

# *Future Perspective of LNG Markets & Changes in Value Chain Management*

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***Northeast Asia Petroleum Forum***

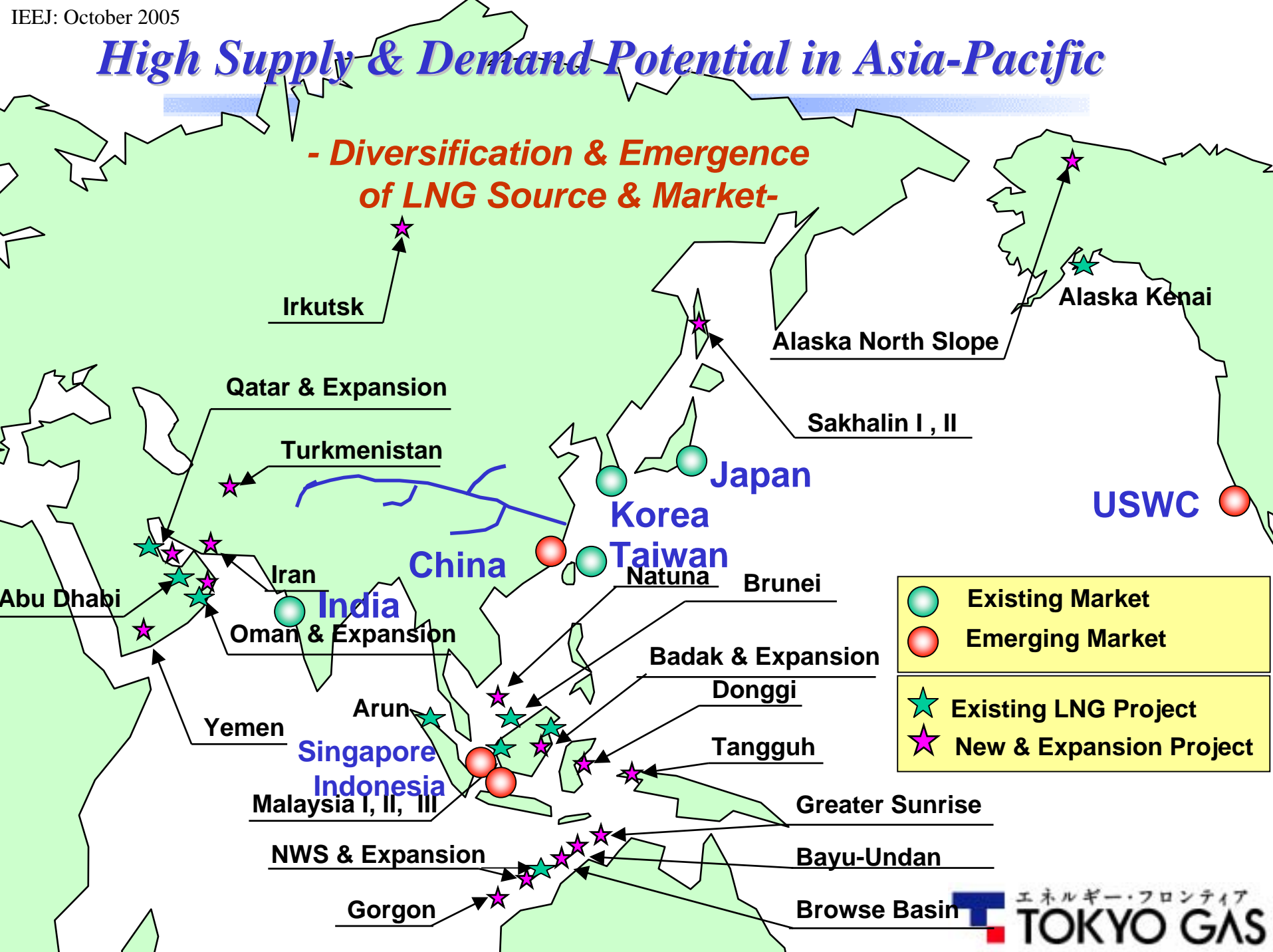
***Sep. 22<sup>nd</sup>, 2005 Seoul***

**Yutaka KUNIGO**

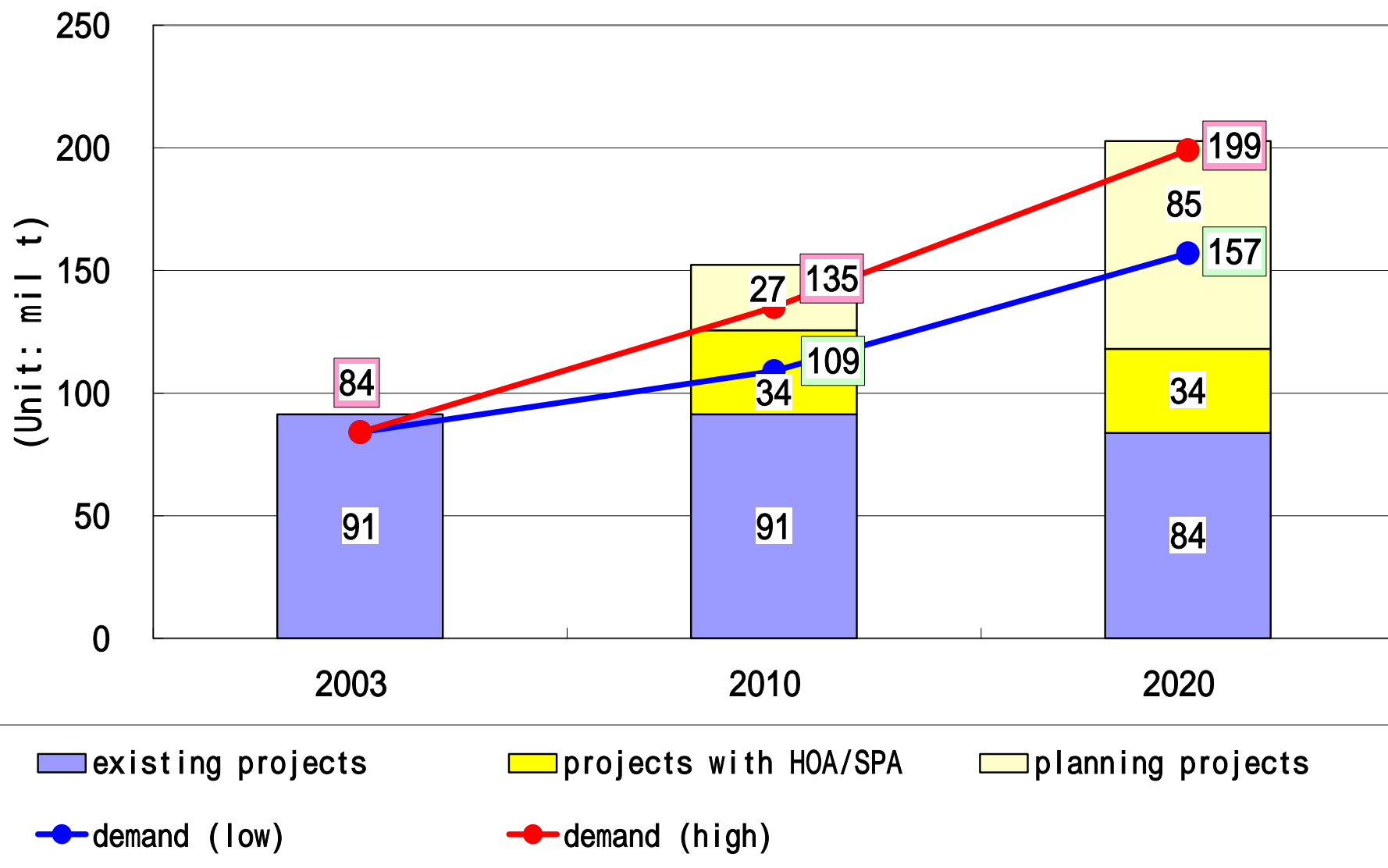
**Tokyo Gas Co., Ltd.**

# High Supply & Demand Potential in Asia-Pacific

**- Diversification & Emergence  
of LNG Source & Market-**



# LNG Supply & Demand Outlook in Asia-Pacific Market



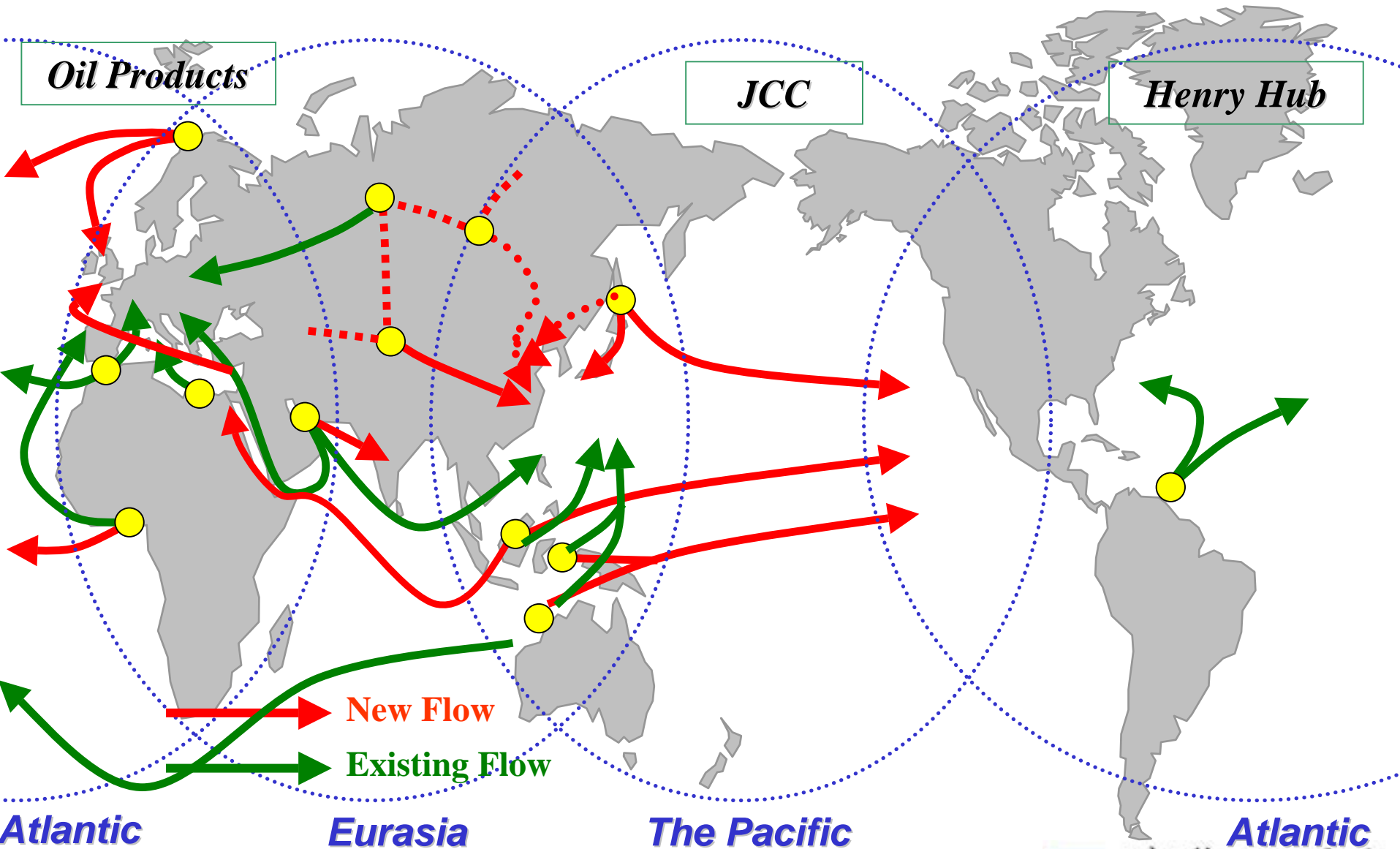
Source: IEEJ, Tokyo Gas Estimates

# *Influential Events for Supply and Demand Balance*

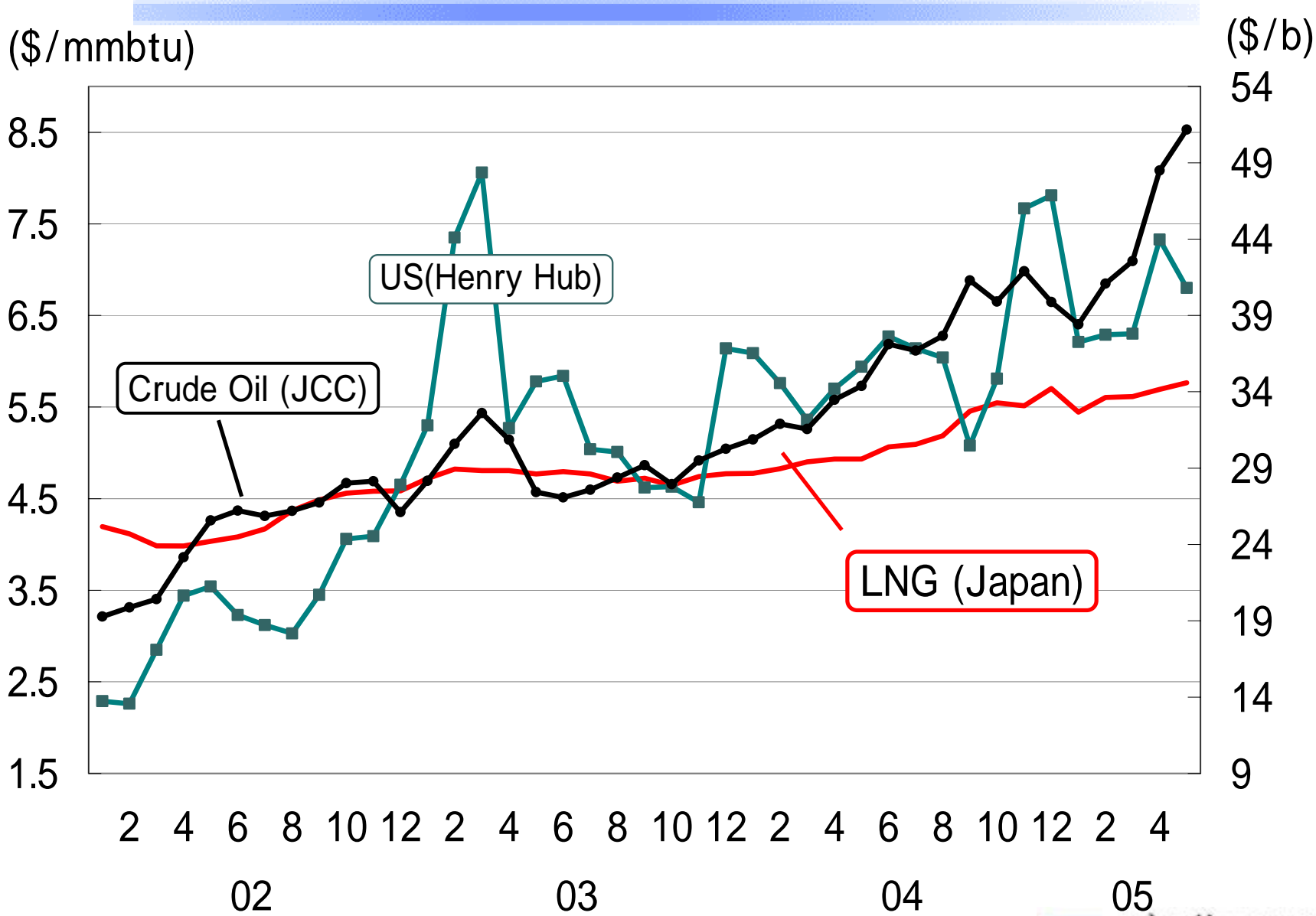
<u>Supply side</u>		<u>Demand side</u>
NWS-exp, Malaysia-III	2004	India (Dahej)
	2005	Korea (Kwangyang), India (Hazira)
Darwin	2006	China (Guandong), India (Dabhol) Japan (Mizushima)
Sakhalin-II	2007	China (Fujian)
Tangguh, Yemen	2008	Taiwan (Taichung), Indonesia China (many proposed terminals)
	2009	<b>NWS (7.5mtpa re-contract)</b>
Gorgon	2010	<b>Indonesia (12mtpa re-contract)</b>
Iran (4 projects)	2011	
Browse, Greater Sunrise, Donggi	2011~	Singapore

Rasgas II

# Changes in Natural Gas Trade Flow



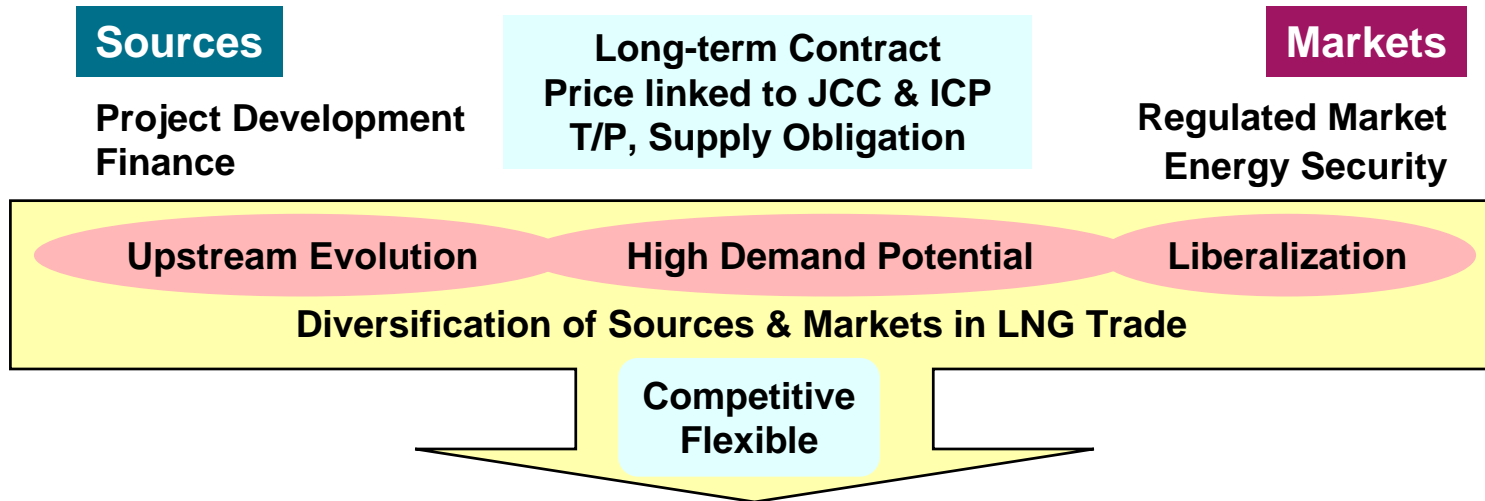
# The Gas Price Transition



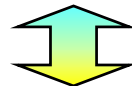
Source: World Gas Intelligence, Trade Statistics, etc.



# Changes in Natural Gas Business



- **Emergence of Trading Market**
  - Short-term, Spot, Swap, Backhaul, Arbitrage
  - Strategic Transportation
- **Tailoring Pricing Mechanism**
  - Gentle slope, Fixed price, Oil-product link, Power link
  - New Entrants
  - P/L vs. LNG
- **Players**
  - Marketers, Traders, Aggregators
  - Value Chain Management

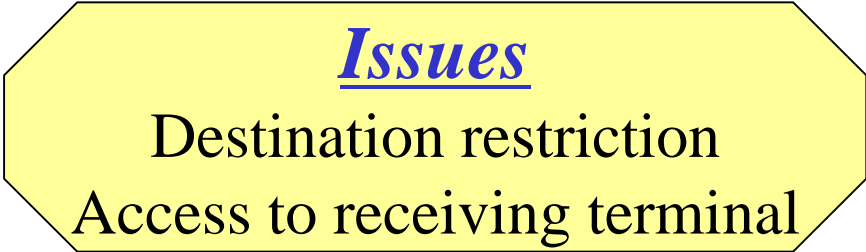


**Risks & Opportunities for Sustainable LNG Market**

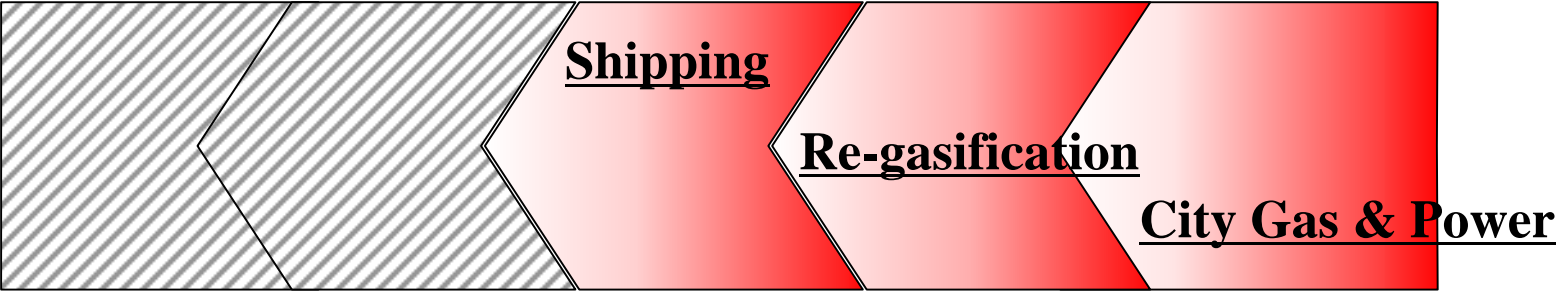
# Conventional LNG Value Chain Model

## *Sellers' Model*

note:



## *Buyers' Model*

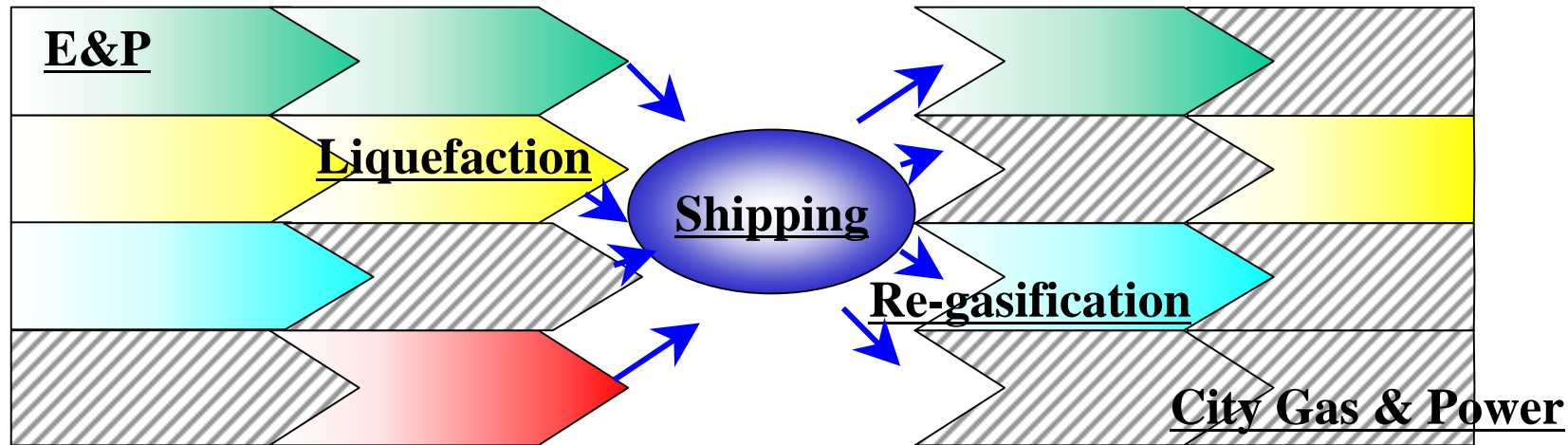




# Changes in LNG Value chain model

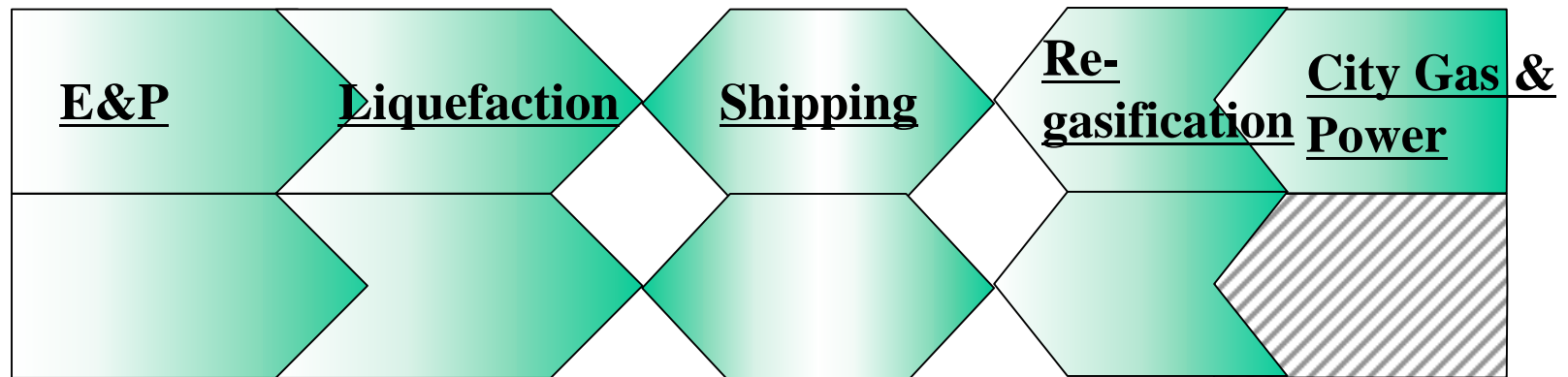
## Aggregator Model

To launch new project by combining demand

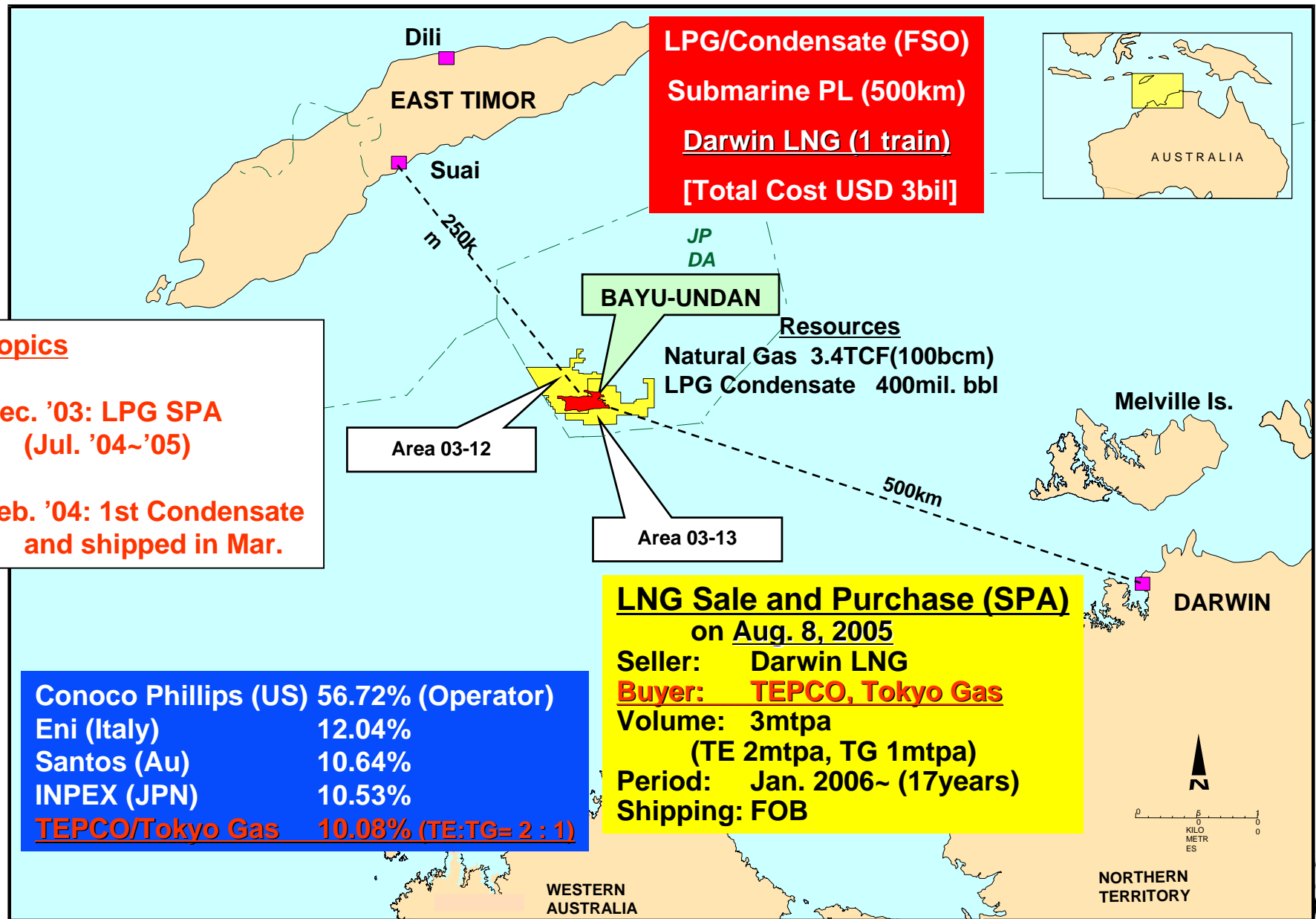


## Integrator Model

To pursue scale merit & consistent management



# Buyer's Strategy Example ~ Upstream ~



**Topics**

**Dec. '03: LPG SPA**  
 (Jul. '04~'05)

**Feb. '04: 1st Condensate**  
 and shipped in Mar.

**Conoco Phillips (US) 56.72% (Operator)**  
**Eni (Italy) 12.04%**  
**Santos (Au) 10.64%**  
**INPEX (JPN) 10.53%**  
**TEPCO/Tokyo Gas 10.08% (TE:TG= 2 : 1)**

**LNG Sale and Purchase (SPA)**  
 on Aug. 8, 2005  
**Seller: Darwin LNG**  
**Buyer: TEPCO, Tokyo Gas**  
**Volume: 3mtpa**  
 (TE 2mtpa, TG 1mtpa)  
**Period: Jan. 2006~ (17years)**  
**Shipping: FOB**

# *Buyer's Strategy Example ~ Transportation ~*

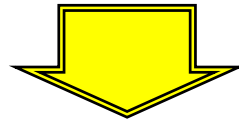
## **Purpose of FOB/Owing Ship**

### **1. Increase of Trading Opportunities**

- for spot trading by Master Agreement
- for cargo diversification based on SPA

### **2. Transportation for other Buyers**

- North West Shelf Expansion: transportation by Tokyo Gas for co-Buyers



### **1. Two LNG Tankers owned by Tokyo LNG Tanker**

- 145,000 m<sup>3</sup> Moss type
- Shipyard: Kawasaki Shipbuilding
- Operator: Mitsui O.S.K. Lines (MOL)
- Service In: Energy Frontier - Sep.2003 / Energy Advance - Mar. 2005

### **2. Third (2006) and Fourth Ship (2008)**

- \* Line: Malaysia-I, M-III (Short-term), North West Shelf Expansion, Darwin, Sakhalin-II, Spot, and new projects (?)

## *Feature & Structure in LNG Industry*

### ➤ *Huge Investment*

- E&P, liquefaction, transportation, storage

### ➤ *Role & requirement*

- Stability for supply, procurement, price
- Environmental friendliness, security of supply

### ➤ *Delivery structure*

- Lack of flexibility
  - small gap → huge impact (esp. spot trade)
- Commodity in the future?
  - Two markets; spot trading & long-term market (NE Asia)

### ➤ *Confusion on LNG S/D outlook*

- Difference between short-term and long-term view

# ***Requirement & Business Innovation for LNG Development***

## ➤ ***Supply and demand gap minimization***

- Requirement for precise demand prediction
- Well-timed launching new & expansion project
- Information sharing among sellers & buyers, B & B

## ➤ ***Requirement for LNG growth***

- Competitiveness & stability
  - Indispensable for natural gas growth in NE Asia
- Volatility mitigation
  - Significance of long-term contract with price formula

## ➤ ***Contractual arrangement***

- Flexibility in long-term contract (DQT / UQT / Destination)
- Innovative price formula

# *Significance of Buyers' Cooperation*

## ➤ *S/D balance optimization*

### ➤ Risk share & market development

- Brown field expansion & green field launching
- Cooperation between sellers and buyers

## ➤ *Shipping & delivery arrangement through cooperation*

- Seasonal swap, ACQ transfer (only within co-buyers)
- Need for contractual flexibility in order for shipping & delivery cooperation

## ➤ *Significance of cooperation in the future*

- Buyers' cooperation in all aspects
- Significance of value chain participation for buyers
- *Sharing of market strategy*
- *Reinforcement of bargaining power*

*Buyers*  
  
*cooperation*  
*for LNG market growth in NE Asia*