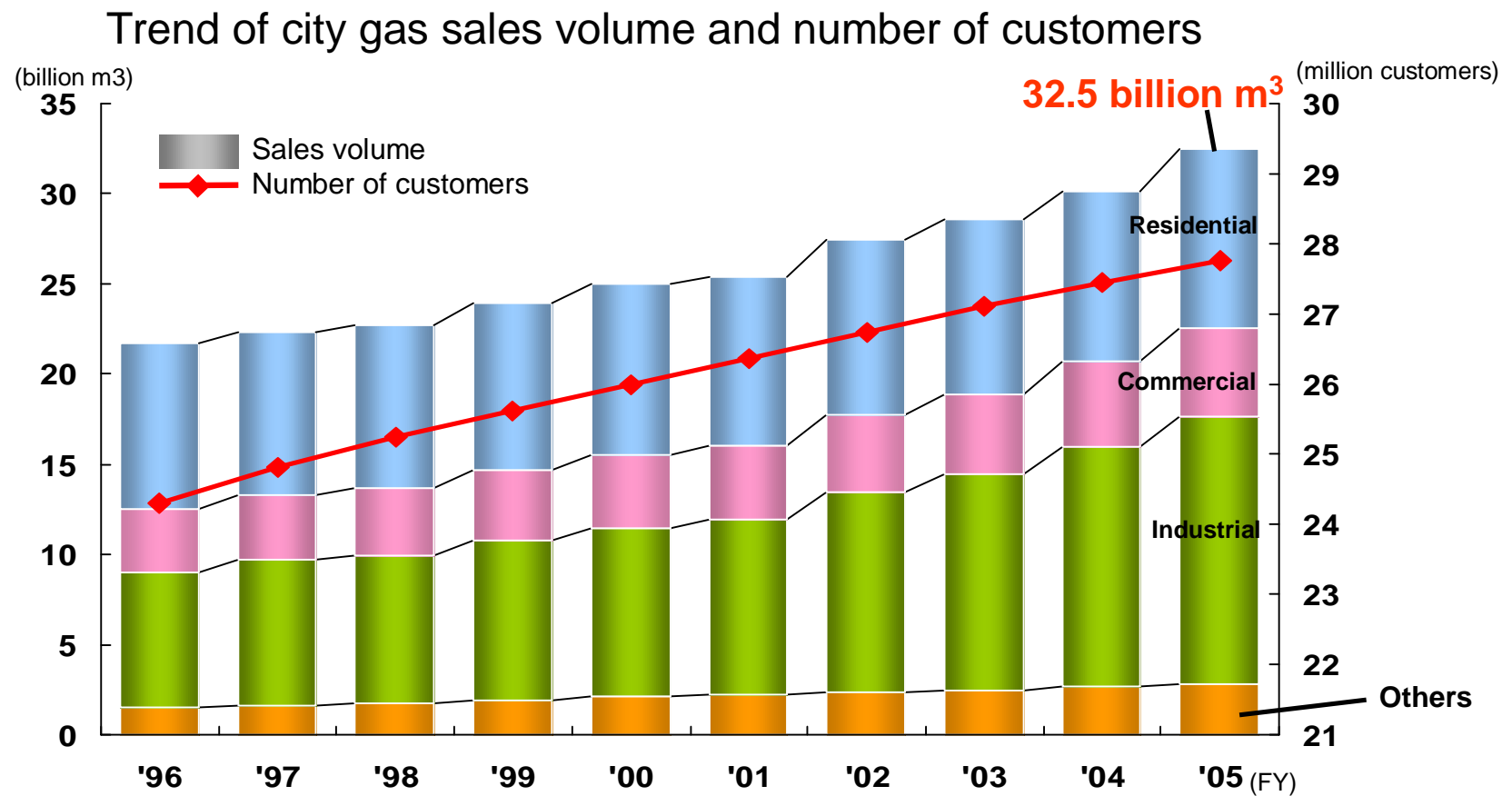
\*Fiscal year = from April 1 to March 31

## 2. Current Situation of Japan's City Gas Industry

- (1) Current Status of City Gas Market
- (2) Progress of Regulatory Reform in the City Gas Industry
- (3) Challenges -- Inter-energy Competition

# (1) Current Status of City Gas Market I

- Sales volume and number of customers



Source: The Japan Gas Association

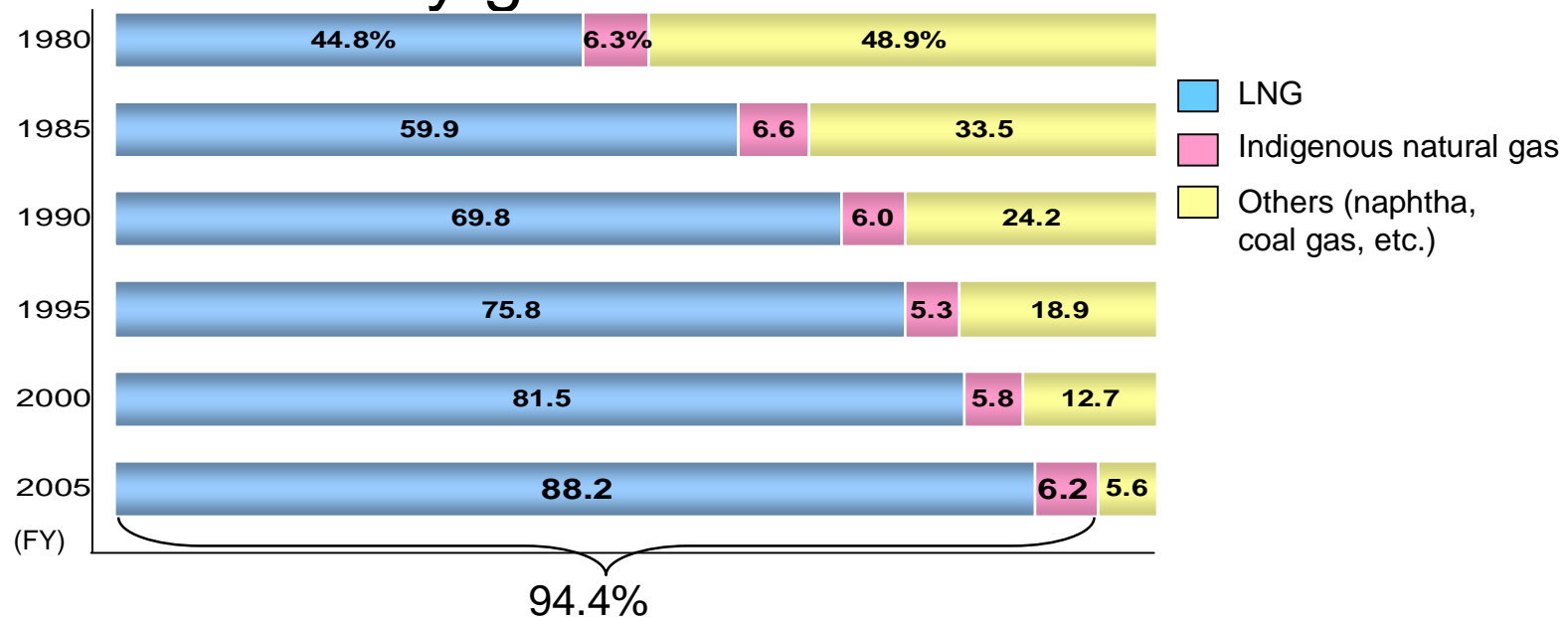
# (1) Current Status of City Gas Market II

- Number of natural gas distribution utilities

(As of June 30, 2006)

Private	Municipal	Total
176	34	210

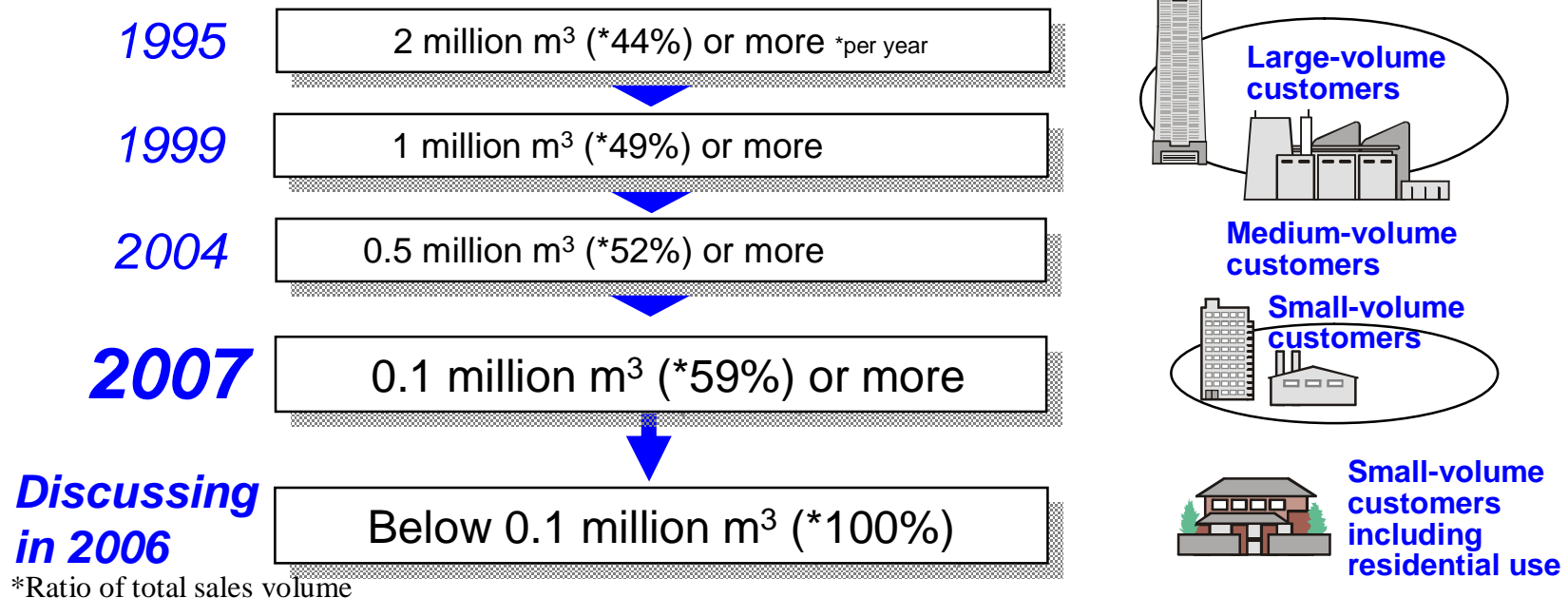
- Ratio of city gas resource



Source: The Japan Gas Association

# (2) Progress of Regulatory Reform

## • Retail Liberalization



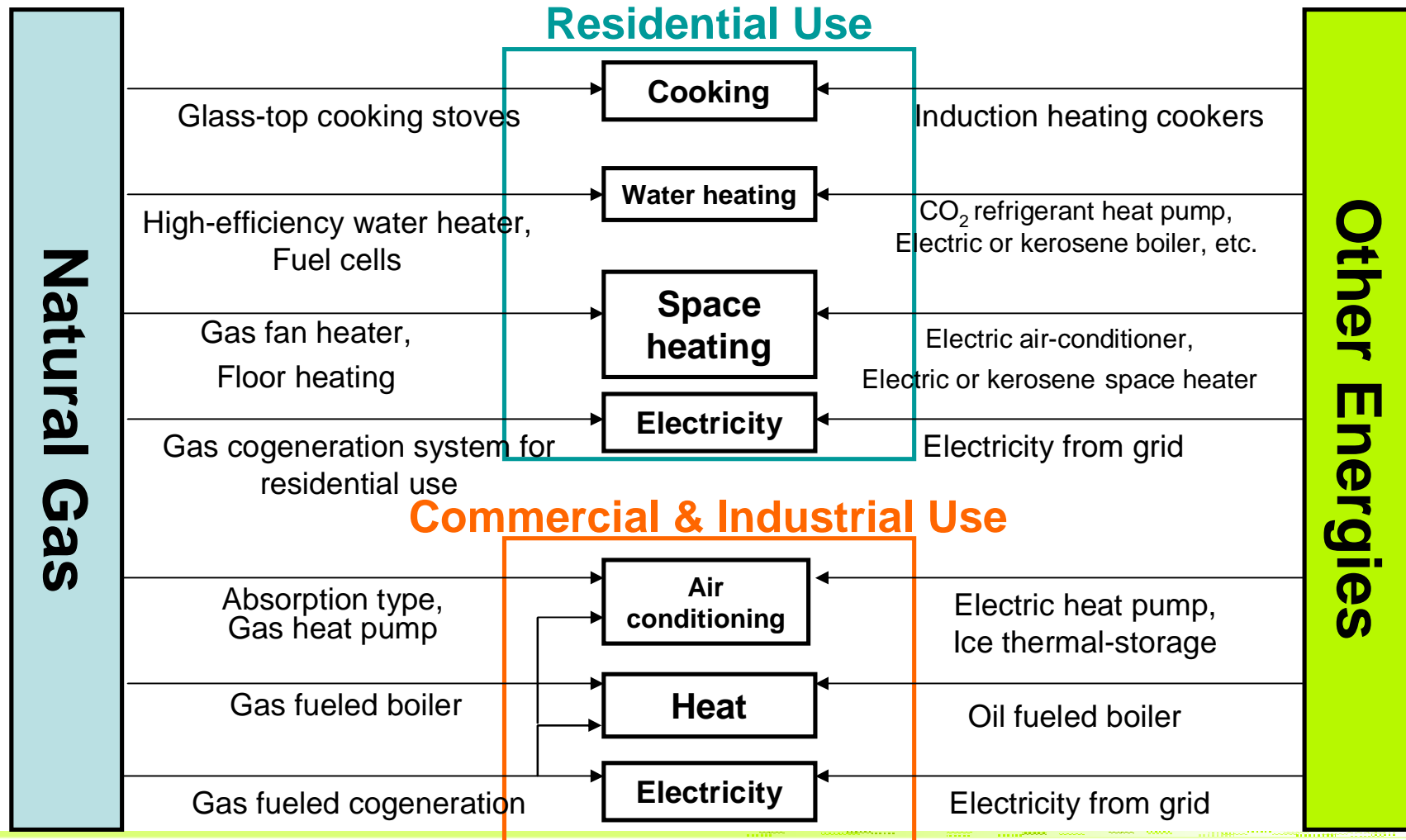
## • Ratio of new entrants' sales volume in liberalized market

8.0% (21 utilities, 108 sites)

(as of March 2006)

# (3) Challenges --- Inter-energy Competition

**Fierce competition especially with electricity in each sector**



# 3. Countermeasures by City Gas Utilities

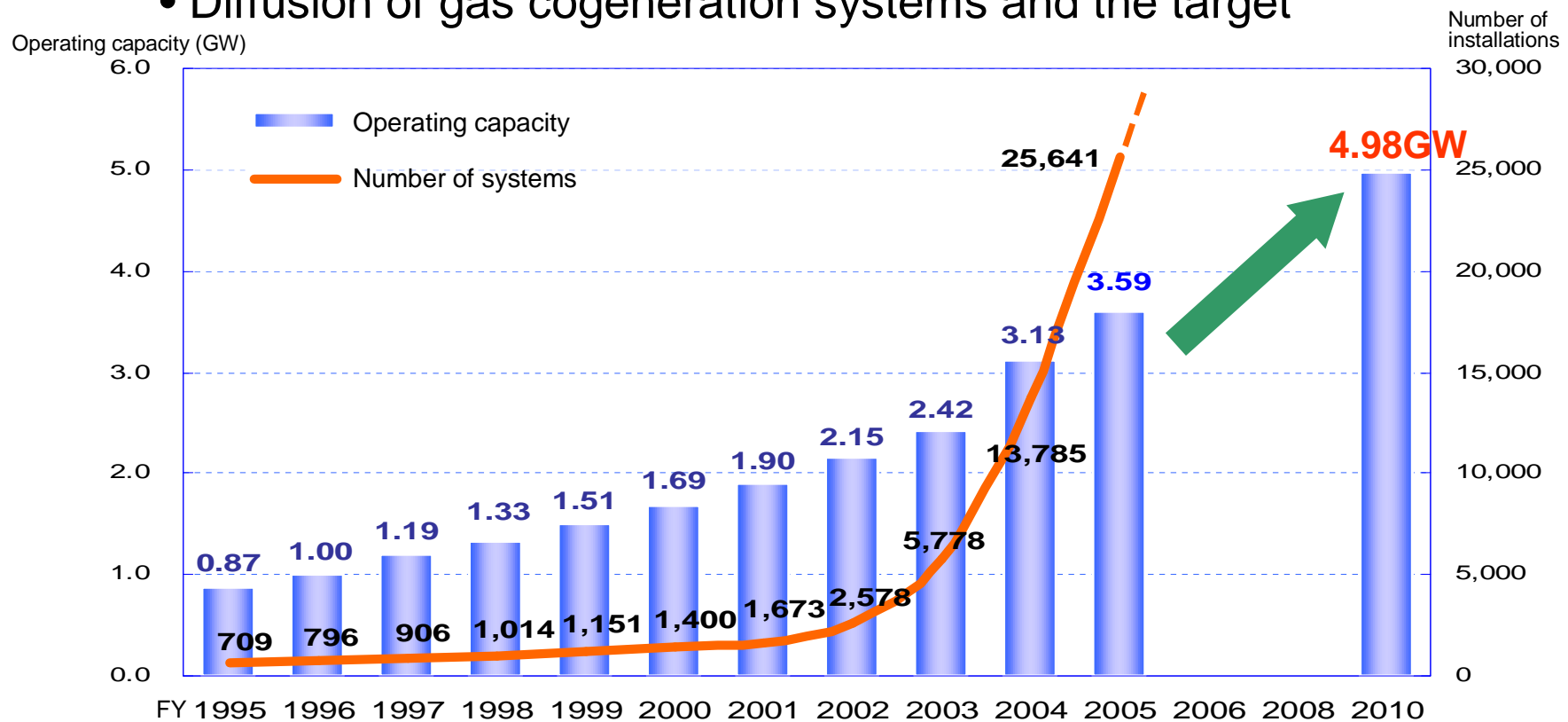
(1) Market Cultivation

(2) Establishment of Supply Safety

# (1) Market Cultivation I

## - Natural gas fired cogeneration

- Diffusion of gas cogeneration systems and the target



\* Steam turbine not included

\* The target includes fuel cell cogeneration

Source: The Japan Gas Association

# (1) Market Cultivation II

## - Residential cogeneration

- “Eco-Will,” 1kW gas fueled engine cogeneration system
- Energy efficiency: 85%  
(Generating efficiency: 20%, Exhaust heat recovery: 65%)
- Target: 235 thousand units in 2010



# (1) Market Cultivation III

## - Fuel cell

- Target: 2.2 GW (including 1.2 GW for residential use) in 2010
- Apr. '05: Tokyo Gas Co., Ltd. installed the world's first commercial PEFC.
- Efforts of gas companies and FC manufacturers:
  - Lower cost and higher durability
- R&D for SOFC

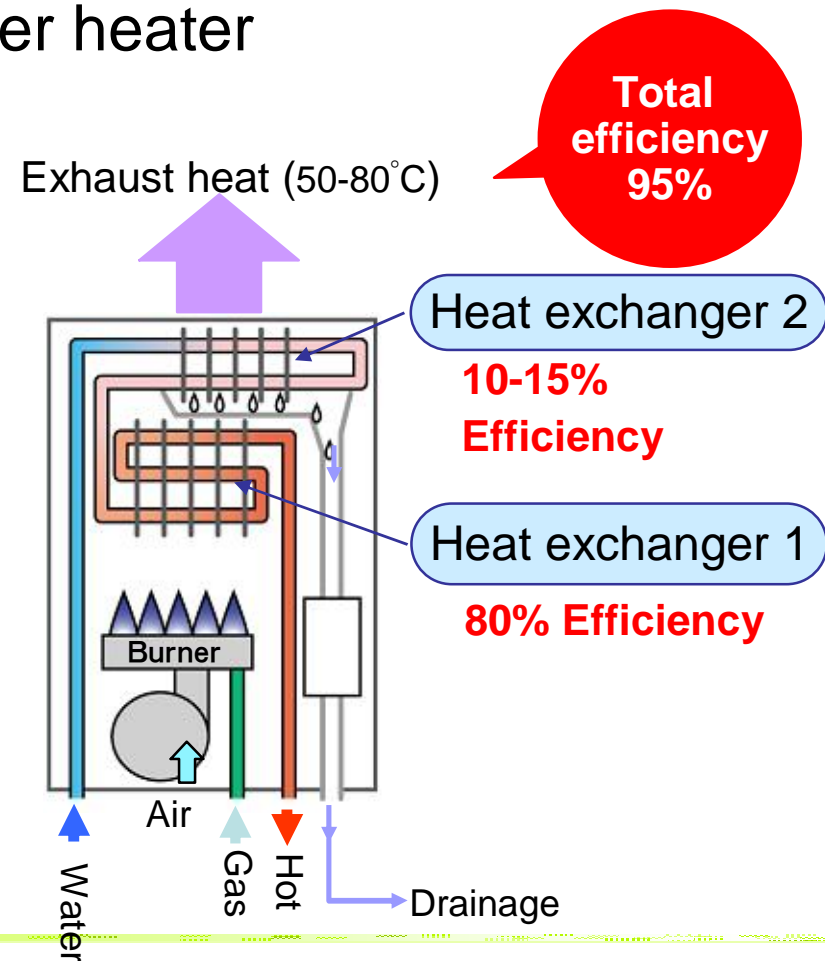


Panasonic Model (1 kW PEFC)

# (1) Market Cultivation IV

## - Residential High-efficiency water heater

- “Eco-Jozu,” a condensing water heater
- Heat efficiency: 95%
- Target: 350 million units in 2010

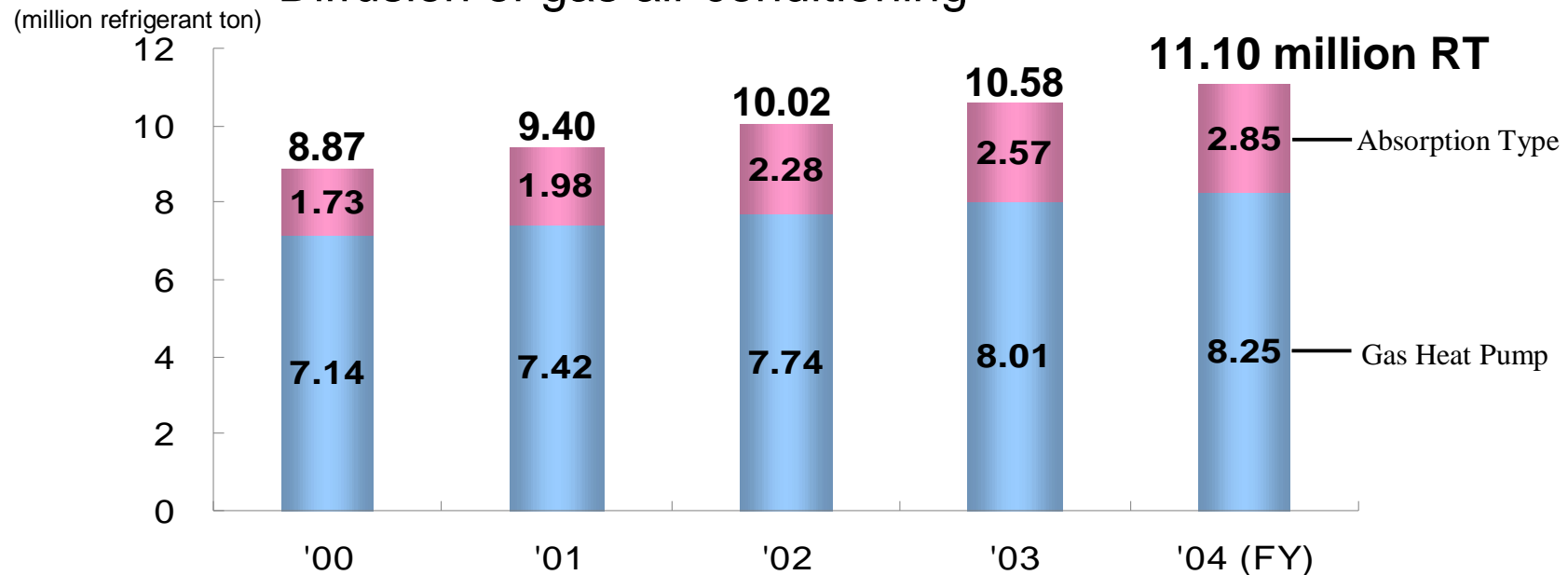


# (1) Market Cultivation V

## - Gas air conditioning

- 22.3% of the entire installed capacity of air conditioners nationwide (as of fiscal '04, excl. residential use)

- Diffusion of gas air conditioning

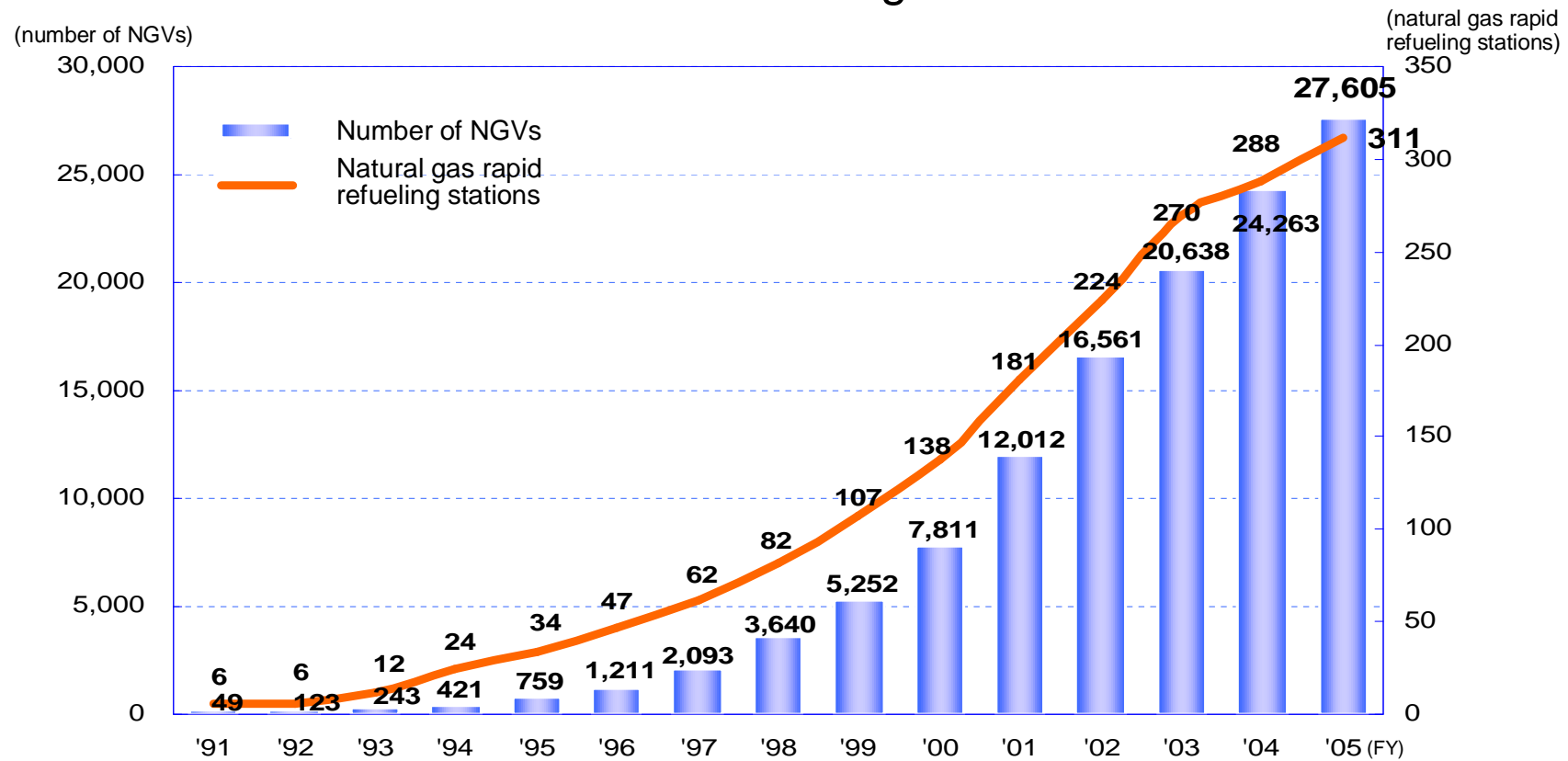


Source: Gas Facts in Japan

# (1) Market Cultivation VI

## - Natural gas vehicle

- Diffusion of NGV and refueling stations



Source: Gas Facts in Japan

## (2) Establishment of Supply Safety

- Earthquake countermeasures
  - Facility measures :
    - PE pipe, Intelligent gas meter
- Standardization of safety devices
  - Flame failure prevention device
  - Small water heaters with a function to prevent incomplete combustion



Polyethylene pipe



Intelligent gas meter

### - Emergency measures :

- Area subdivision

### - Recovery measures :

- Establishment of quick relief system industry-wide



Image: Ultra-safe cooking stove

# Challenges of Our Natural Gas Business



**Thank You for Your Attention!**

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The Japan Gas Association