



24<sup>th</sup> World Gas Conference  
ARGENTINA | 2009  
5-9 October

The Global Energy Challenge:  
Reviewing the Strategies  
for Natural Gas

“Natural Gas Trade as a Catalyst for Regional Market Integration ”

**Promoting regional cooperation  
in the Asia-Pacific gas industry,  
for sustainable development in the region**

**Norio Ichino**

Chairman, The Japan Gas Association

October 7th, 2009

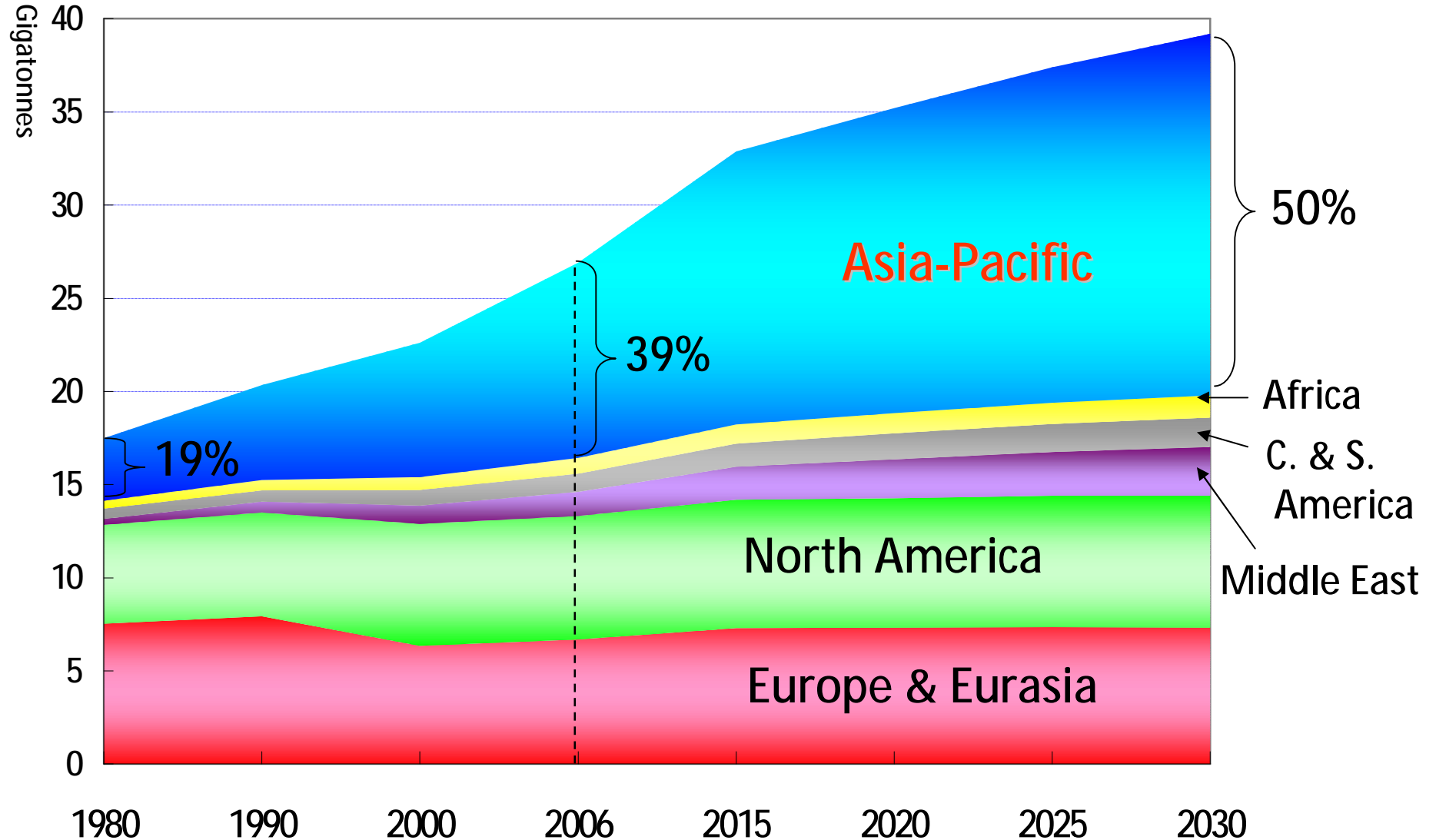
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- 1. Regional cooperation for advanced use of natural gas**
- 2. Regional cooperation for ensuring supply security**
- 3. Vision for the natural gas industry in the transition to a low carbon society**  
**- The case of Japan-**
- 4. Summary**

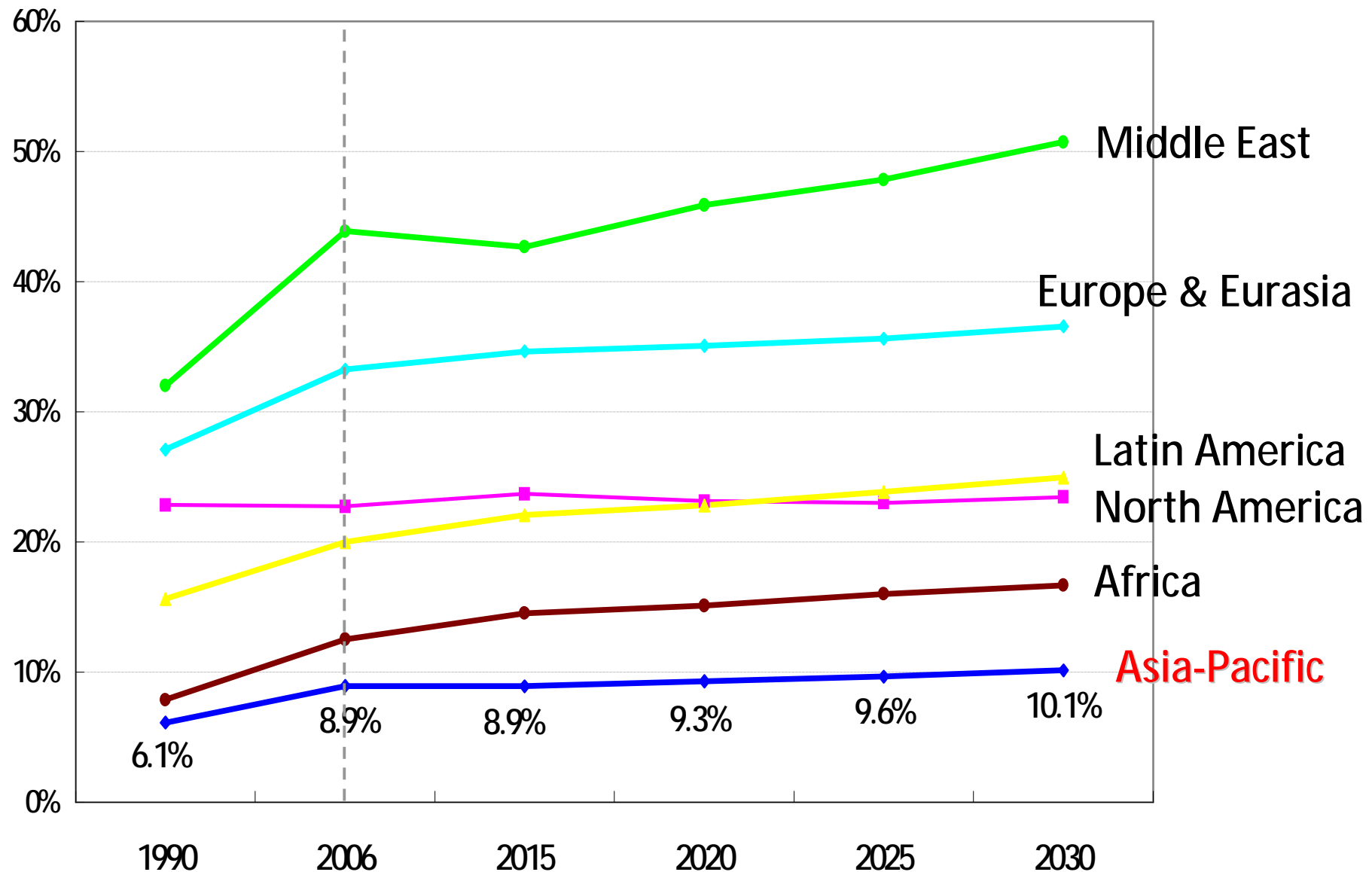
# 1. Regional cooperation for advanced use of natural gas

## Energy-related CO<sub>2</sub> emissions by region



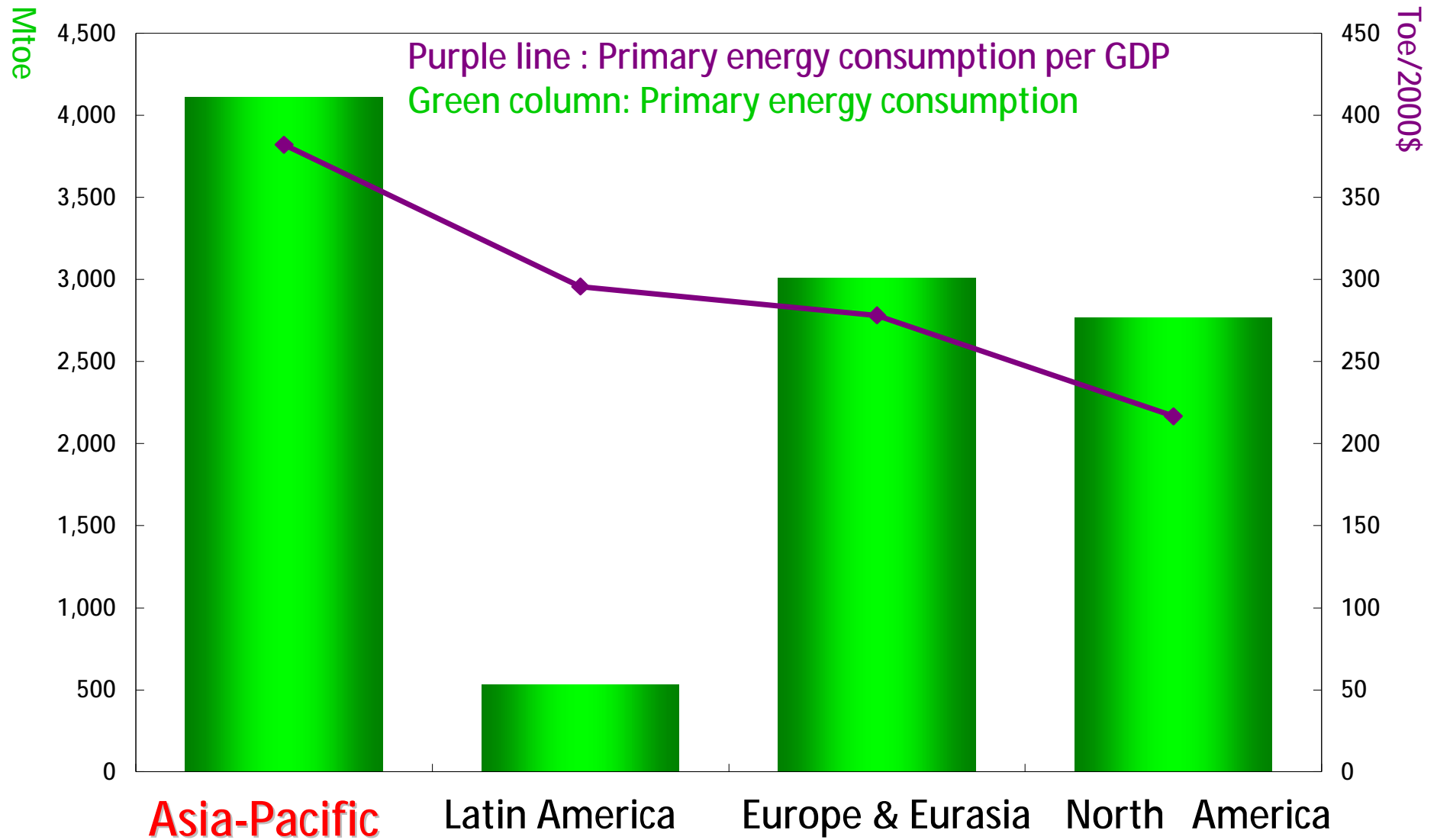
(IEA World Energy Outlook 2008)

# Natural gas share of primary energy supply by region



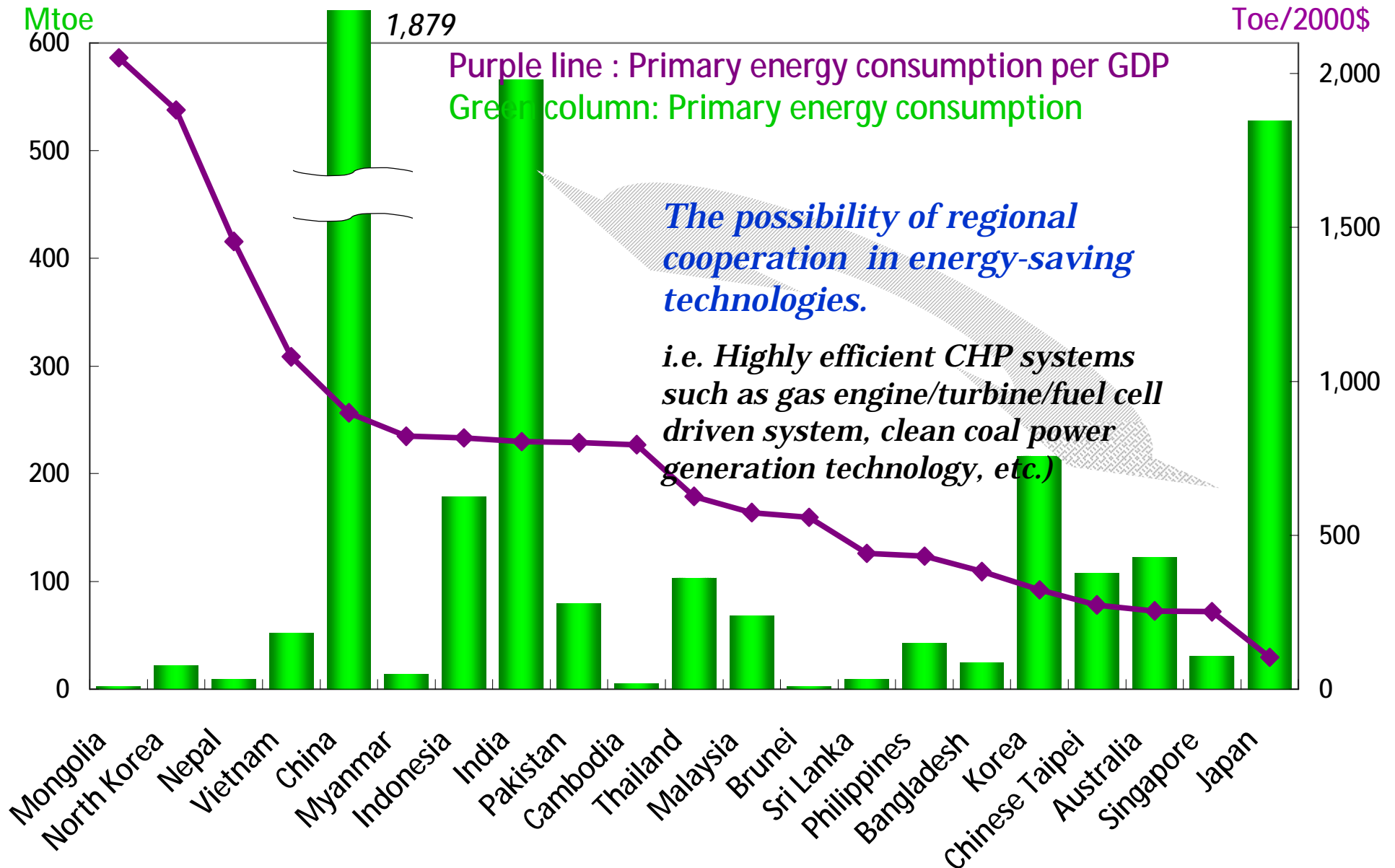
(IEA World Energy Outlook 2008)

# Energy efficiency by region



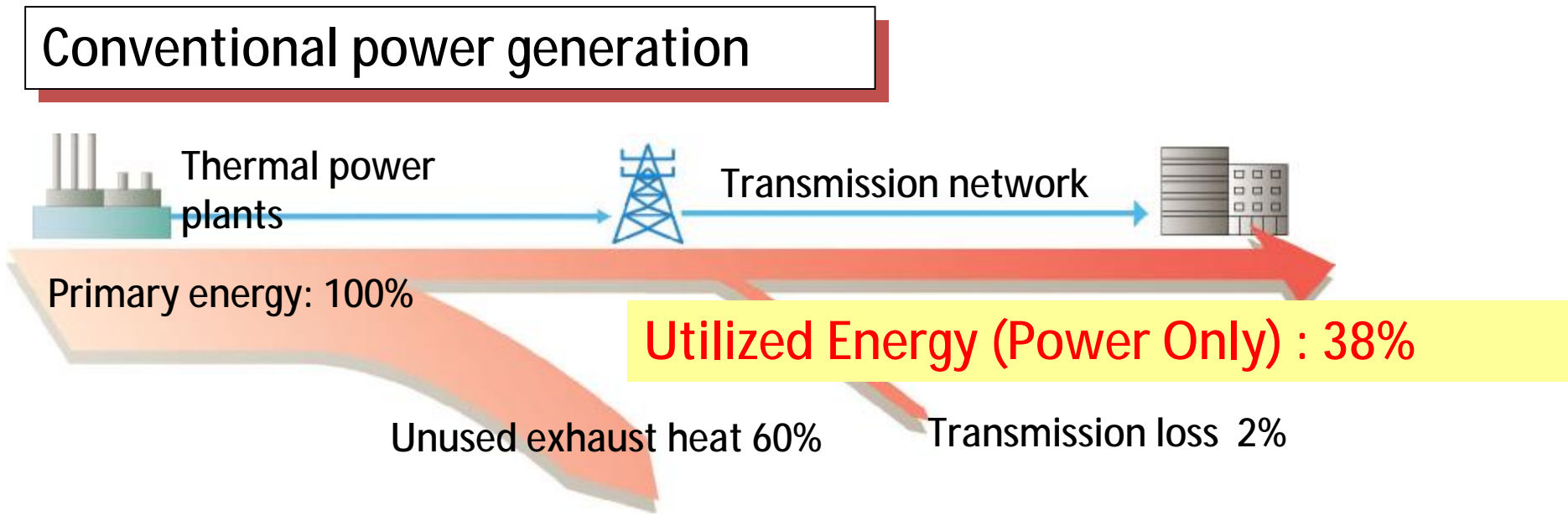
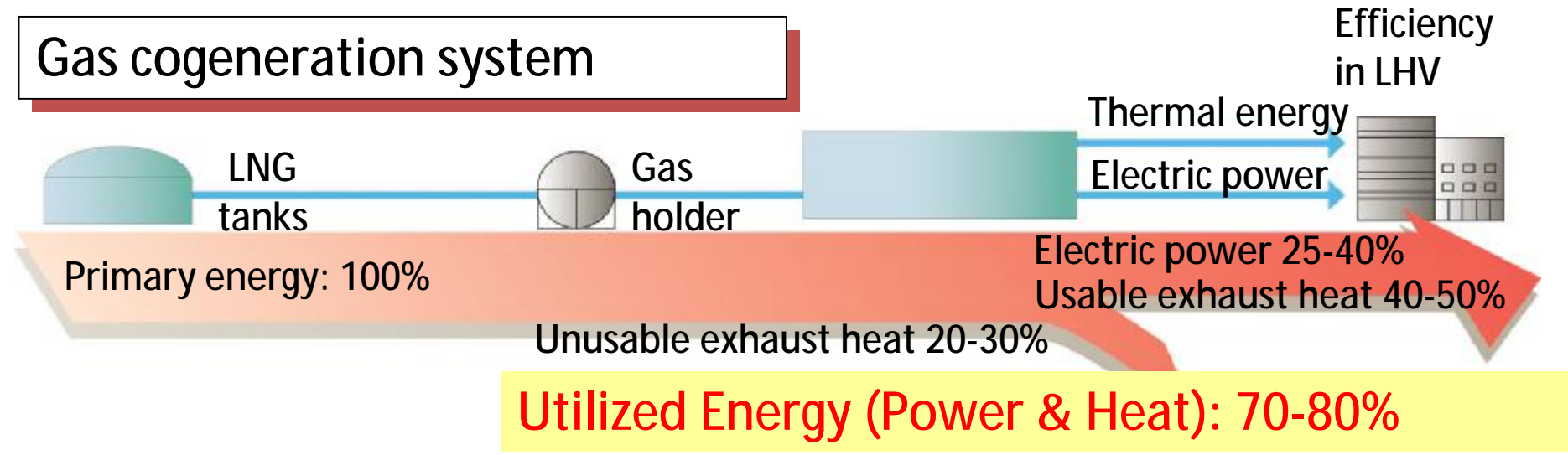
(IEA Key World Energy Statistics 2008)

# Energy efficiency in Asia-Pacific countries



(IEA Key World Energy Statistics 2008)

# Cogeneration - highly efficient

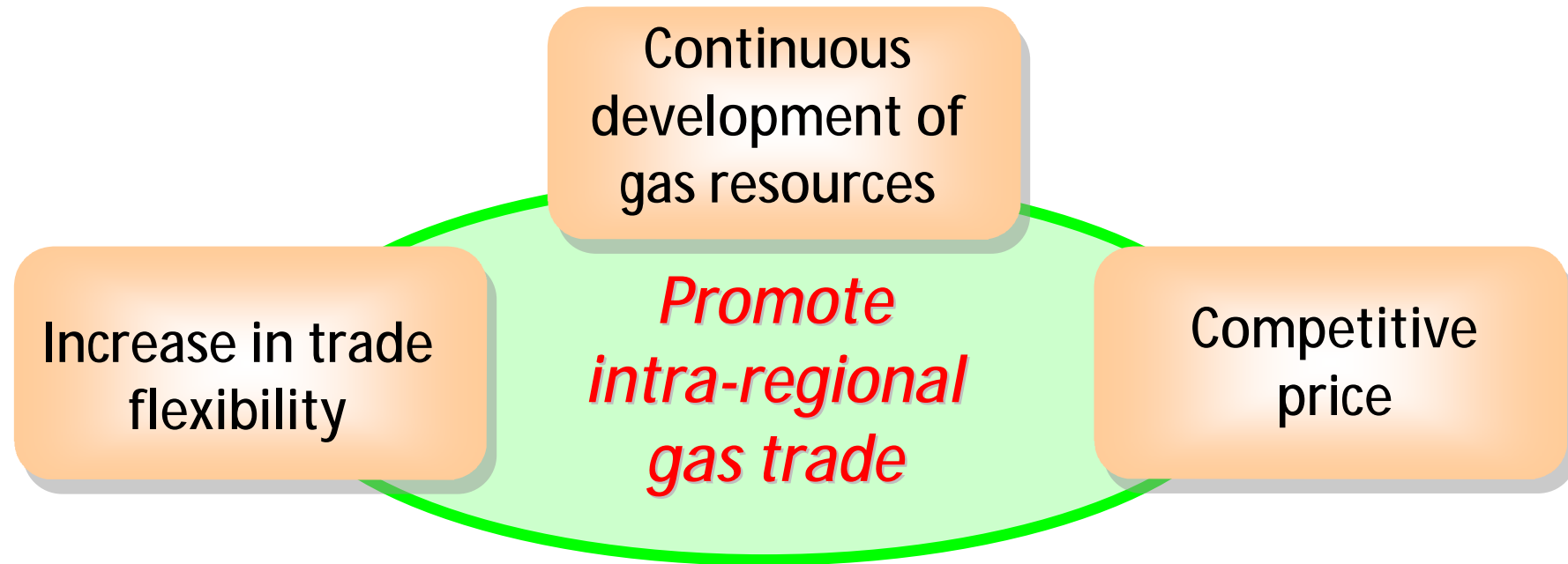


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## 2. Regional cooperation for ensuring supply security

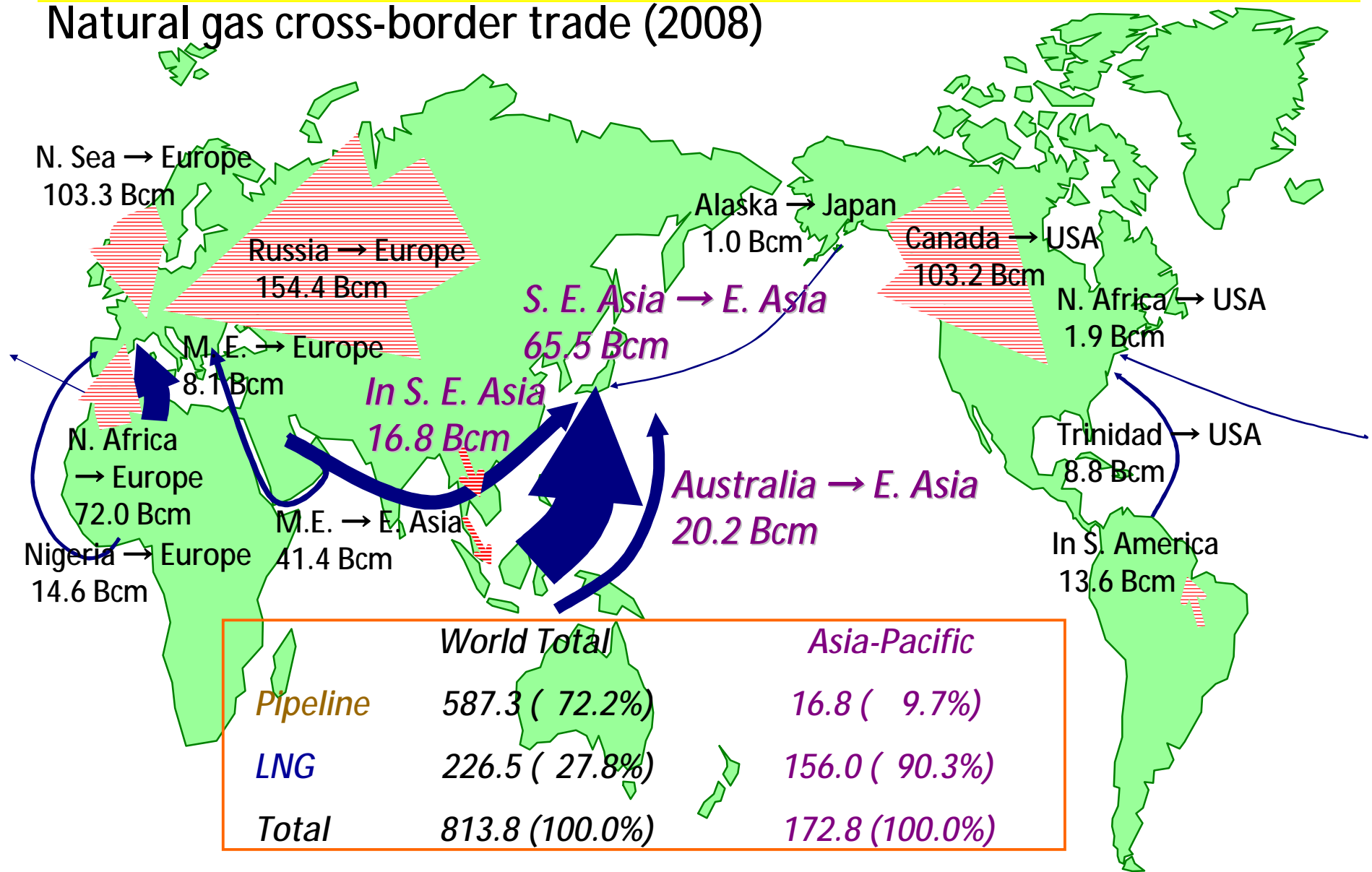


Ensuring supply security

Healthy development of the natural gas industry in Asia-Pacific

# Continuous development of natural gas resources

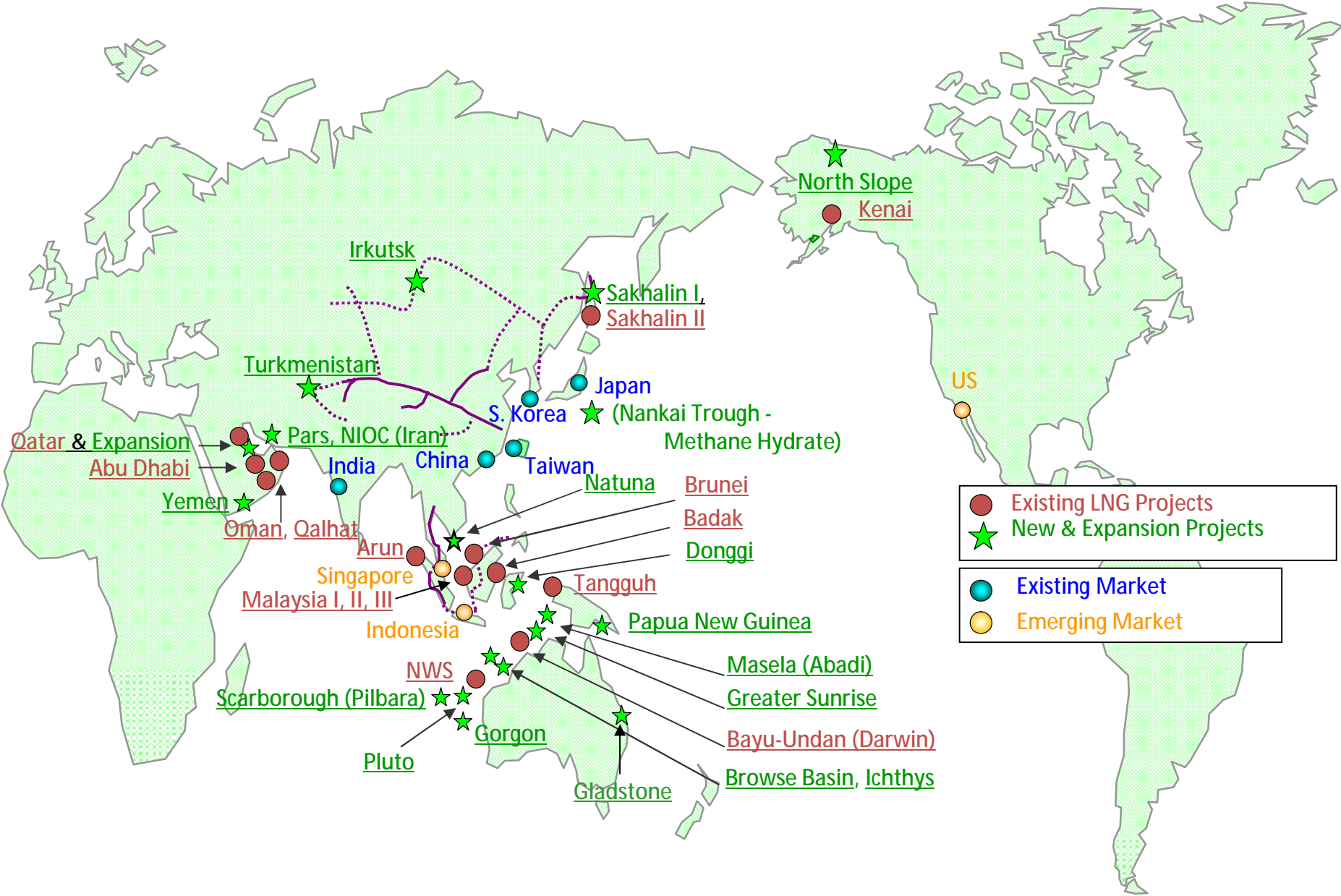
## Natural gas cross-border trade (2008)



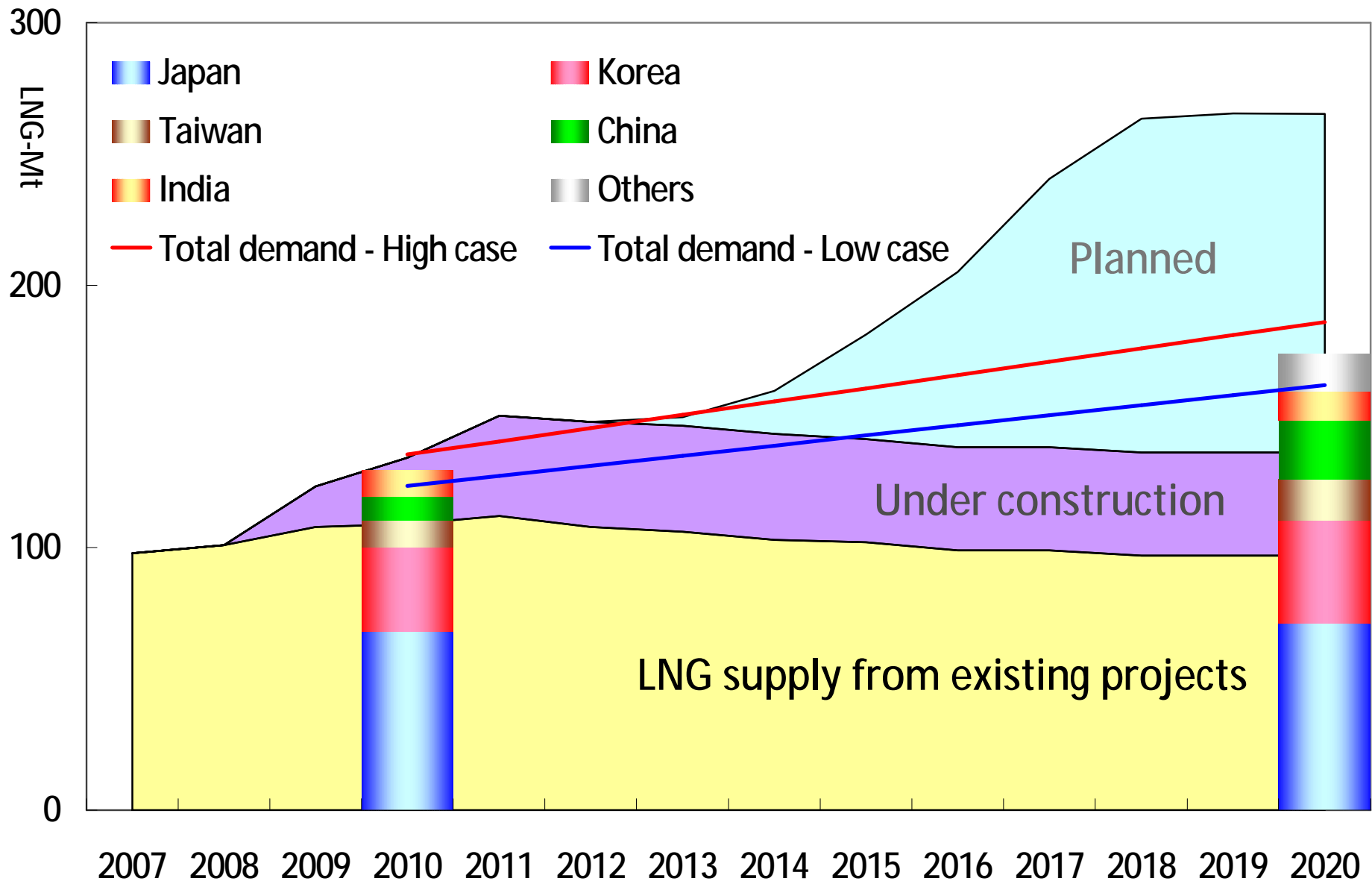
	World Total	Asia-Pacific
<i>Pipeline</i>	587.3 ( 72.2%)	16.8 ( 9.7%)
<i>LNG</i>	226.5 ( 27.8%)	156.0 ( 90.3%)
<i>Total</i>	813.8 (100.0%)	172.8 (100.0%)

(BP Statistical Review of World Energy June 2009)

# Natural gas supply potential to Asia-Pacific



# LNG supply and demand outlook in Asia-Pacific



(The Institute of Energy Economics, Japan and Tokyo Gas)

## Flexible trade

### *Terms and conditions for natural gas trade: A need for flexibility*

- *Ease restrictions on LNG cargo destinations*
- *Expand into Upward Quantity Tolerance and Downward Quantity Tolerance*



# Competitive price

## *Natural gas pricing : A need for competitiveness*

- *Reasonable and acceptable price level for sustainable growth of both sellers and buyers.*
- *Less exposure to oil price fluctuations (gentler slope).*
- *Efforts by all to reduce total cost of the gas supply chain.*



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### 3. Vision of the gas industry towards future growth - The case of Japan -

#### Target Reduction of GHG Emissions in Japan

Japan's government policy

Reducing GHG emissions by

Kyoto Protocol Target  
Achievement Plan (March 2008)

6% from 1990 level between  
2008 and 2012

Formulation of mid-term target  
(Speech by Prime Minister Taro Aso  
on 10 June 2009)

15% from the 2005 level  
(8% from 1990 level) by 2020

Formulation of mid-term target  
(Prime Minister Hatoyama announced at the UN  
climate change summit on 22 Sep 2009)

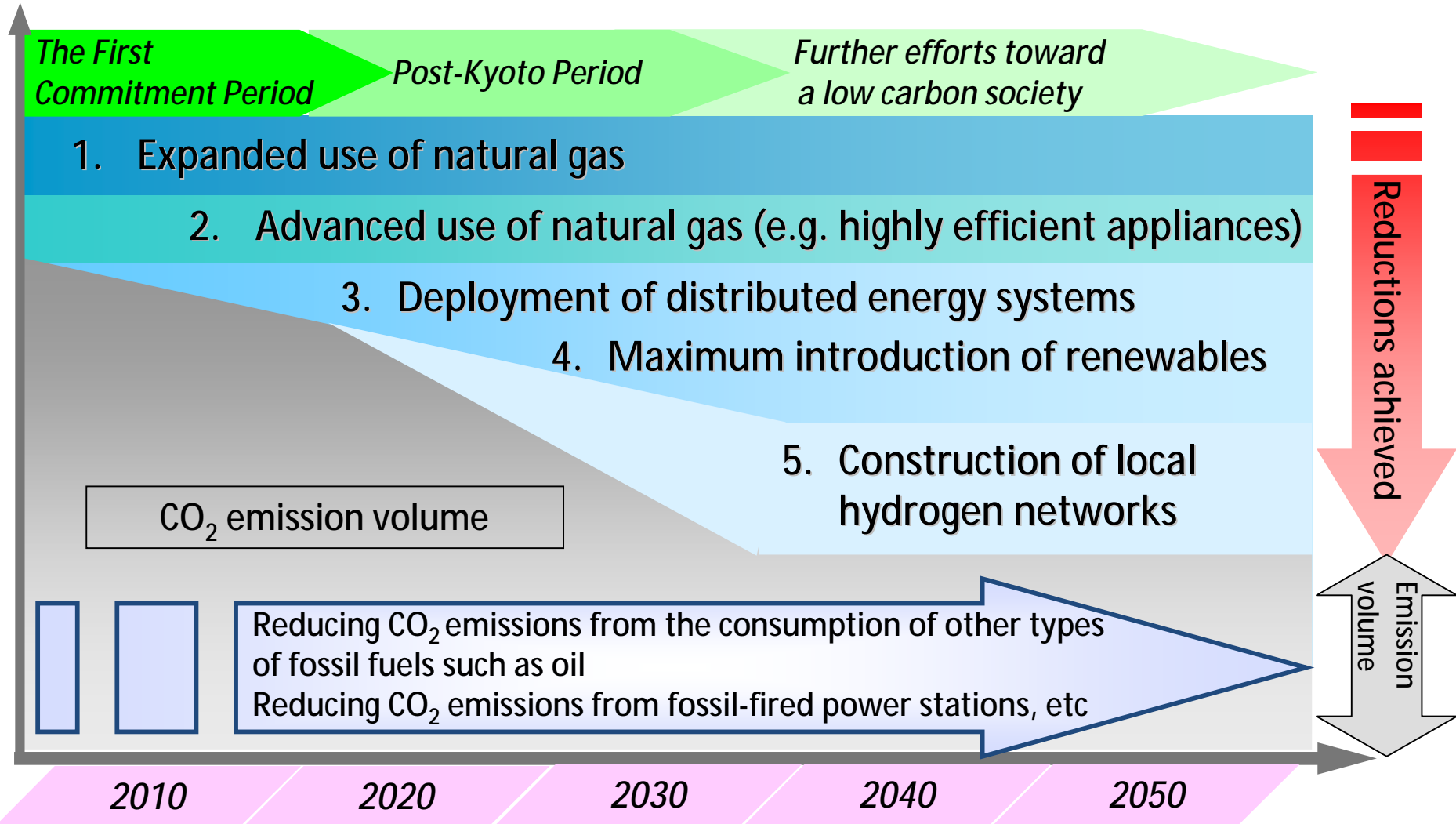
25% from the 1990 level  
by 2020

Action plan for Achieving a low  
carbon society (July 2008)

60-80% from the present  
level by 2050

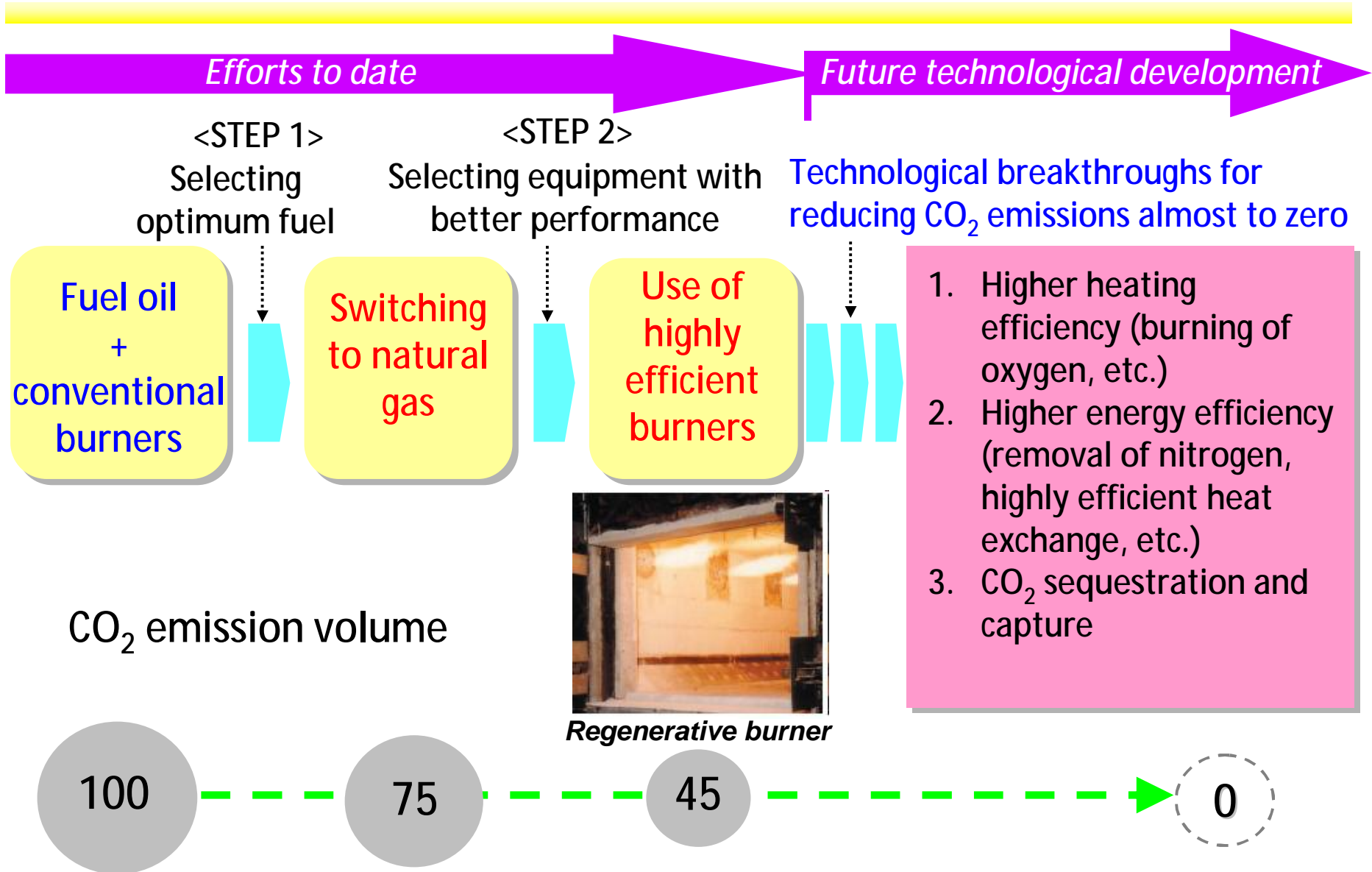
# Vision of gas industry for a low carbon society

Supporting 60-80% reduction of CO<sub>2</sub> emissions by expanding the advanced use of natural gas

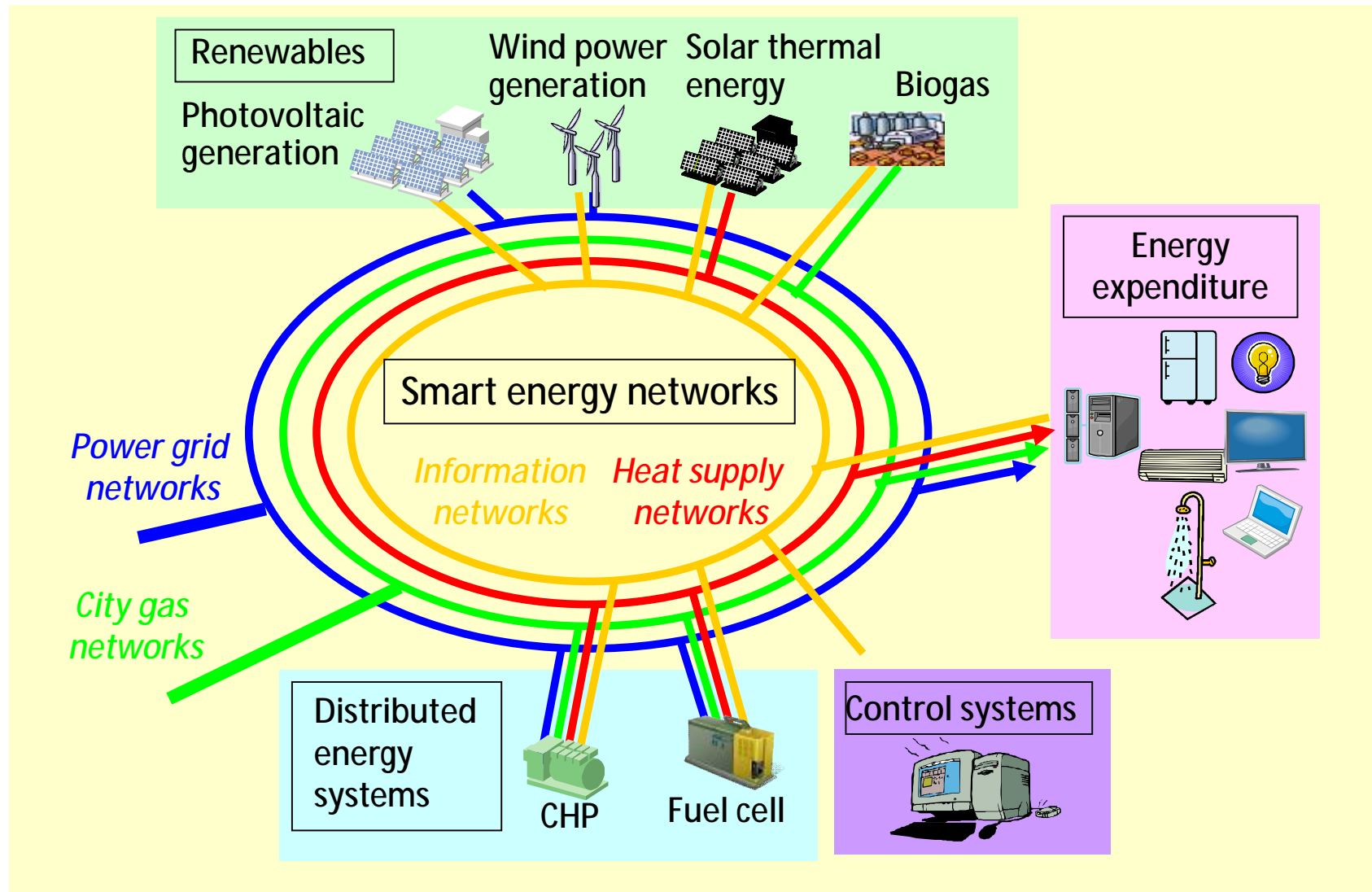


# Examples of advanced use of natural gas

(using natural gas with advanced energy conservation technologies)



# Distributed energy systems in a low carbon society (Smart energy networks)



# Future energy system

~ integration of advanced technologies ~

Highly efficient H<sub>2</sub> production equipment



Sequestration and capture of highly concentrated CO<sub>2</sub>

Hydrogen station

Collective housing

Hospital

Public hall

Hotel

Collective housing

Center for centralized monitoring

Highly efficient CHP system

Sequestration and capture of highly concentrated CO<sub>2</sub>

Generation efficiency of 60% or higher



Combination of high temperature fuel cell and gas turbine

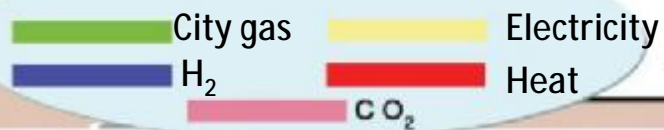
CCTS

Carbon dioxide capture, transportation and storage

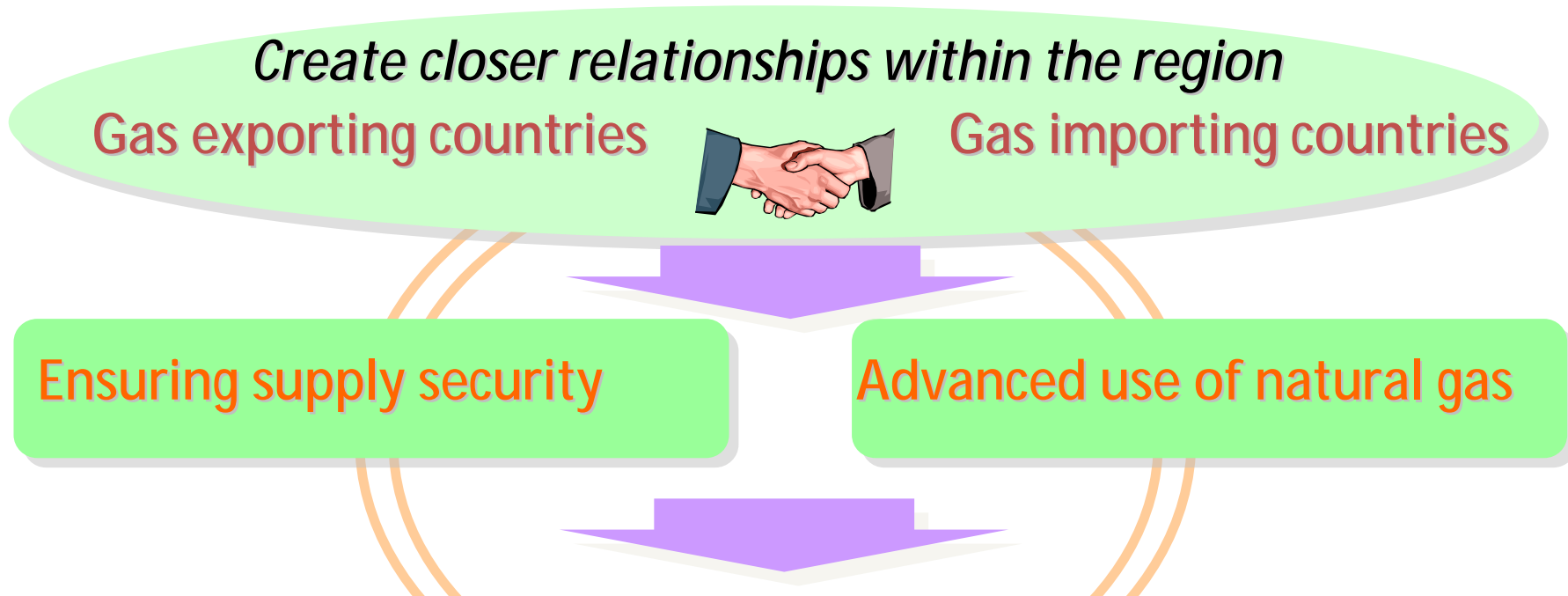
Collective housing

Underground storage

Energy infrastructure:



# Summary



## The medium- to long-term vision of the gas industry for growth:

- Advanced use of natural gas such as cogeneration systems
- Promotion of distributed energy system
- Harmony between renewable energy and natural gas
- Construction of local hydrogen networks, etc.



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*Thank you very much for your attention.*

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