

GASEX2004 Member Economy Report
June 1, 2004

Advancement of the gas industry in Japan

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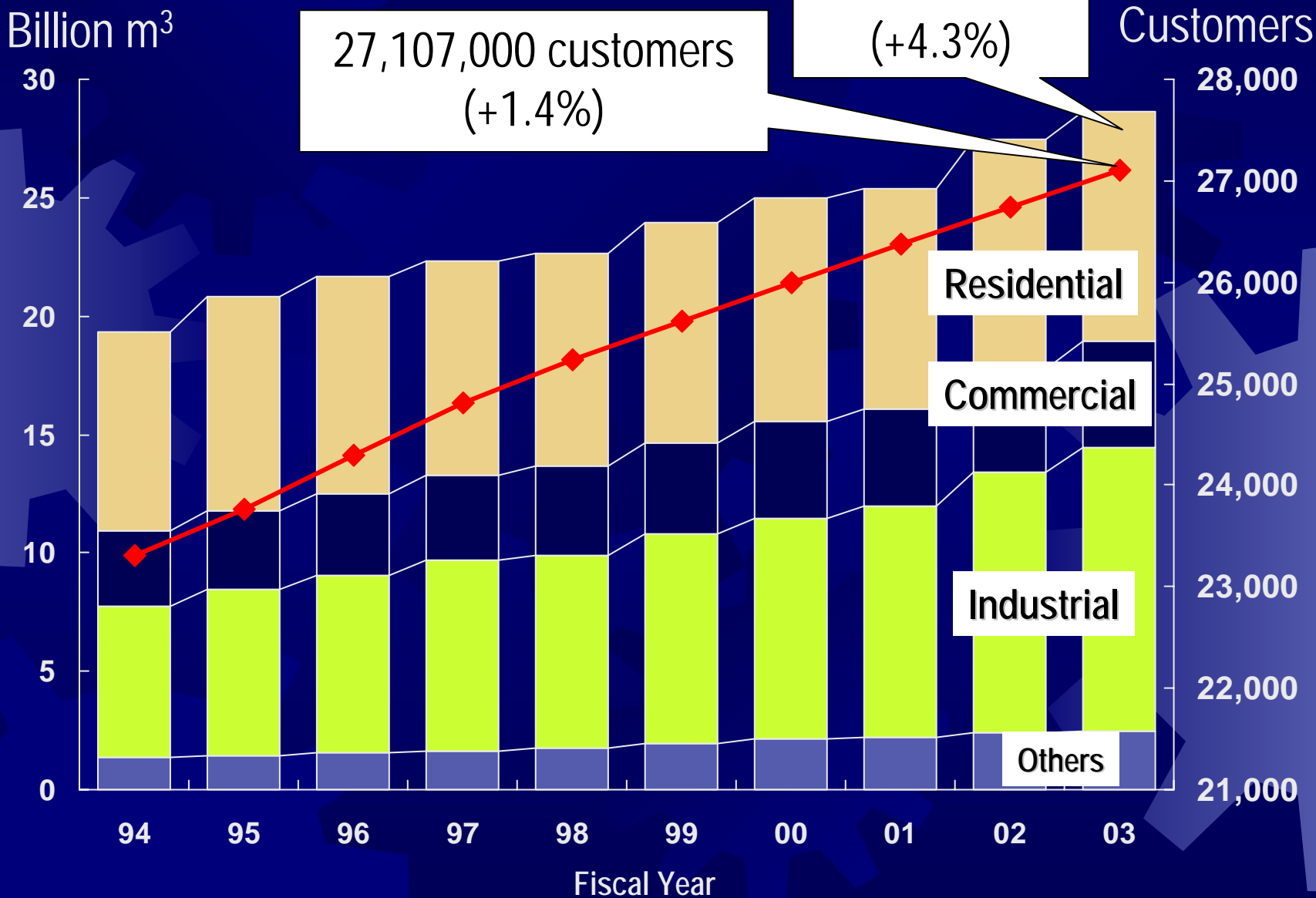
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Japan's Member Economy Report

- ✦ The current situation surrounding Japan's city gas industry
- ✦ Natural gas to play an increasingly important role in the energy policies
- ✦ What the city gas industry is doing for the advancement of natural gas

City gas sales volume and number of customers



Deregulation in the gas industry

- ✦ The Gas Utility Industry Law was amended in June 2003 and came into effect in April 2004.
- ✦ Major changes
 - ✦ Expansion of the large-volume gas market
 - ✦ Instatement of the third party access

Expansion of the large-volume gas market

	Liberalized gas market	Share
1995	2 million m ³ or more	19.7%
1999	1 million m ³ or more	33.3%
2004	0.5 million m ³ or more (500 thousand m ³ or more)	44% (projected)
2007	0.1 million m ³ or more (100 thousand m ³ or more)	50% (projected)

Expansion of the large-volume gas market

	Liberalized gas market	Share
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1999	1 million m ³ or more	33.3%
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2007	0.1 million m ³ or more (100 thousand m ³ or more)	50% (projected)

Authorization → Notification

Large-volume gas supply

	Within the service areas of city gas utilities	Outside the service areas of city gas utilities	Total
New comers (15)	44 cases	8 cases	52

Electric utilities, oil companies, the firms supplying indigenous natural gas and the trading firms

As of March 2004

Instatement of the third party access (TPA)

- ★ All companies owning or operating gas pipelines must provide open access to the pipelines.
- ★ All the companies must prepare, publish statements of their transportation terms and notify the authorities of them.



Long Term Energy Supply and Demand Outlook

	FY1999	%	FY2010	%
Oil	308	52.0	271	45
Coal	103	17.4	114	19
<i>Natural Gas</i>	<i>75</i>	<i>12.7</i>	<i>83</i>	<i>14</i>
Nuclear	77	13.0	93	15
Others	29	4.9	41	7
Total	593	-	602	-

Unit: million KLOE
As of July 2001

Acceleration of the shift to natural gas

- ★ The Basic Plan for Energy Supply and Demand in October 2003 calls for an acceleration of the shift to natural gas.
- ★ The Long Term Energy Supply and Demand Outlook is being reviewed.

Acceleration of the shift to natural gas

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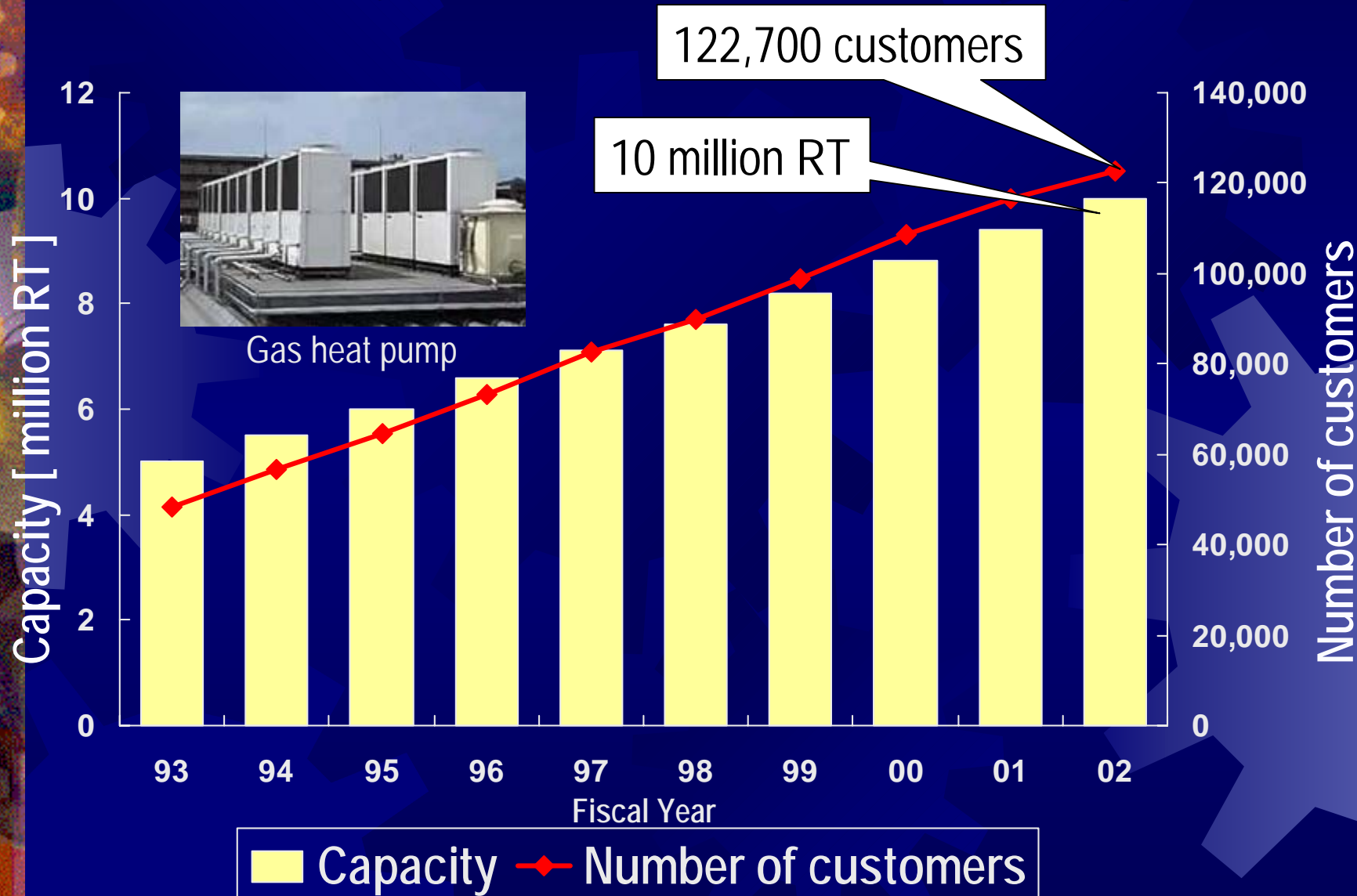
Japan's city gas industry earnestly hopes that an accelerated natural gas shift will be spelled out in numerical targets in the national energy policy.



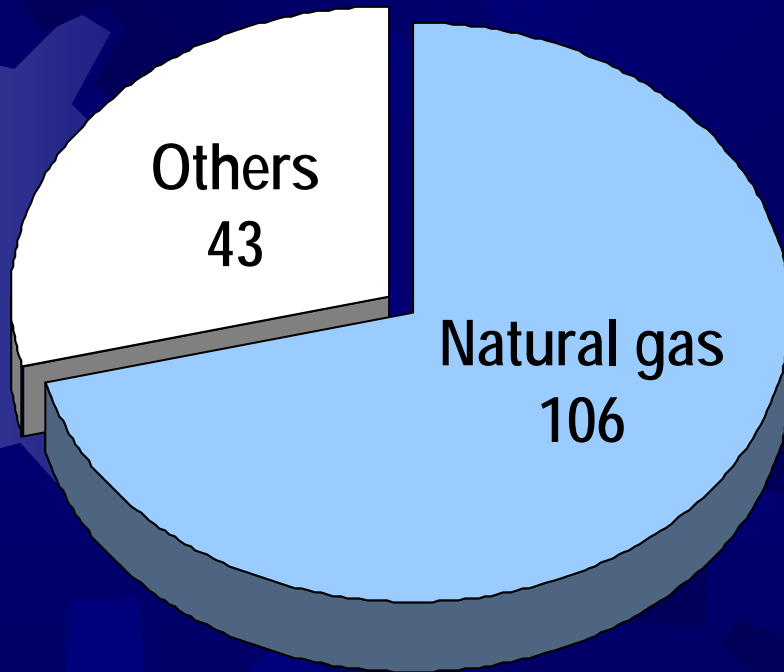
Development of the gas market

1. Gas-fueled air conditioners
2. Gas co-generation systems
3. Fuel cells
4. Natural gas vehicles

Gas-fueled air conditioners



District heating and cooling systems

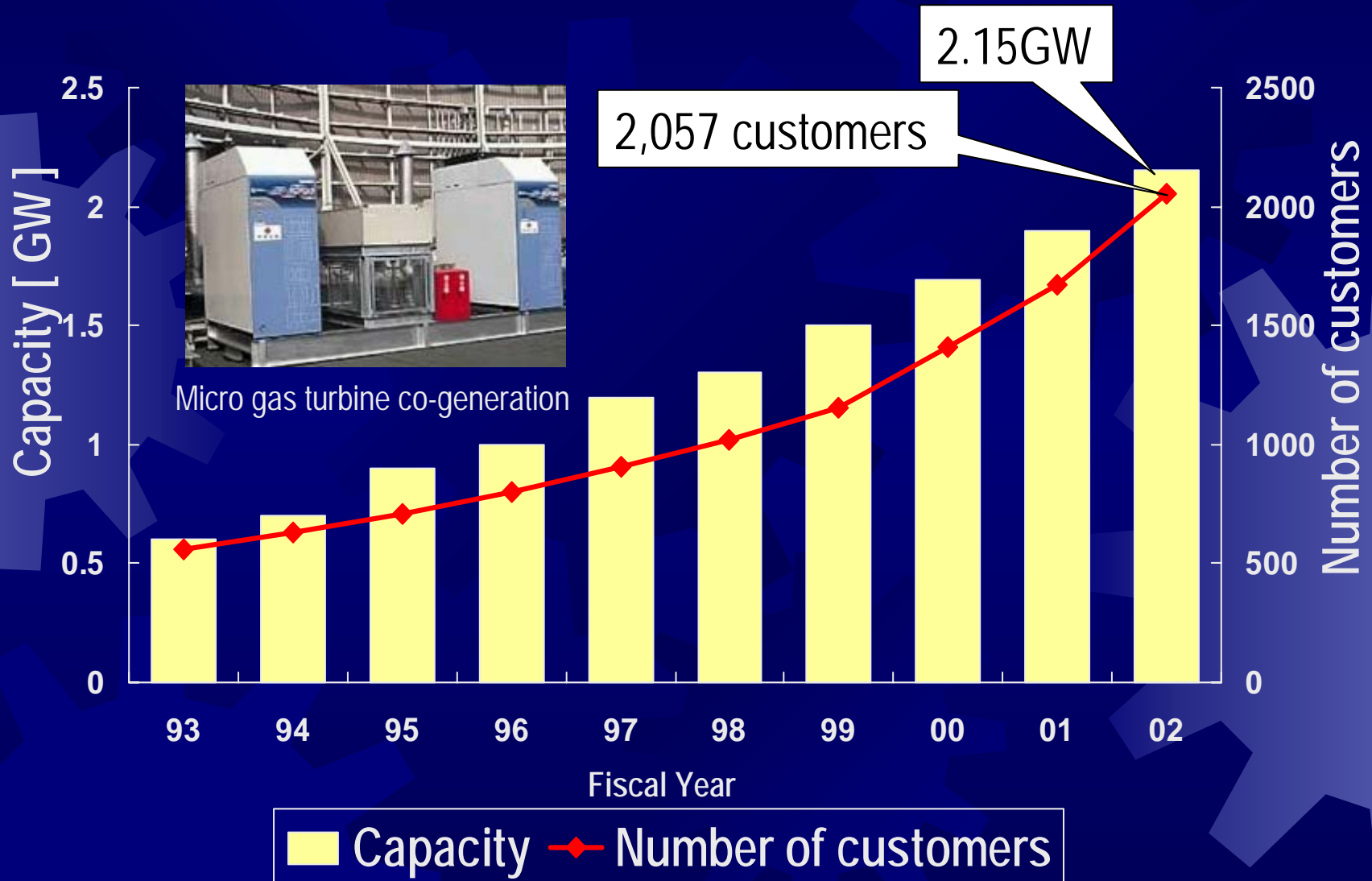


106 district heating and cooling systems fueled with natural gas



District heating and cooling system (Shinjuku, Tokyo)

Gas co-generation systems



Residential gas engine co-generation system



"Ecowill"

*Residential gas engine
co-generation system
in the 1 kW class*

Fuel cells

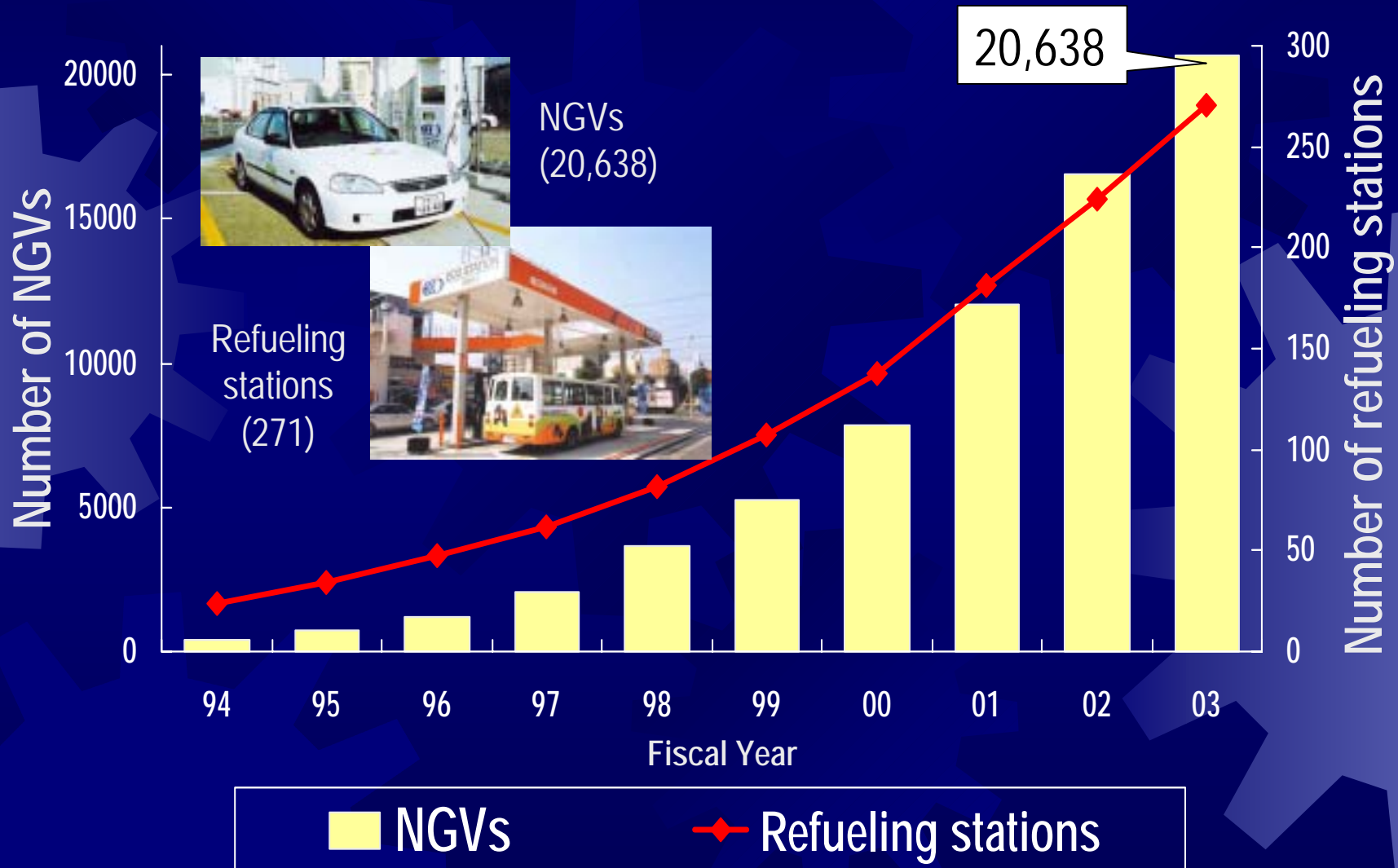
- ✦ Japanese city gas industry has been developing gas-fueled fuel cells since the late 1980s.
- ✦ The installed capacity of phosphoric acid models designed for business-use buildings reaches a cumulative total of more than 10,000 kW.
- ✦ Japanese gas utilities intend to inject small-capacity fuel cells for residential use applying polymer electrolyte models into the market around 2005.

2010 targets for Fuel cells in the national energy policy

	FY2002	FY 2010
Fuel cells	9,000 kW	2.2 GW <i>(2.2 million kW)</i>



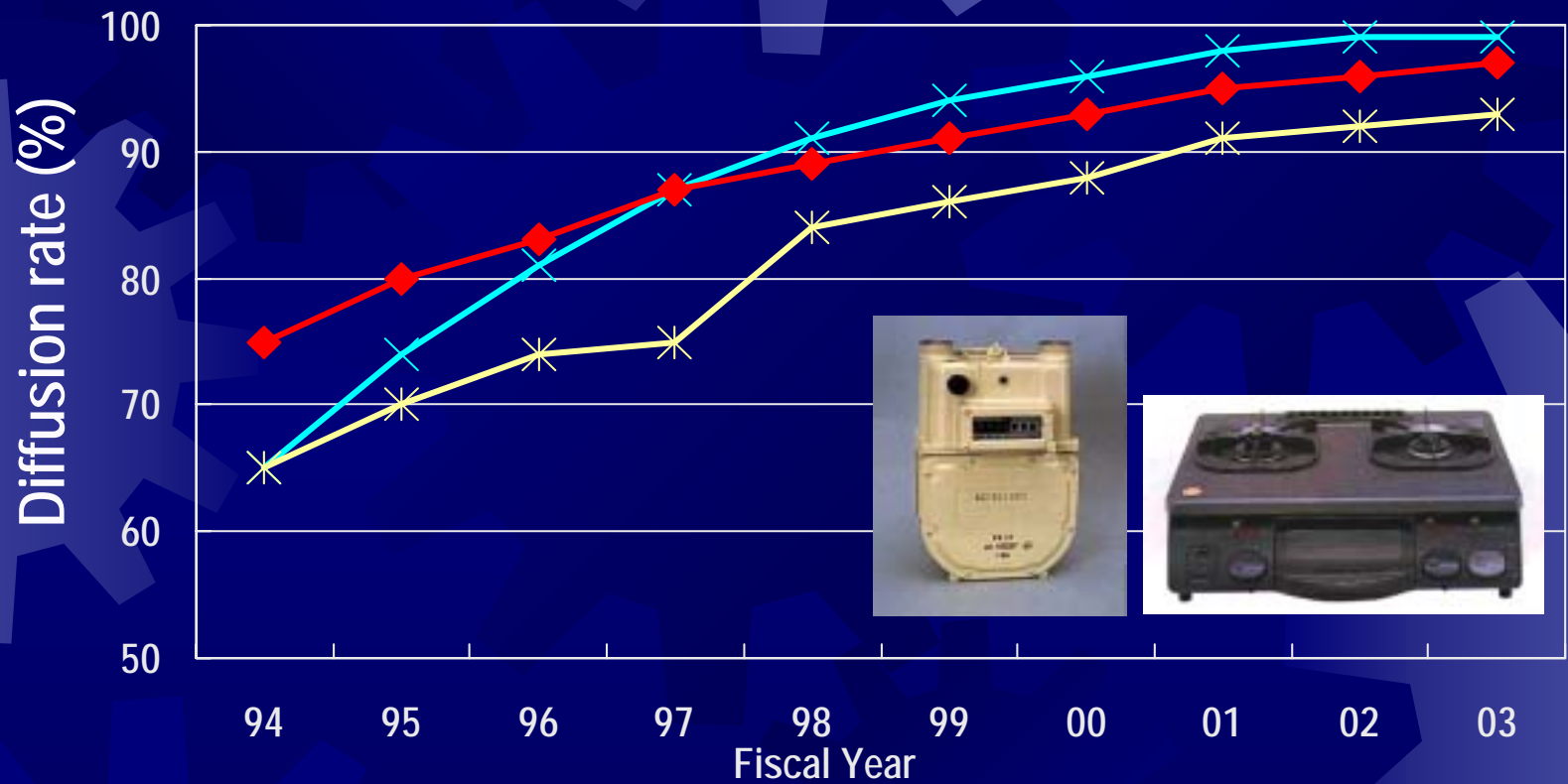
Natural Gas Vehicles



Strengthening of the gas industry foundation

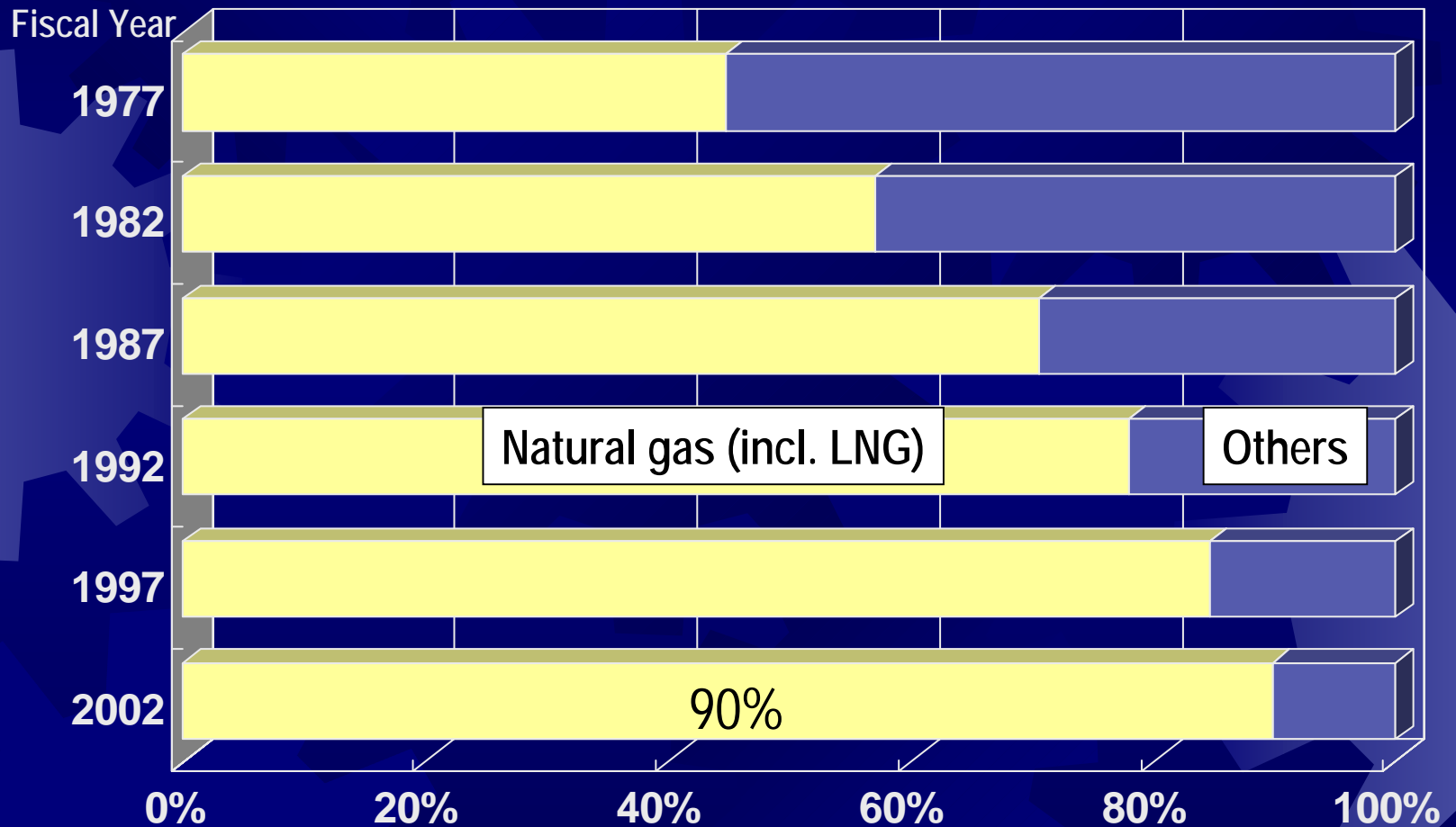
- ✦ Improvement of city gas safety
- ✦ Conversion to natural gas
- ✦ Expansion of new gas supply sources
- ✦ Approaches of city gas utilities to counter the “Electric housing” campaign

Improvement of city gas safety



- x— Micro-computer-controlled meters
- *— Gas burners equipped with safety devices for flame failure
- ♦— Compact water heaters with devices to prevent incomplete combustion

Trend of city gas feedstock



Approaches of city gas utilities to counter the “Electric housing” campaign

- ✦ Development and improvement of gas appliances
- ✦ More aggressive publicity programs
- ✦ Cost reduction



Conclusion

- ✦ It's indispensable for the gas industry to meet the tough requirements of customers for reasonable prices and stable supply.
- ✦ Regional cooperation to pave the way for further natural gas use is important.

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