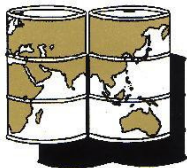


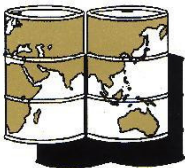
**By
Fereidun Fesharaki
President
FACTS Inc.**

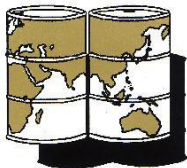
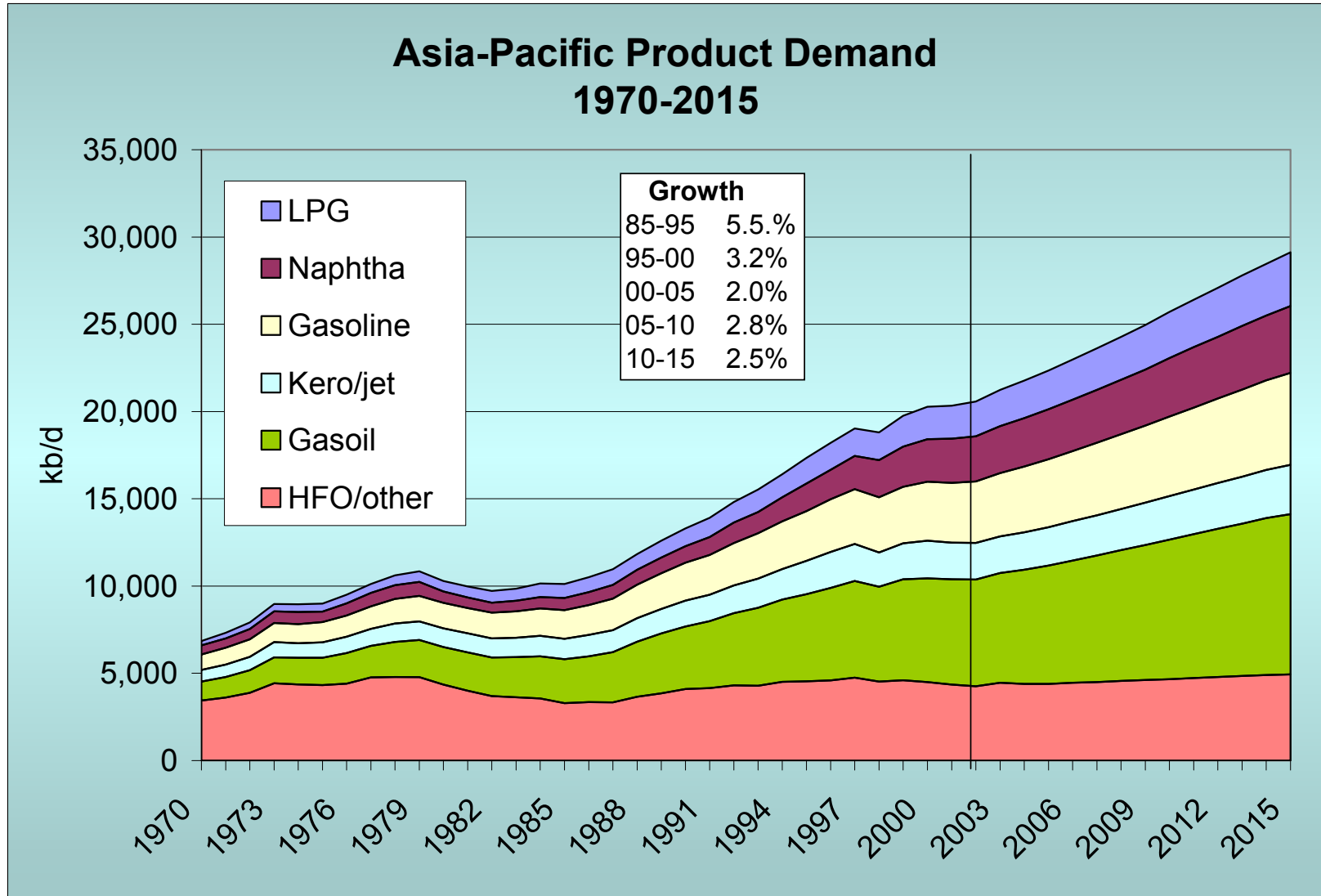
**Presented to
24th Annual North
American Conference of
the USAEE/IAEE
Washington, D.C.
July 8-10, 2004**



Asian Oil Demand

- Asia's oil product consumption has slowed down considerably. The region as a whole grew at over 3%/year over the second half of last decade, it's less likely that these growth rates are replicated in future.
 - *We forecast a growth rate of 2% in medium term.*
- China alone, has been the engine of world and Asian oil growth. Perhaps the most notable feature is the slowdown in India's oil product consumption.
 - *Currently China accounts for almost 70% of the growth in Asia, and some 25-30% of the global oil consumption growth.*
- Following poor performance in 2001 and 2002 the region posted a growth of 664 kb/d in 2003. This however does not mark a broad-base growth revival in the region.
 - *For 2004 we expect Asian oil product consumption to grow by some 550 kb/d of which China's growth is expected to be 400 kb/d.*

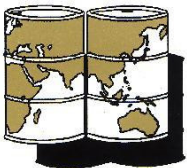




Asia Oil Demand Growth, Selected Nations (kb/d)

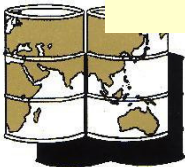
	1998	1999	2000	2001	2002	2003	2004*
China	117	321	320	111	168	451	386
India	112	154	28	3	3	0	61
Japan	-206	84	-40	-209	-59	84	-127
S. Korea	-246	130	55	2	53	21	22
Thailand	-43	44	-5	-11	41	48	53
Indonesia	-57	55	73	45	26	23	46
Others	<u>107</u>	<u>158</u>	<u>84</u>	<u>121</u>	<u>3</u>	<u>37</u>	<u>135</u>
Total	-216	946	516	62	236	664	546

*Projected



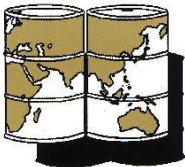
China's Crude Imports by Source, 2003

Source	Volume (kb/d)	Share (%)	Source	Volume (kb/d)	Share (%)
Saudi Arabia	303.3	16.8	Angola	201.6	11.2
Iran	248.4	13.8	Sudan	125.3	6.9
Oman	185.9	10.3	Congo	73.8	4.1
Yemen	139.9	7.7	Equatorial Guinea	30.6	1.7
Kuwait	18.1	1.0	Nigeria	2.6	0.1
UAE	17.3	1.0	Libya	2.5	0.1
Qatar	13.4	0.7	Gabon	2.5	0.1
Iraq	0.0	0.0	Cameroon	2.2	0.1
<i>Middle East Total</i>	926.4	51.3	<i>Africa Total</i>	441.2	24.4
Vietnam	70.0	3.9	Russia	105.0	5.8
Indonesia	66.5	3.7	Kazakhstan	24.0	1.3
Malaysia	40.3	2.2	Norway	19.0	1.1
Australia	35.8	2.0	United Kingdom	4.0	0.2
Thailand	31.7	1.8	Germany	2.6	0.1
Brunei	29.9	1.7	Argentina	2.6	0.1
Papua New Guinea	1.6	0.1	Venezuela	2.6	0.1
Mongolia	0.4	0.0	Brazil	2.4	0.1
<i>Asia-Pacific Total</i>	276.2	15.3	<i>Europe/Other Total</i>	162.1	9.0
			TOTAL	1,805.9	100.0

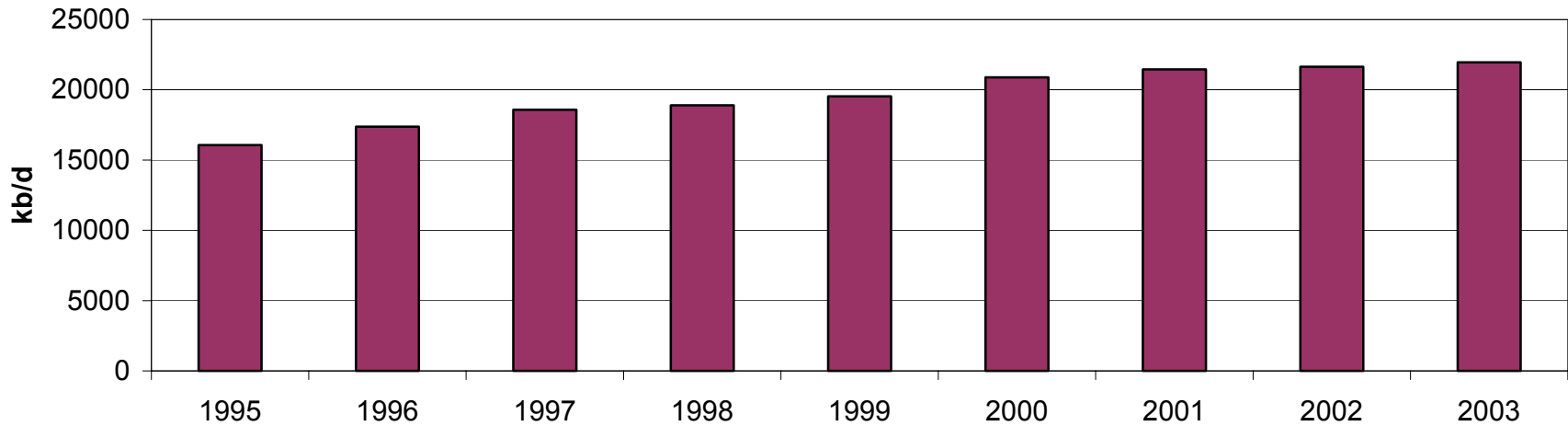


Asian Refining & Product Trade

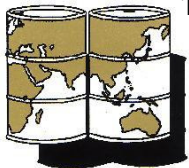
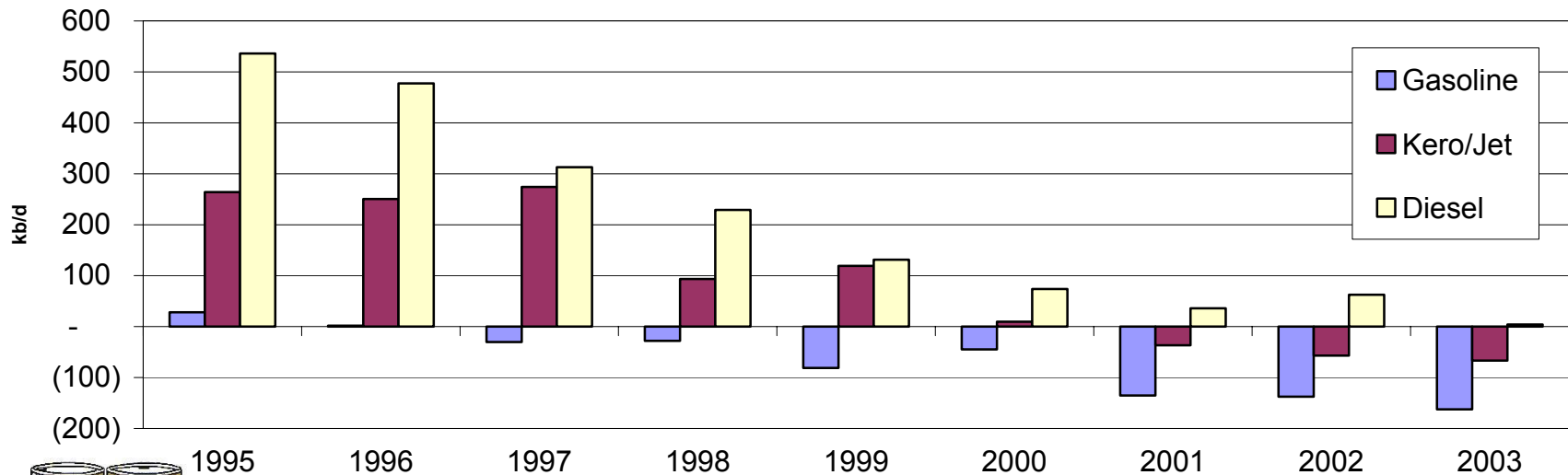
- Several additions in the region's refining capacity coincided with this slowdown in demand growth. This had serious implications for trade flows and refining business in the region.
 - *Deficits turned into surpluses (refer to the charts on next pages)*
 - *Refining margins plummeted – especially for the refiners of Southeast Asia. It's worth noting that with the exception of Indonesia, refiners in the Southeast Asian region operate under little or no protection.*
 - *Closures and capacity reductions have come from Philippines, Australia, Japan, and Singapore. There are more to come in next 3 to 5 years.*
- At the same time, additional refining capacity is projected to come from India and China over the next 5 to 10 years.



Increases in Asian Refining Capacity*, and it's impact on...

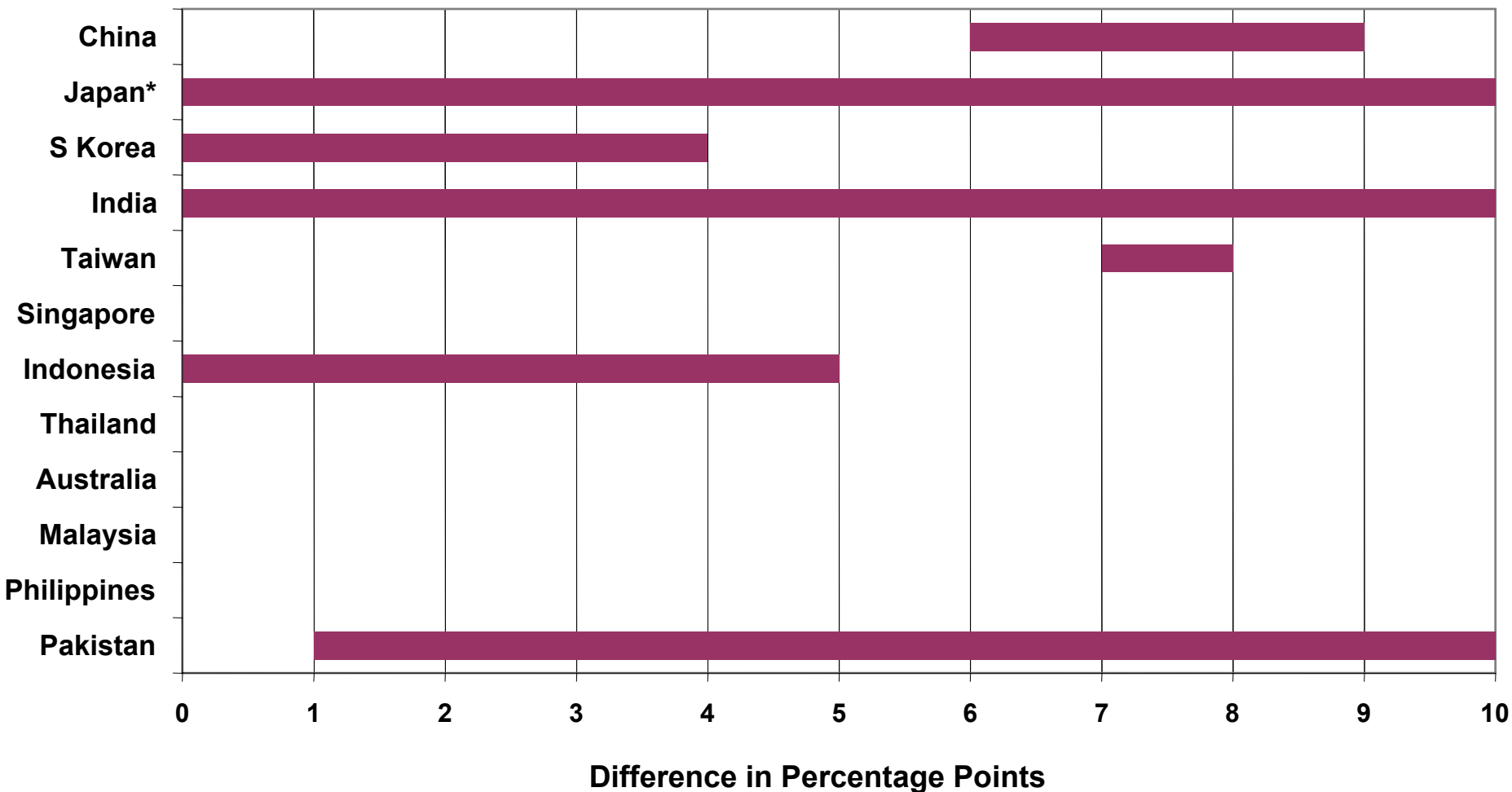


...The Regional Product Balance: Net-imports/(Net-exports)

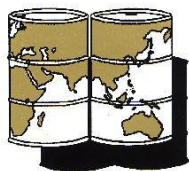


*based on CDU capacity

Range of Difference between Crude & Product Import Duty Asian Refiners (Arranged according to CDU capacity)

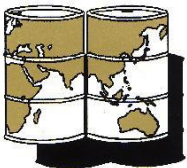
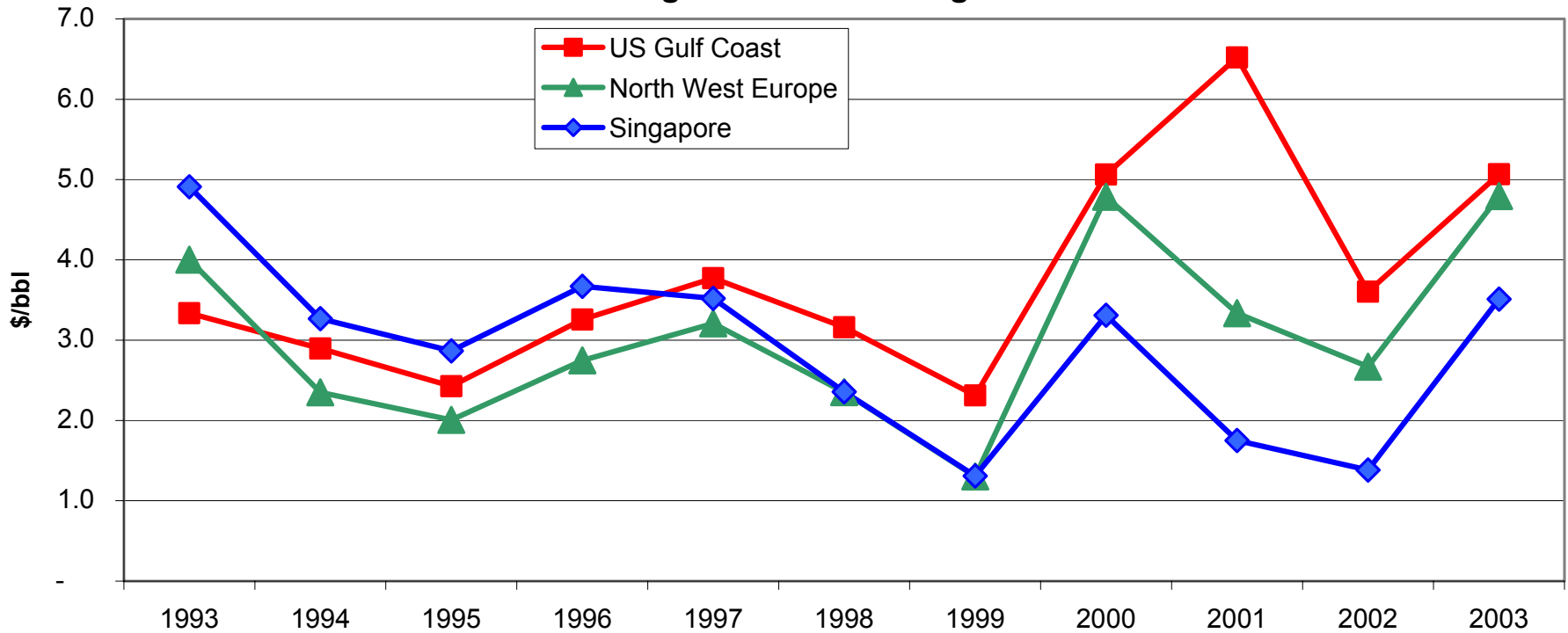


*Approximated from duty applied on a volume basis



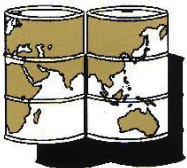
8

Gross Refining Margins Based on Arab Light Crude Cracking Yield



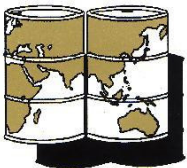
Oil Storage in Asia-Pacific Region

- Oil storage is seen both as a means to improve security of supply and to consolidate/maintain competitive advantage:
 - China and India are considering strategic stocks.
 - Besides ASEAN has also considered oil stock piling as a means of increasing energy security.
- Recently several Southeast Asian countries have been considering some sort of storage: commercial, sovereign, or a combination.
 - Singapore: Jurong island
 - Philippines: Subic bay
 - Thailand: storage related to the trans-peninsula pipeline
 - *There is room for only one!*

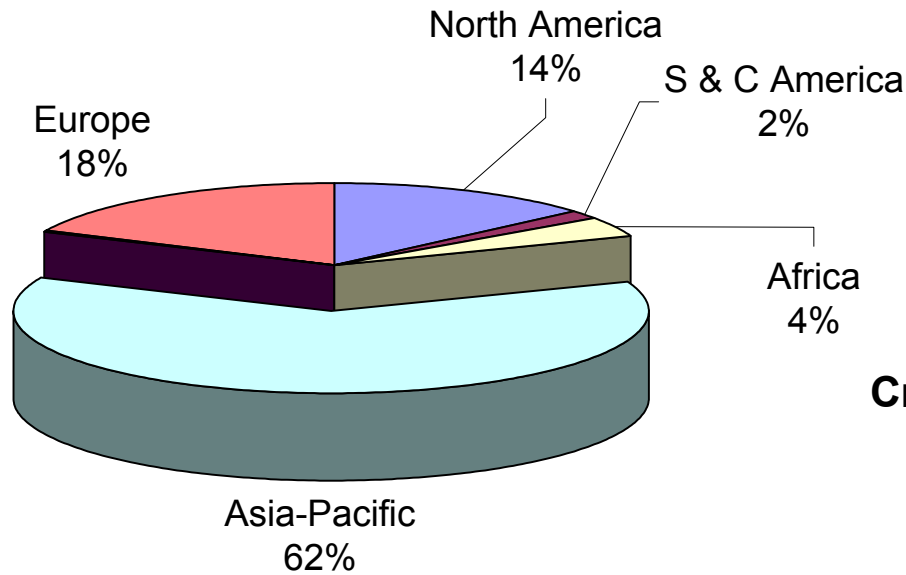


Oil Storage in Asia-Pacific Region (continued)

- One option is to elicit the involvement of Middle East oil producers. We believe that under the current scenario there is greater interest on the part of Middle Eastern producers (national oil companies) to participate in a storage project in the region.
- Asia is Middle East's largest market for crude oil and refined products and at the same time, it is the largest supplier to Asia. (Refer to chart on following page.)
- Currently over 10 mmb/d of crude oil flows from Middle East to the Asia-Pacific region – this is the single largest inter-regional crude flow.
- This relationship is likely to grow further in the future.

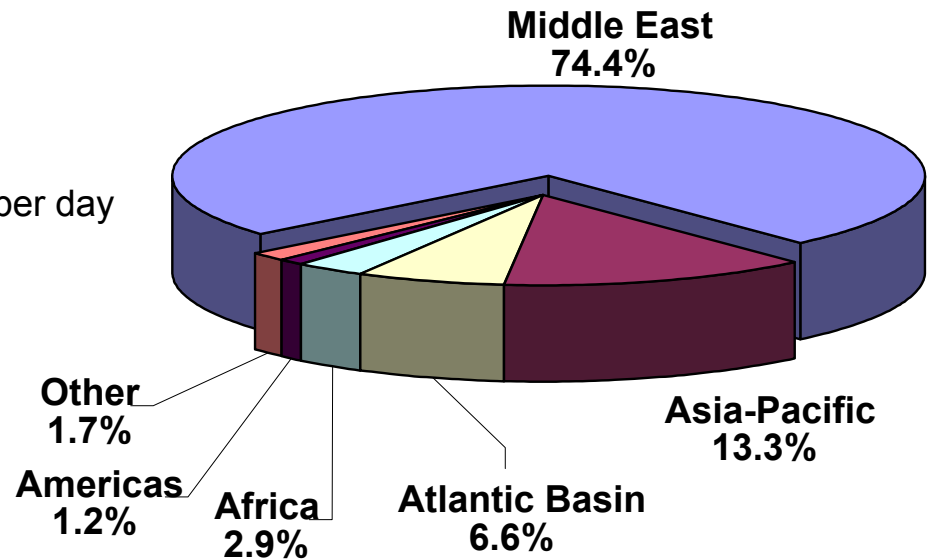


Oil* Exports from the Middle East

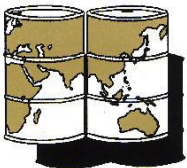


Total Exports in 2002 = 18 million barrels per day
 * Includes crude and refined products

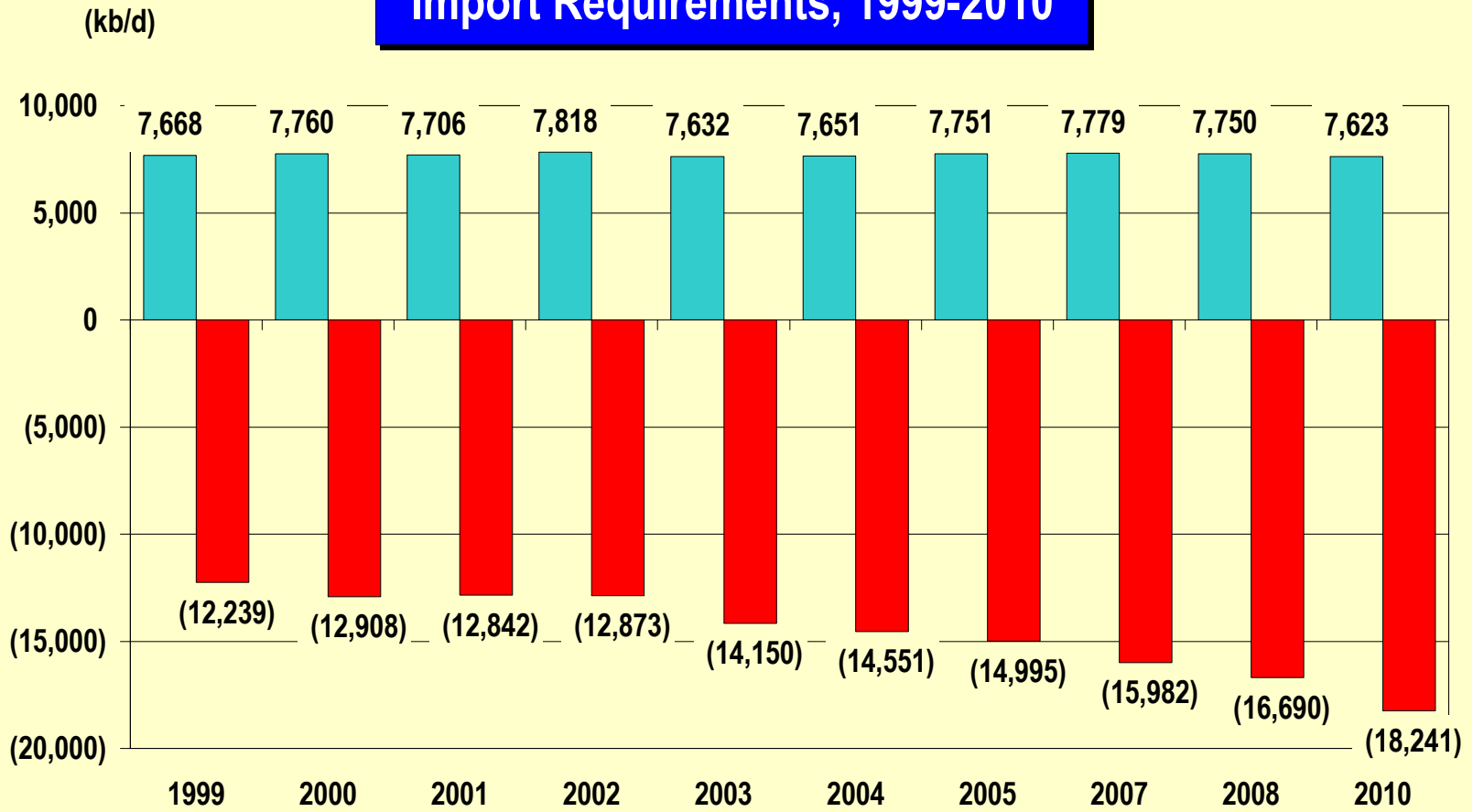
Crude Imports in the Asia Pacific Region



Estimate of 2003 imports, total = approximately 14.2 mmb/d

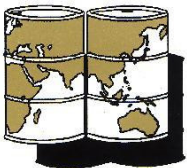


Asia-Pacific Oil Production and Net Import Requirements, 1999-2010



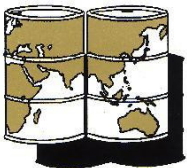
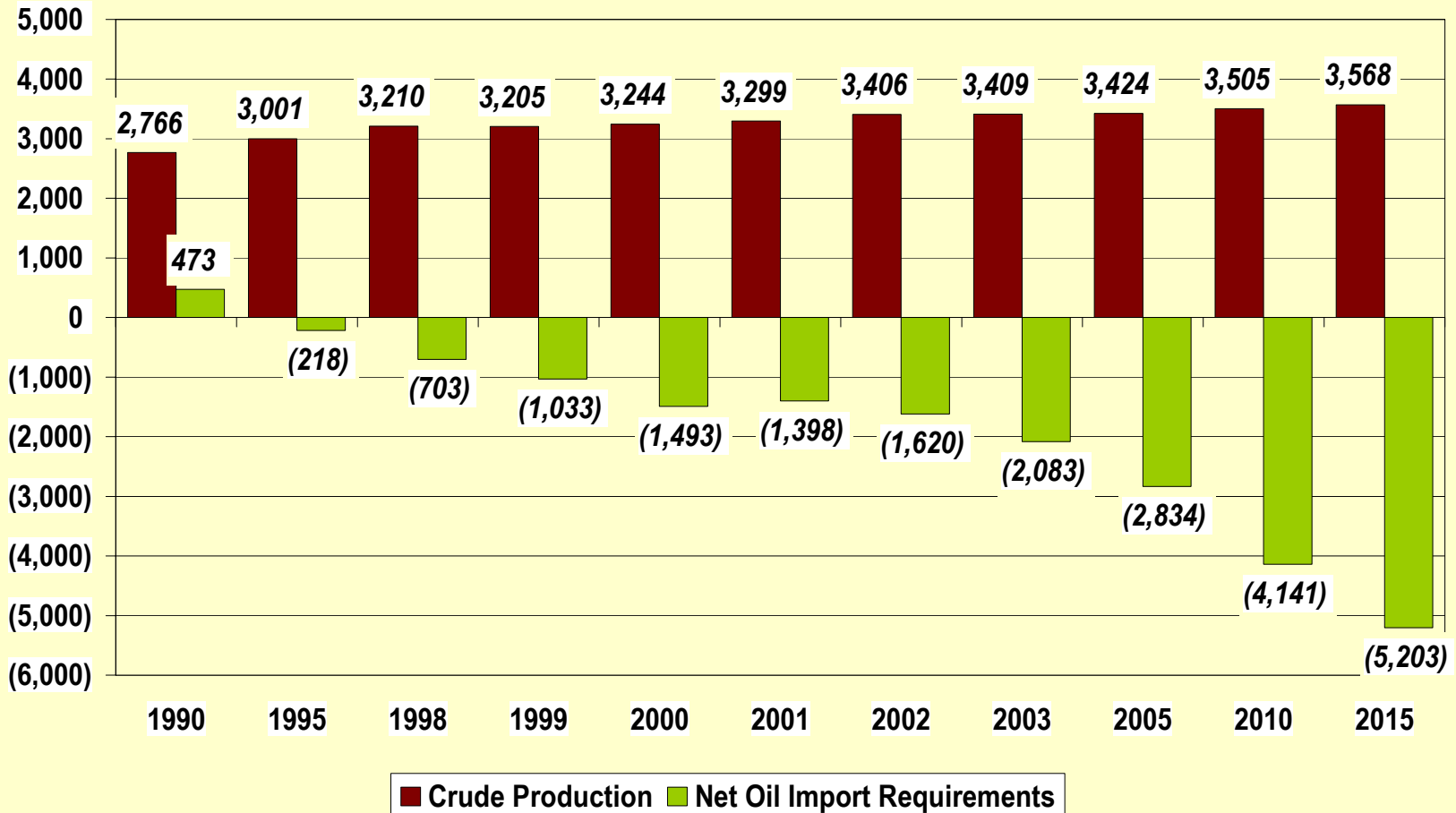
Note: Oil production = crude output plus nonrefinery LPG.

Oil Production Net Oil Import Requirements

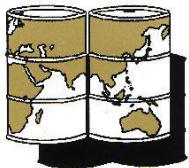
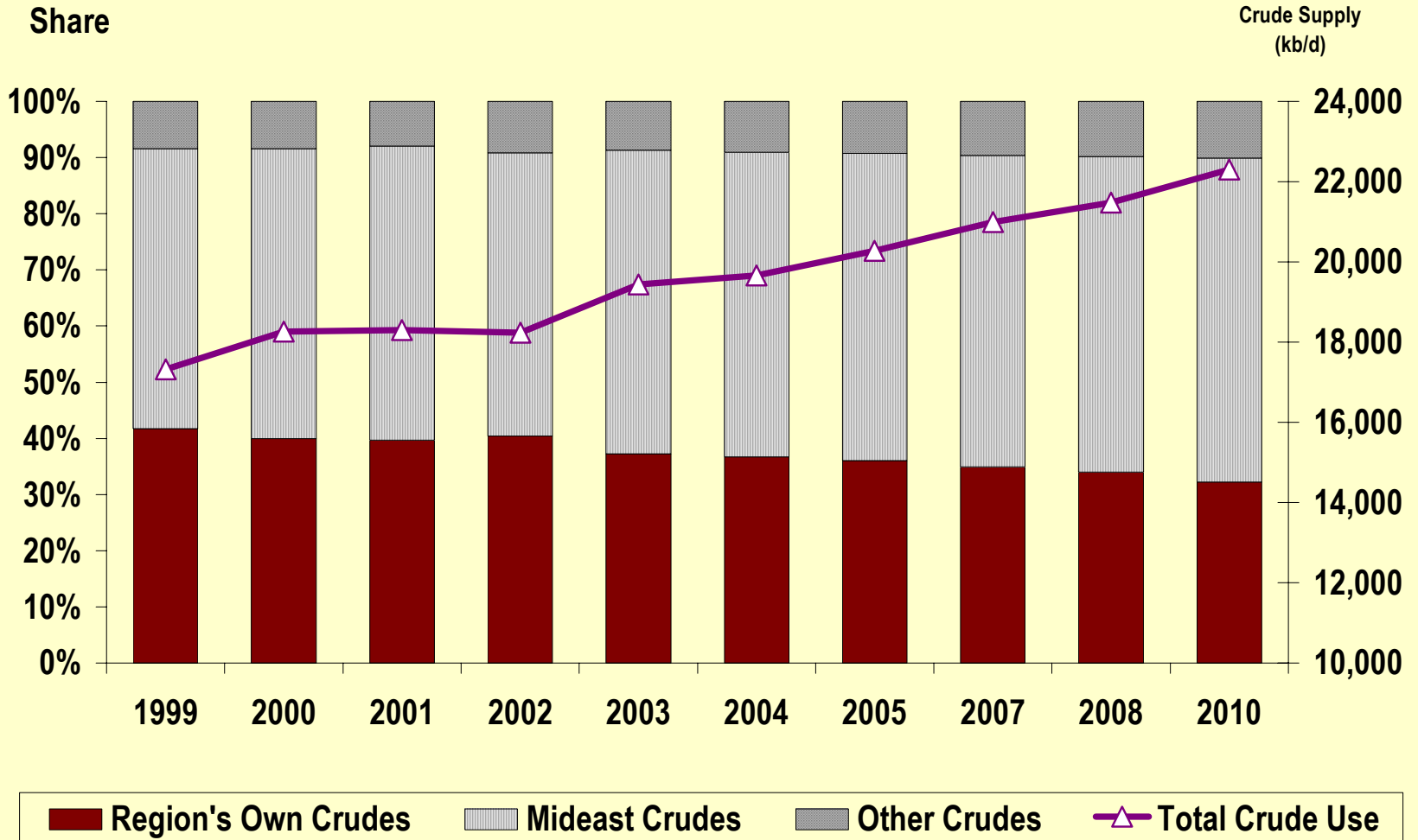


China Crude Production and Net Oil Import Requirements, 1990-2015

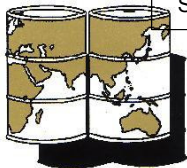
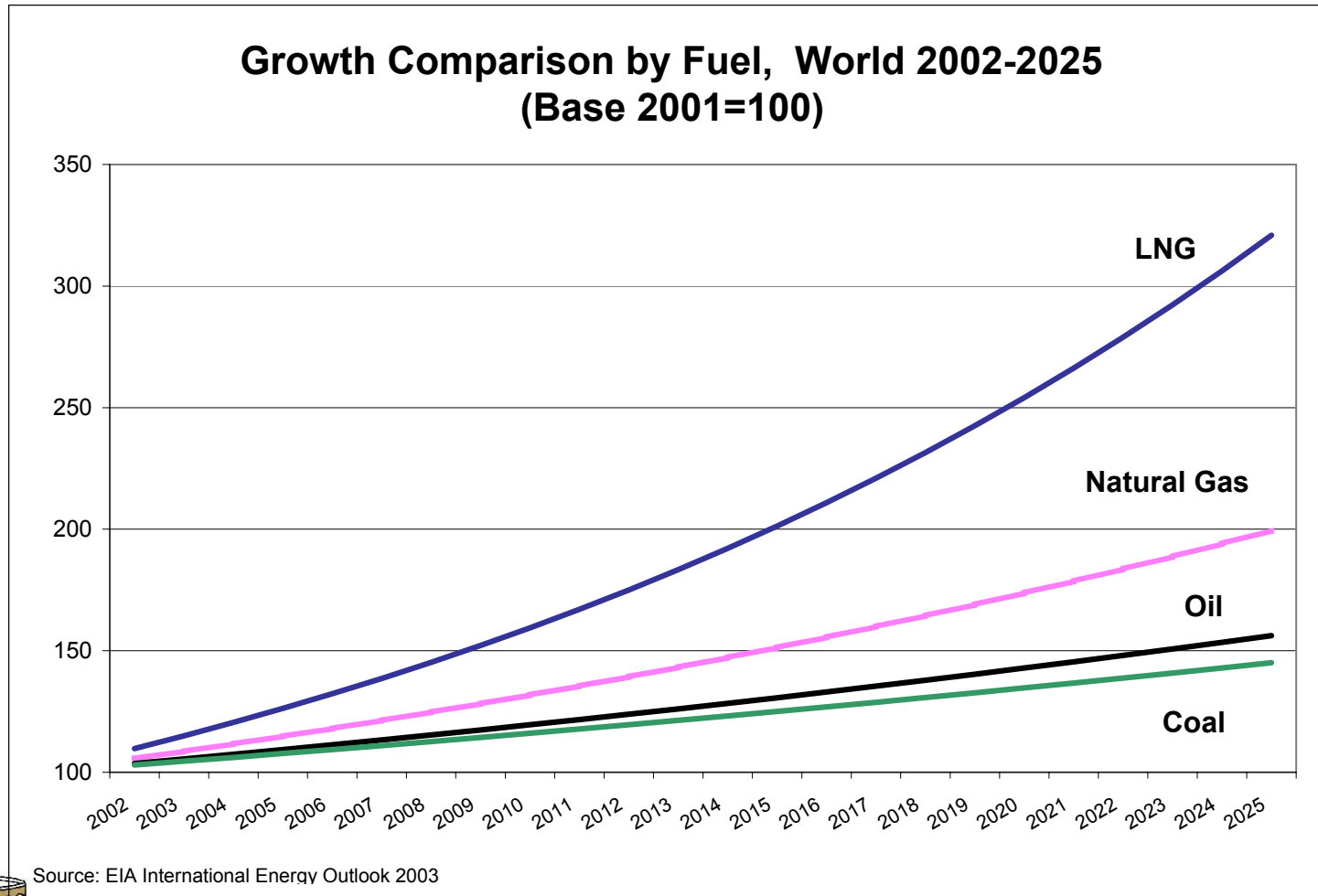
(kb/d)



Structure of Crude Oil Supply in the Asia-Pacific Region, 1999-2010

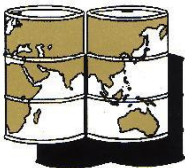
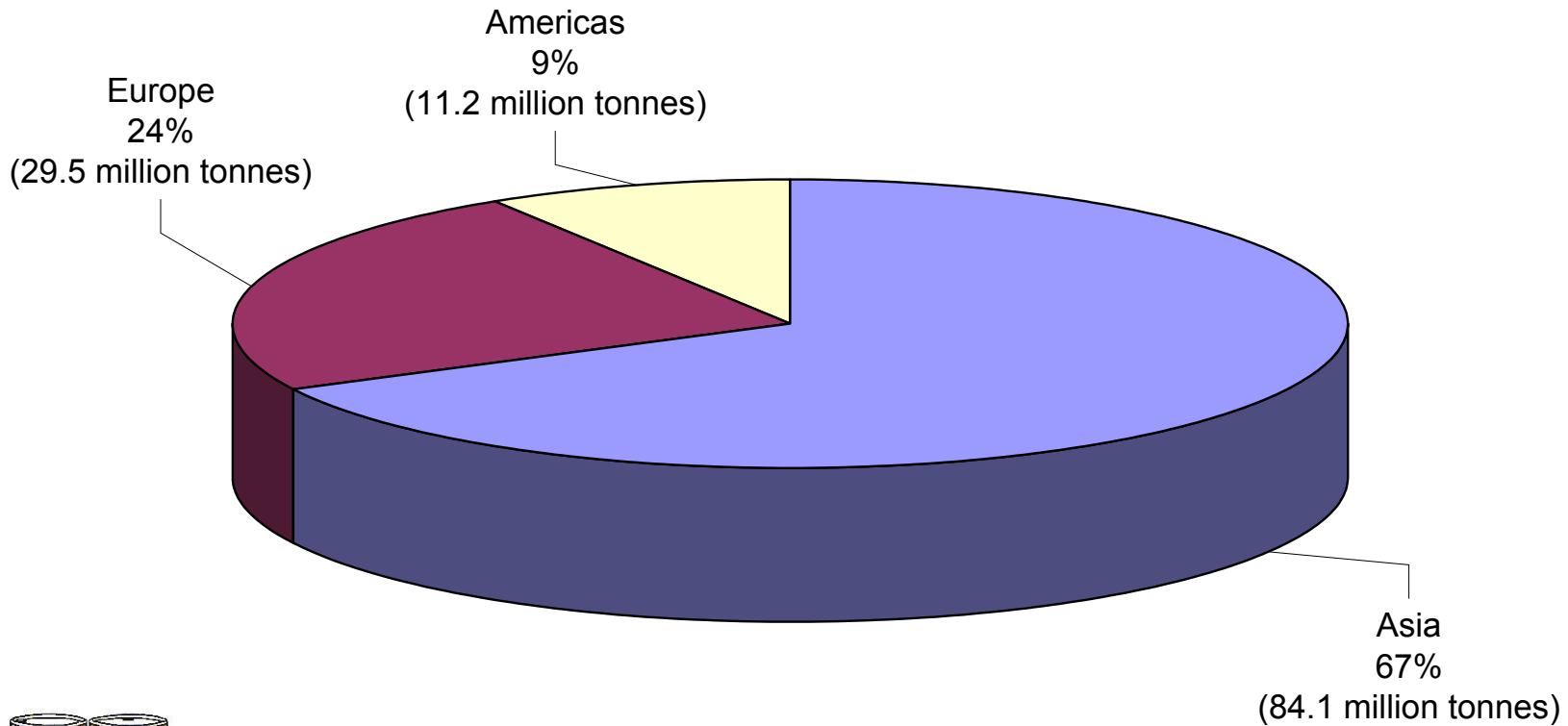


Demand and Supply Outlook



Demand and Supply Outlook

World LNG Trade, 2003



Existing Buyers

- **Japan**

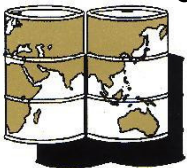
- In terms of volume, Japan still dominates the Asian LNG market.
- Uncertainty over demand growth is driving companies' behavior for new contracts and renewals—the priority is flexibility in terms of volume and destination clauses. Multi-tiered contracts with different terms are the trend.

- **Korea**

- Korea's gas requirements are large and continue to grow.
- Korea is in a powerful position in this buyer's market.
- Almost every seller knows Korea Gas (KOGAS) has the potential to be a major buyer and they will work hard to secure a deal.

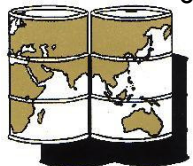
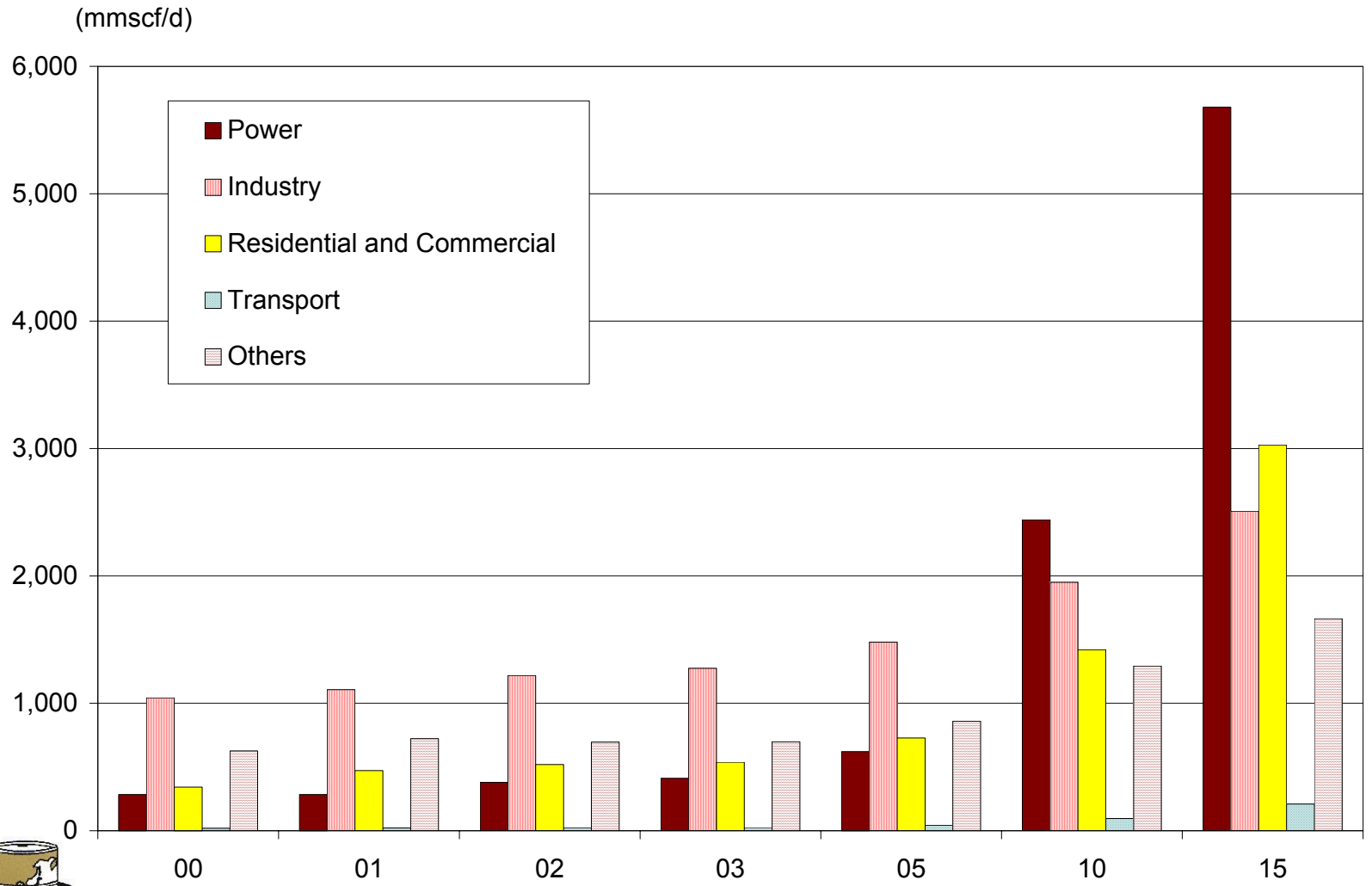
- **Taiwan**

- The recent deal between CPC and RasGas helped illustrate that in the current market, low prices can be secured for stable long-term contracts.



New Buyer: China

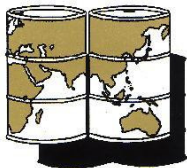
China's Sectoral Gas Consumption: Base-Case



New Buyer: China



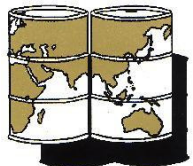
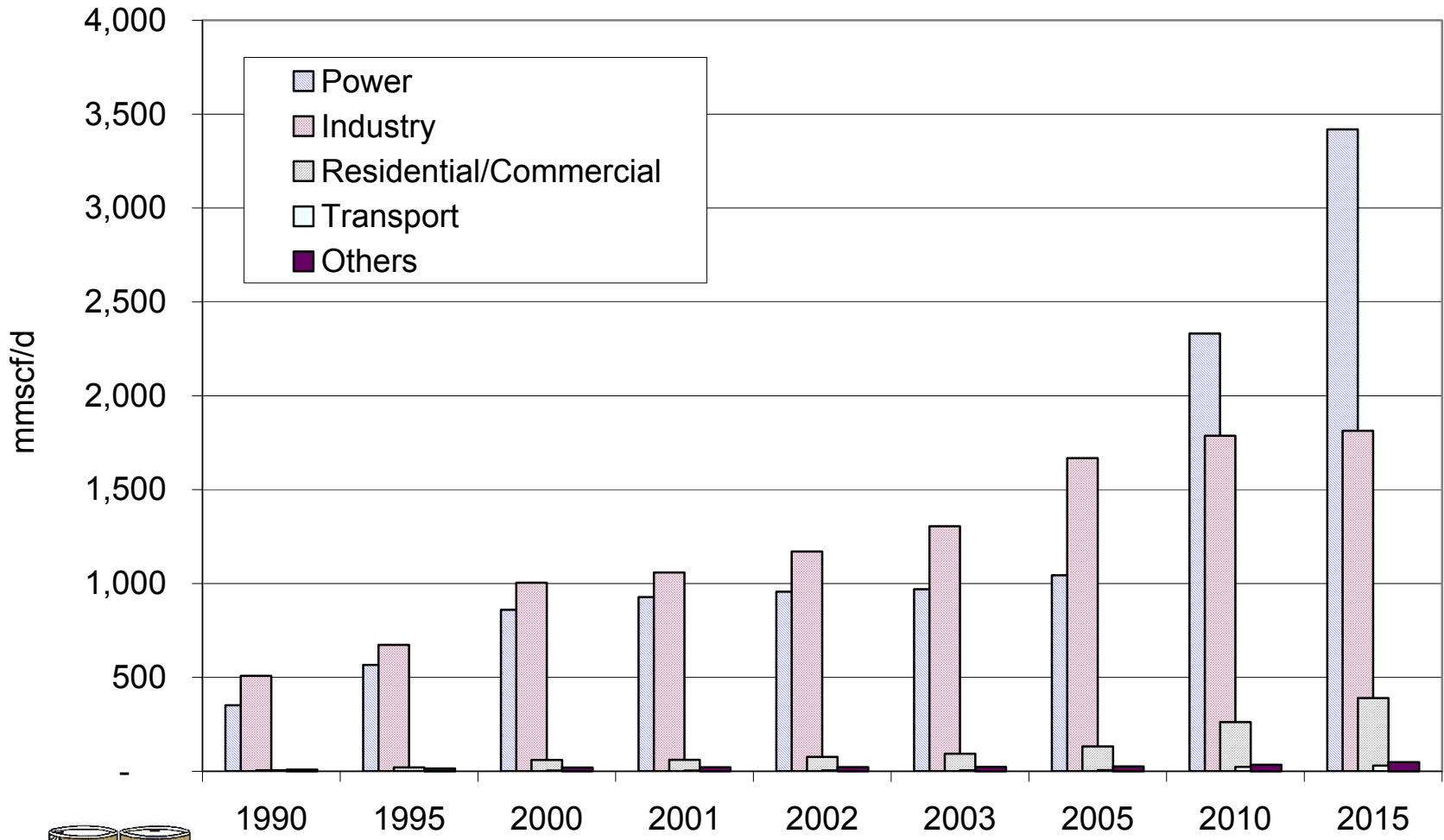
Note: the Russia-China-Korea pipeline route is for illustrative purposes only.



**China's West-East Gas Pipelines, Ordos-Beijing Pipelines,
and Proposed Russia-China-Korea Pipelines**

New Buyer: India

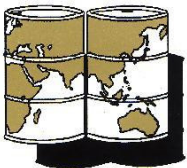
India's Sectoral Gas Consumption: Base-Case



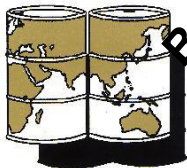
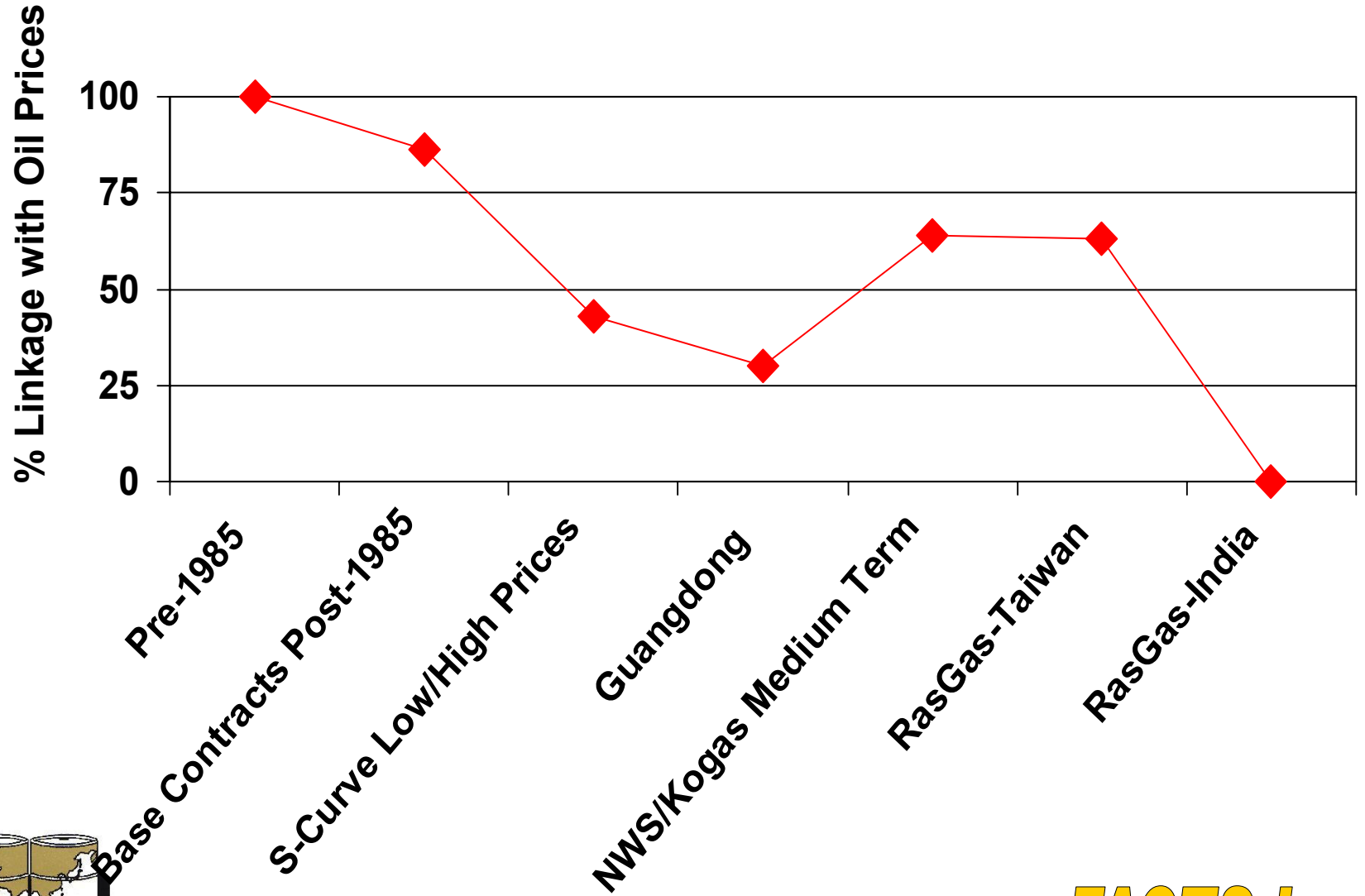
New Buyer: India

Supply Sources

- India has 3 import options for gas
 - Imports from Iran via Pakistan: This will be the cheapest source.
 - Imports from Bangladesh: This would be the second cheapest source.
 - Imports by LNG: Probably the more expensive route.
- India's geopolitical concerns have dictated that the cheapest source may be imported last.
- A new option is emerging with the discovery of gas in Burma partially owned by GAIL/ONGC.



Oil Price Relationship in LNG Contracts



Short-Term LNG Trades by Market

