

**Fourth High-Level Conference on
Asian Economic Integration:
Towards an Asian Economic Community**

November 18-19, 2005, New Delhi, India

Organized by



RIS
Research and Information System
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New Delhi, India



**Institute of Southeast Asian Studies
(ISEAS), Singapore**

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UNDP Regional Centre, Colombo

Regional Cooperation for Asian Energy Security

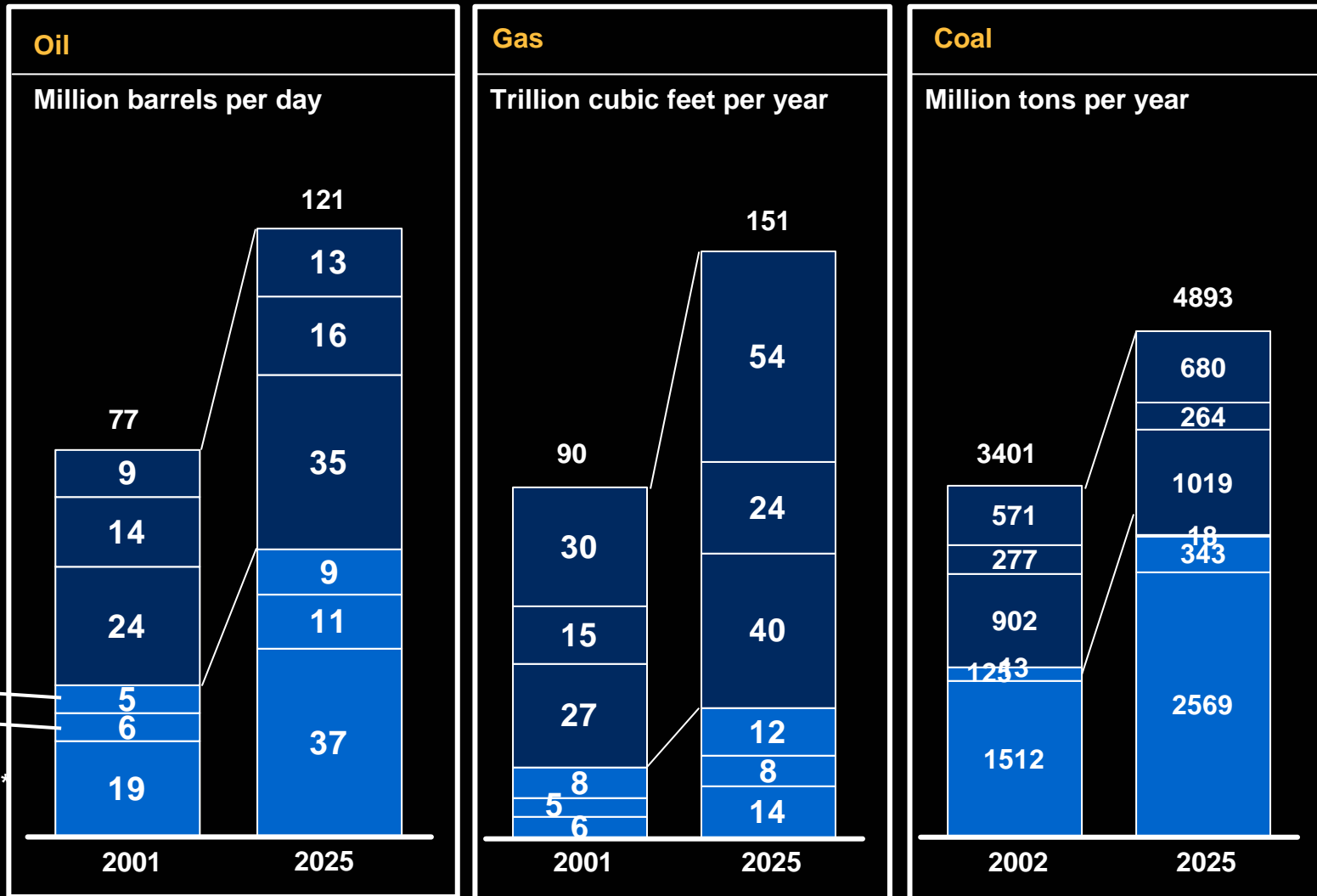
Vipul Tuli

McKinsey & Company

THREE KEY MESSAGES

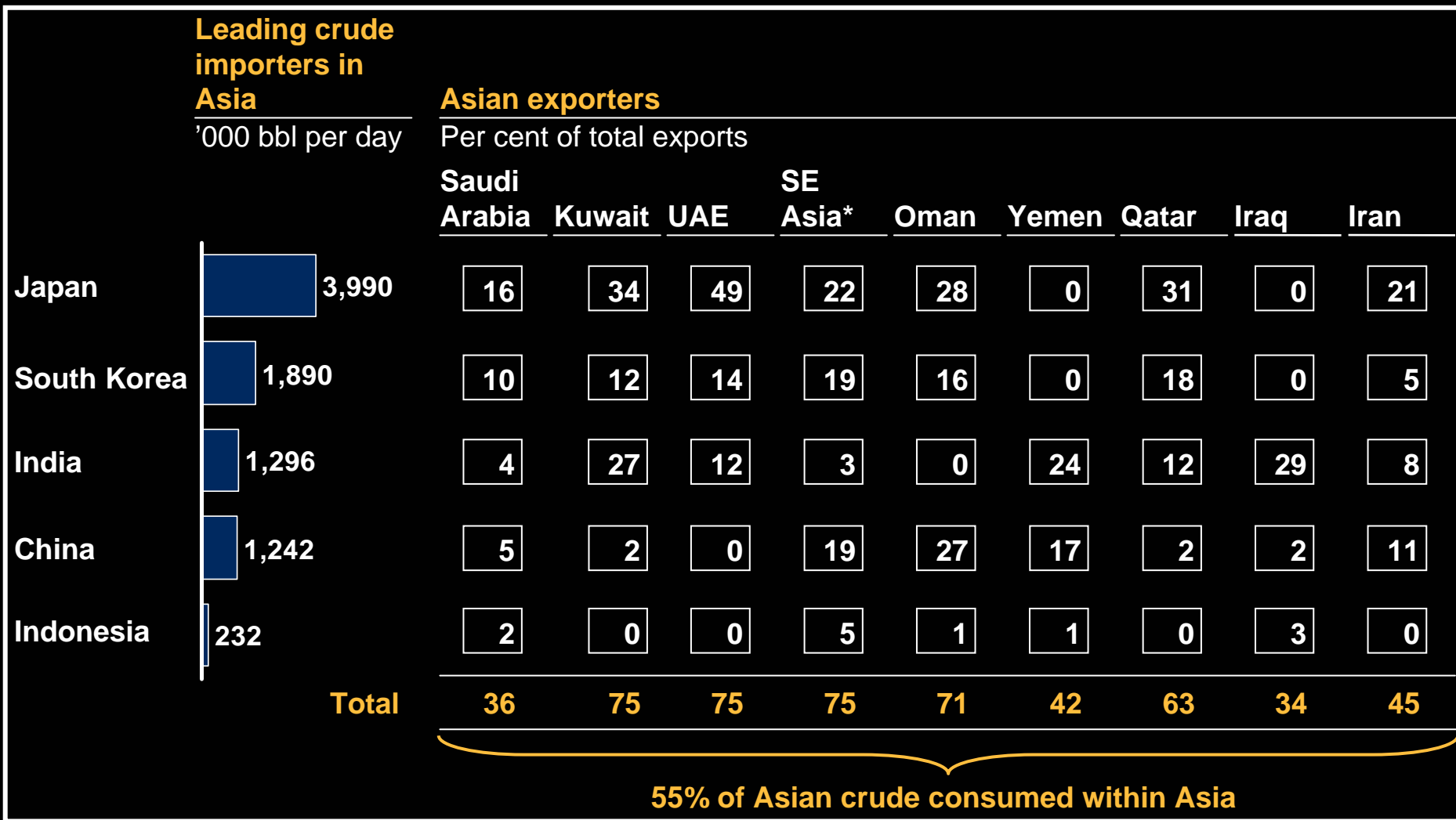
- **Cooperation within Asia is vital for major suppliers as well as major consumers**
- **However, several factors impede Asian interdependence today**
- **Common objectives, i.e., energy stability, security and sustainability could provide common ground between nations – numerous opportunities to increase collaboration**

ASIA WILL BE THE DOMINANT CONSUMER OF OIL, GAS AND COAL



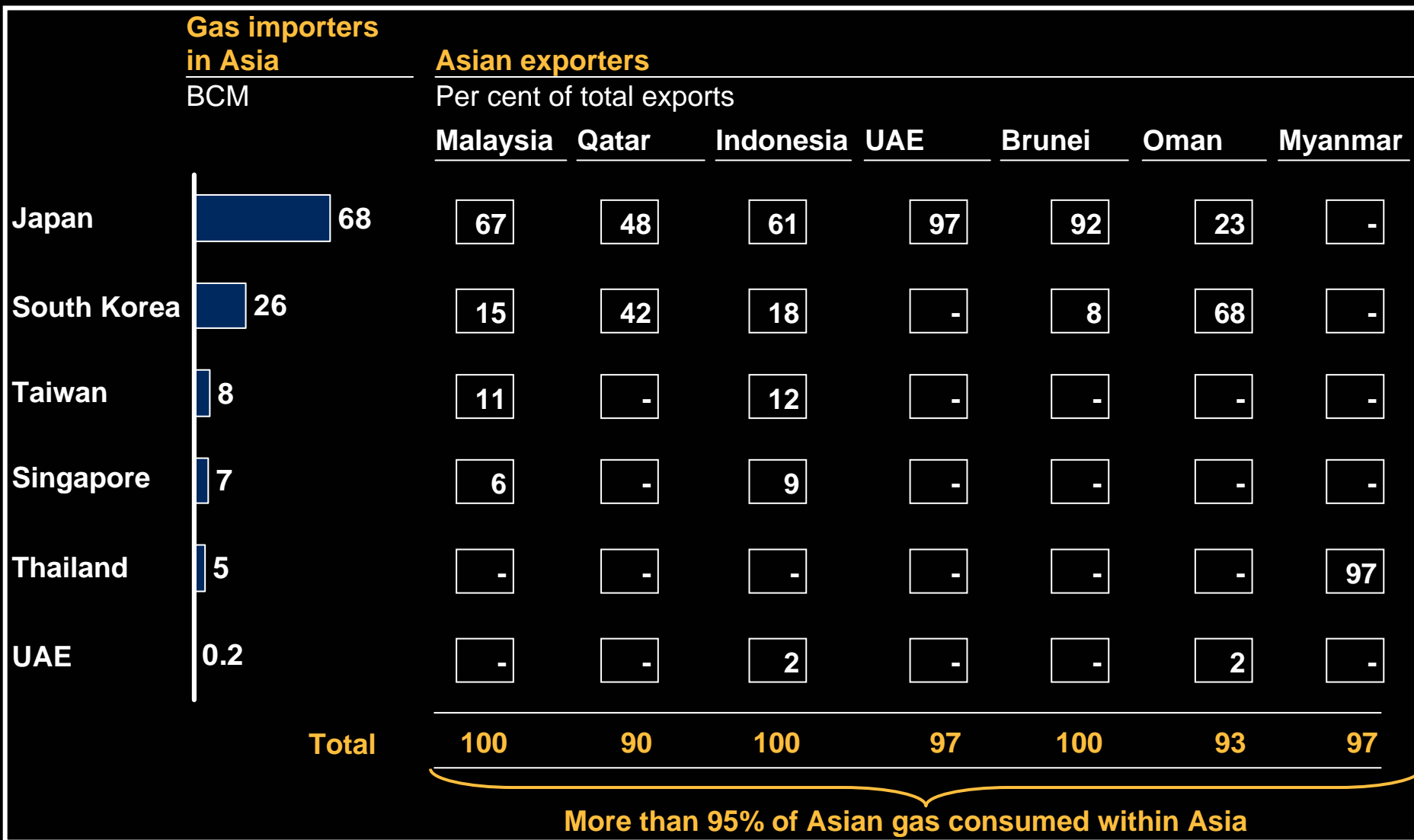
55% OF ASIAN CRUDE CURRENTLY CONSUMED WITHIN ASIA

FY2003



MORE THAN 95% OF ASIAN GAS CONSUMED WITHIN ASIA

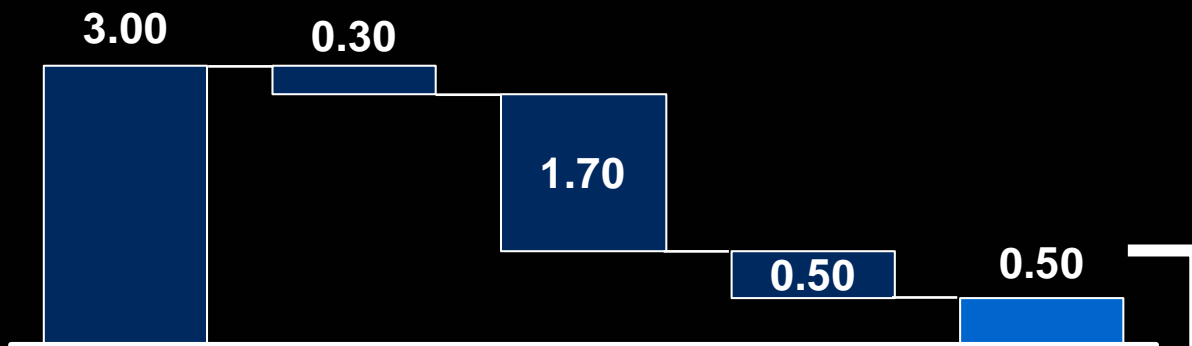
FY2003



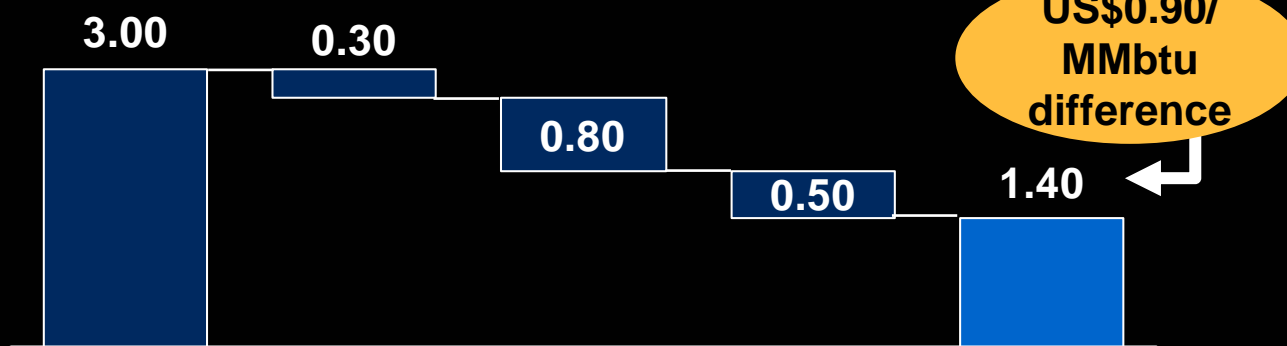
SUPPLYING WITHIN ASIA POTENTIALLY MORE PROFITABLE: GAS EXAMPLE

US\$/MMbtu; FY2015

Economics of supply from Qatar to US, East Coast

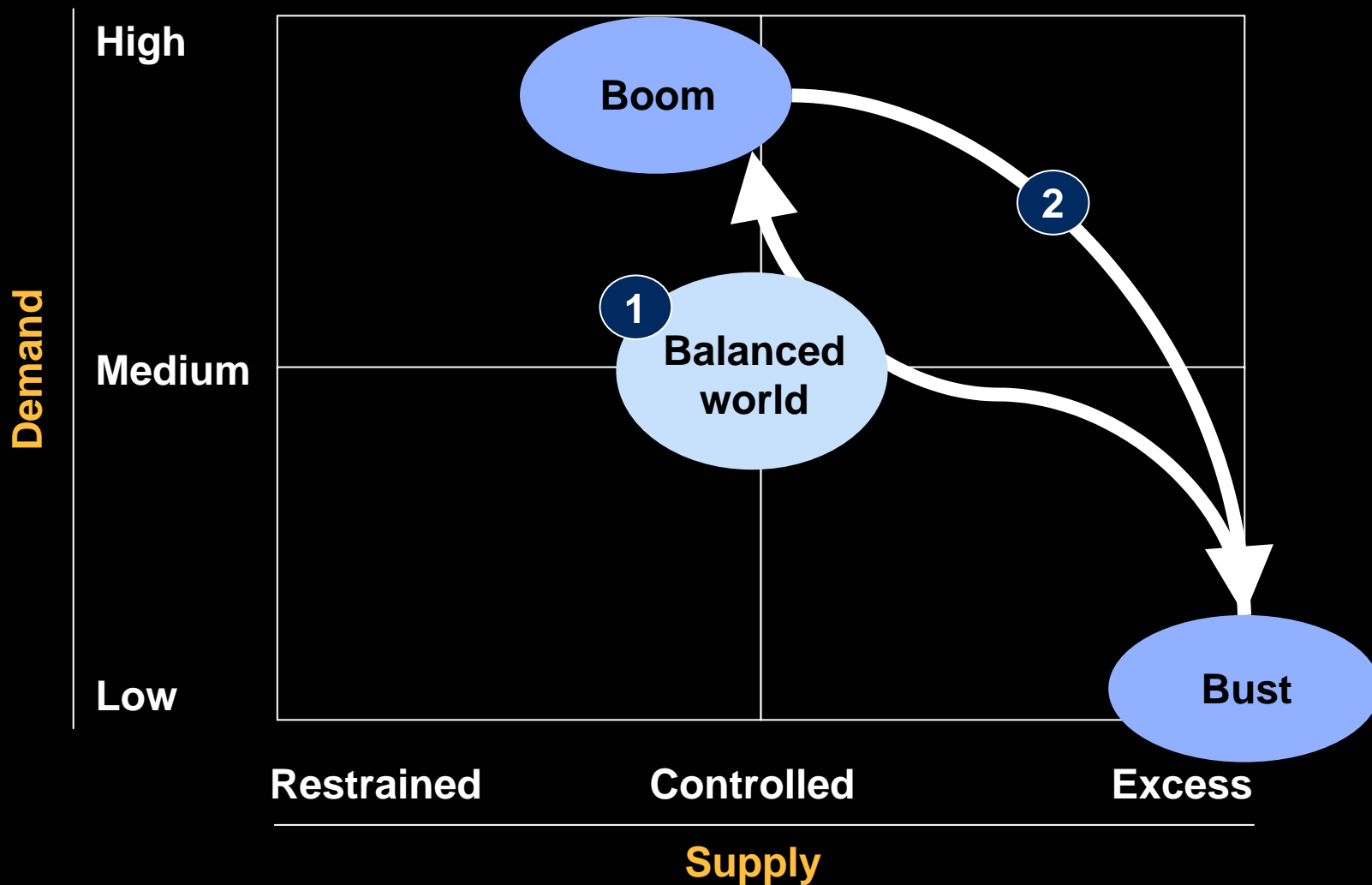


Economics of supply from Qatar to China

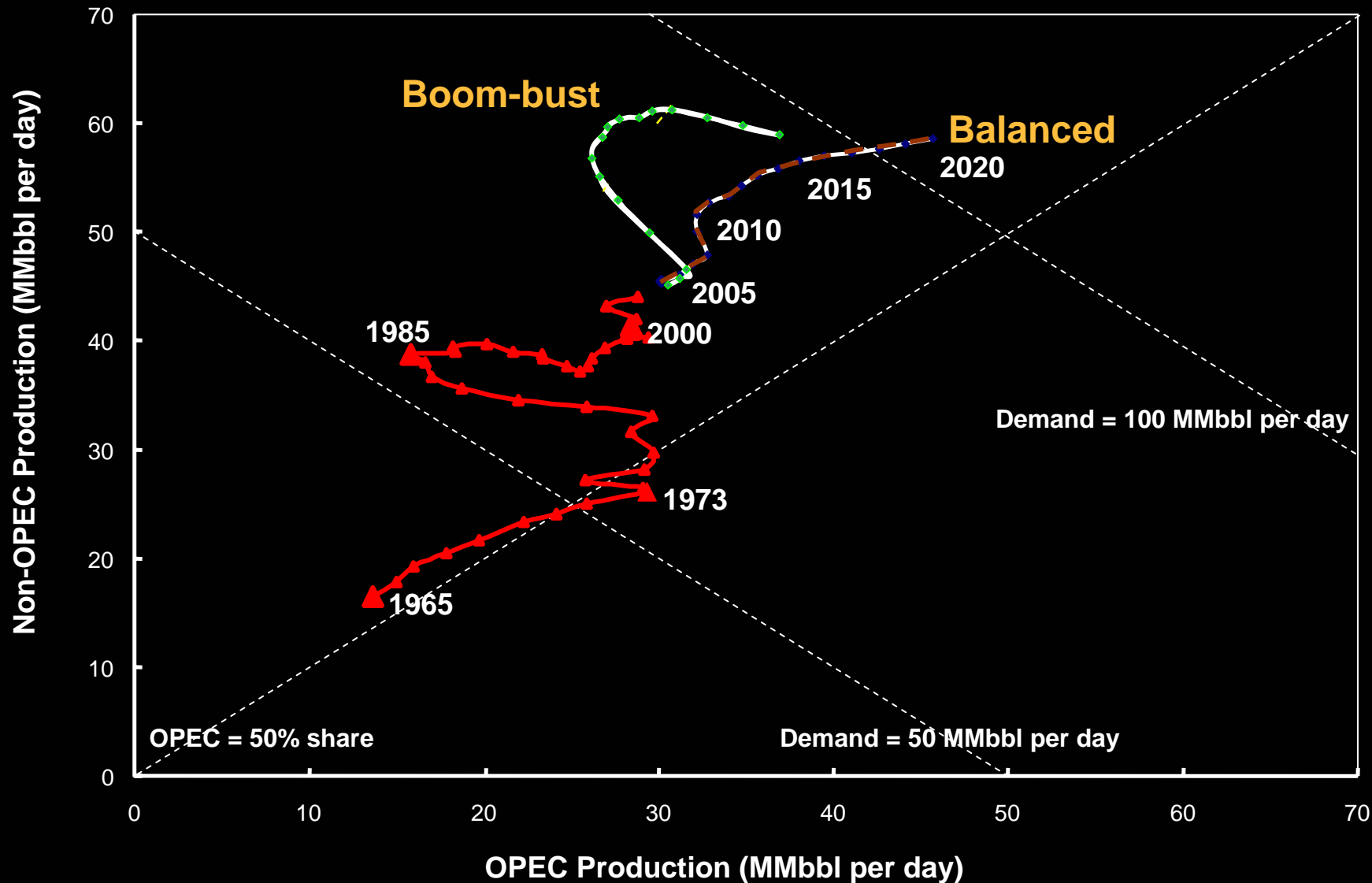


2015 gas "into pipeline" price (illustrative) Regasification Shipping Liquefaction Producer Netback

APPROACH TO UPSTREAM CAPACITY ADDITION: BOOM-BUST OR BALANCED?

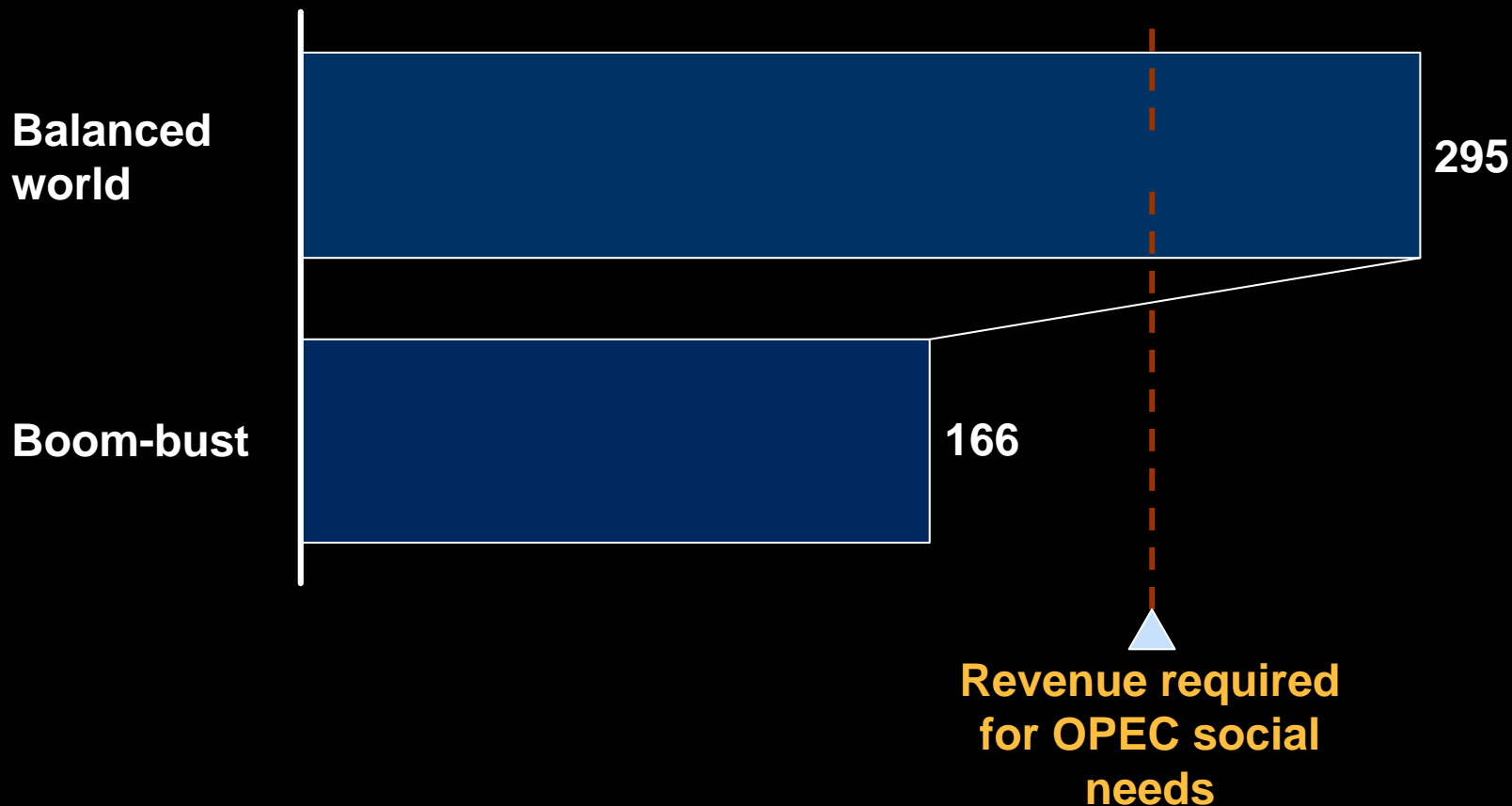


BALANCED APPROACH HELPS INCREASE SHARE AND VOLUMES



MARKET STABILITY CRITICAL FOR SUPPLIER NATIONS: OPEC EXAMPLE

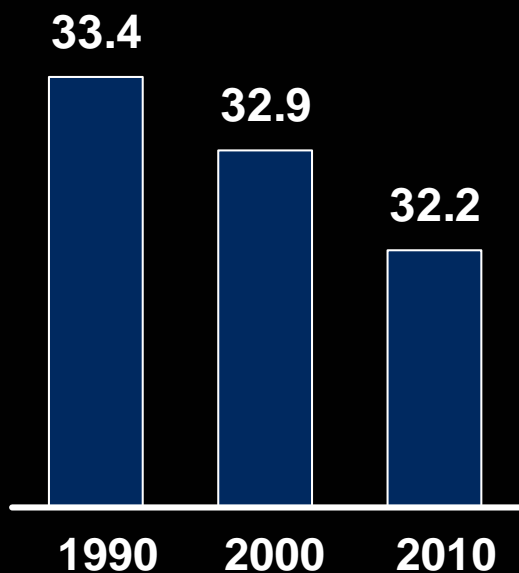
Annual revenue in US\$ Billion; FY2009



ASIA NEEDS INVESTMENTS IN COMPLEX REFINING CAPACITY

OPEC crude becoming heavier, more sour

Average API



Sulphur, Per cent



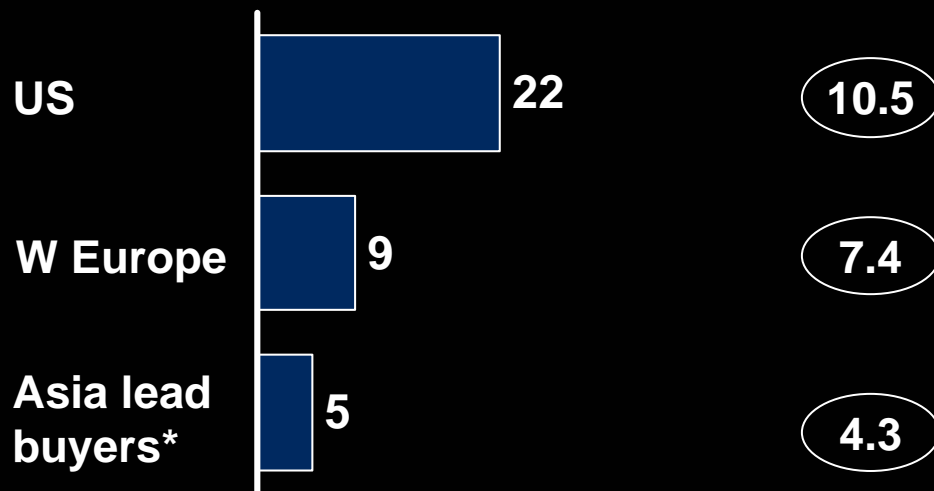
Asia has low complex refining capacity

Coking + Hydrocracking capacity

Per cent of distillation capacity; FY2004

Refining complexity

Nelson index; FY2004



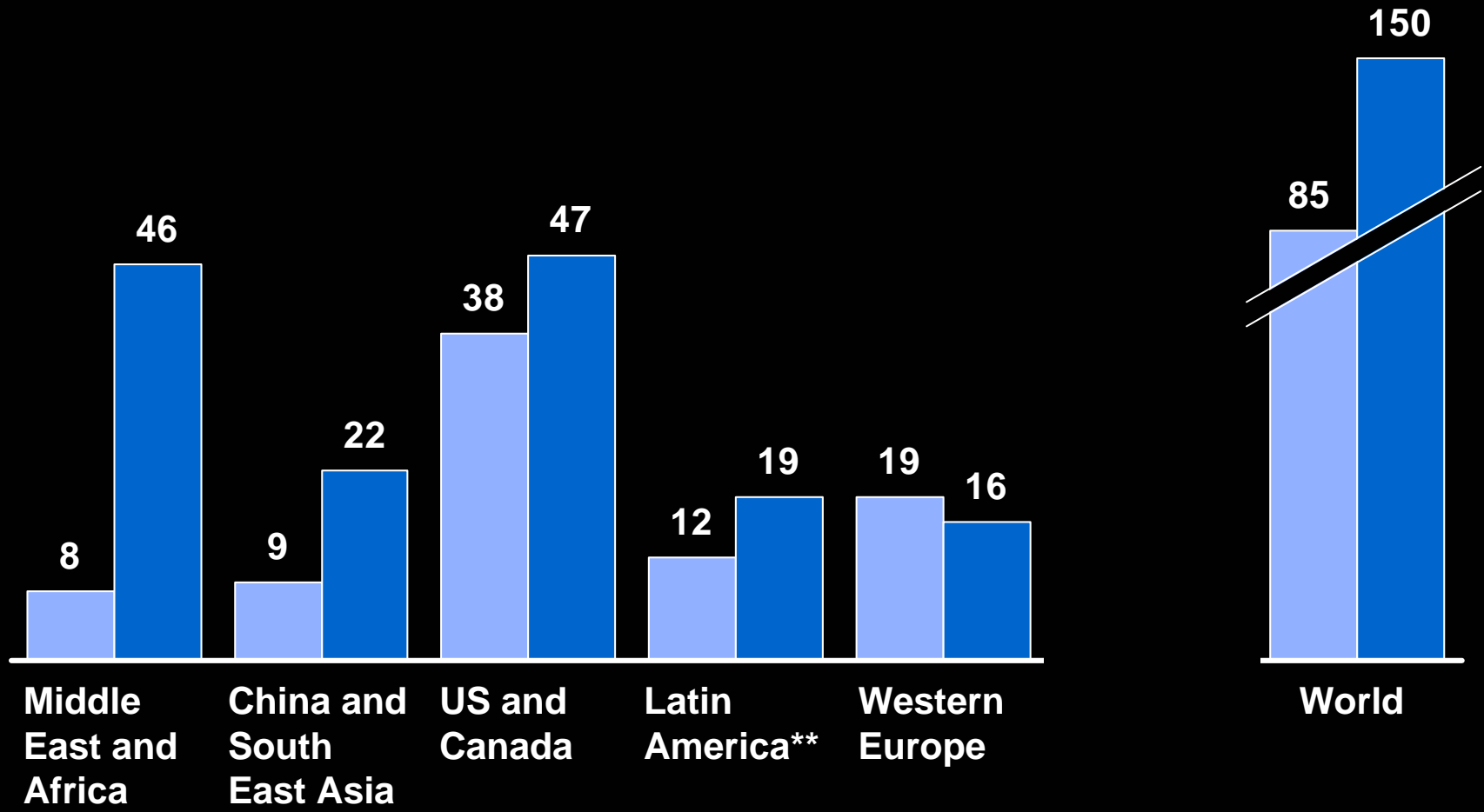
MARKET STABILITY ALSO CRITICAL FOR CONSUMING NATIONS: CHINA EXAMPLE

<u>Type of shock</u>	<u>Lost GDP growth</u> Per cent of GDP
Financial <ul style="list-style-type: none">• Local liquidity crisis• Local non performing loan implosion	10-20%
Energy <ul style="list-style-type: none">• Input price shock• Distribution shock	5-10%
Natural disaster <ul style="list-style-type: none">• Grains shortage (floods)• Destruction of major cities or transport hub	2%
Public health <ul style="list-style-type: none">• Infectious disease	N.A.

SUPPLIER COUNTRIES NEED LARGE INVESTMENTS

Annual upstream capital investment* in US\$ Billion

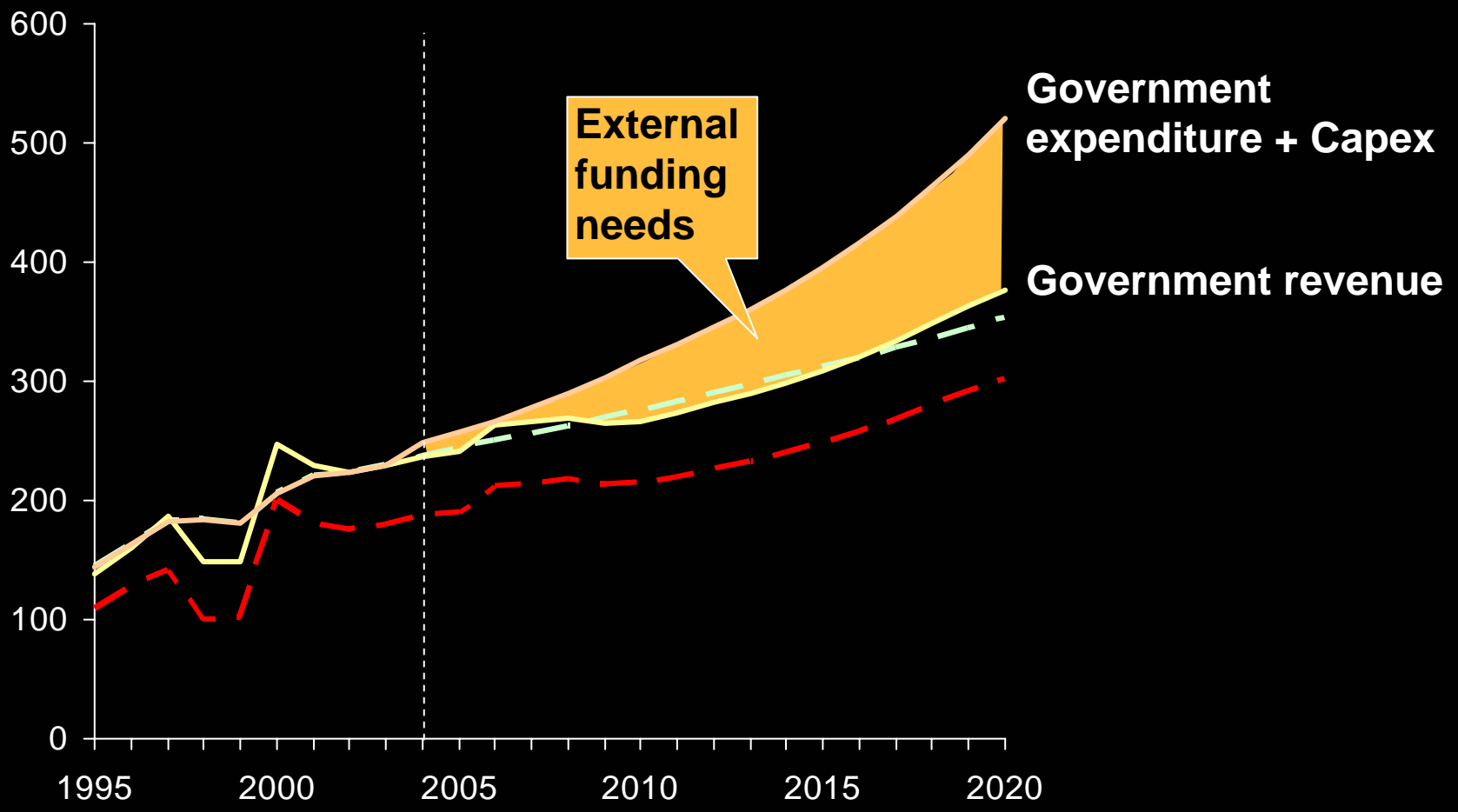
1990-2001
2001-2030



EXTERNAL FUNDING NEEDED: OPEC EXAMPLE

US\$ Billion

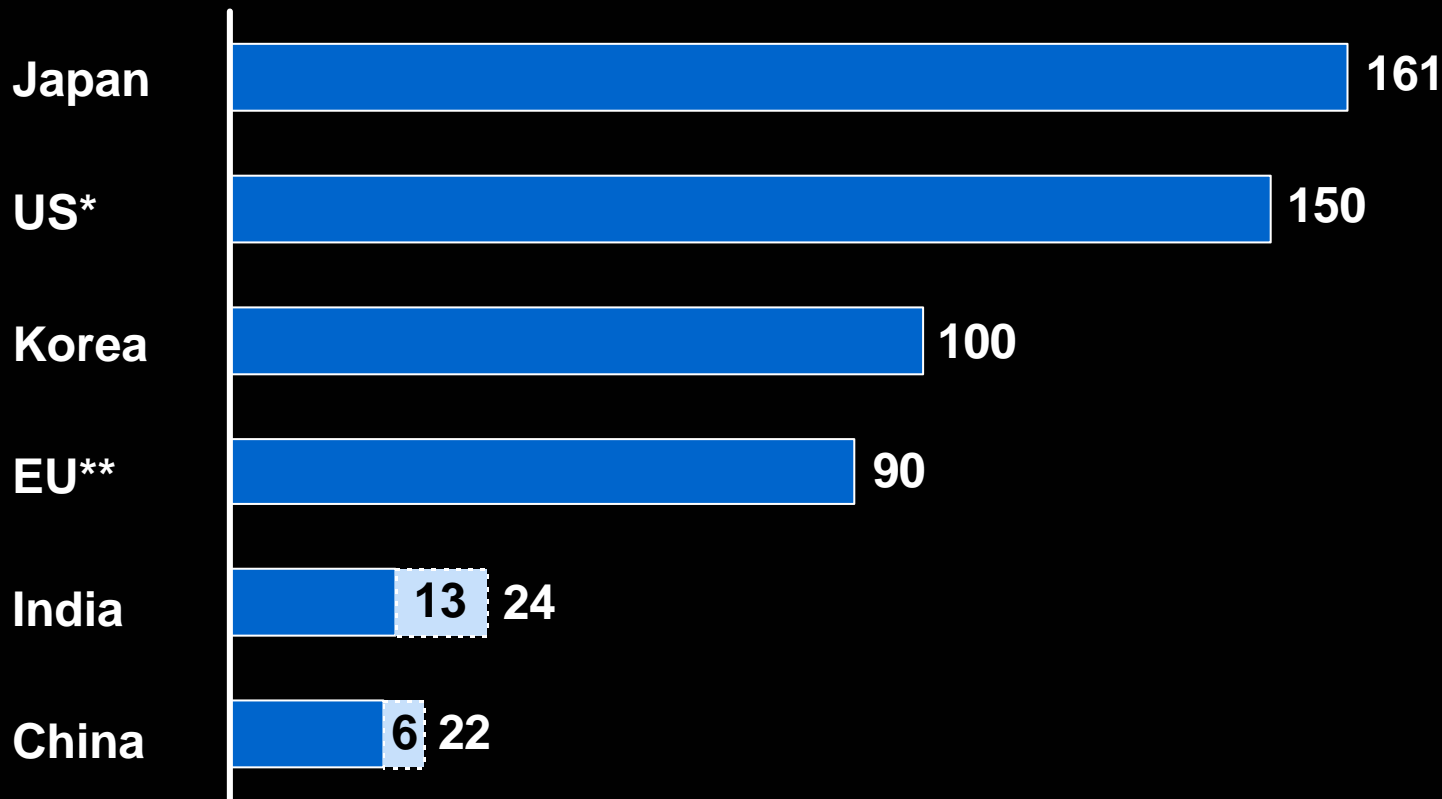
- Government expenditure*
- Oil revenue**



STORAGE CAPACITY IN CHINA AND INDIA IS LOW

 Planned

Crude storage capacity in days consumption; FY2004



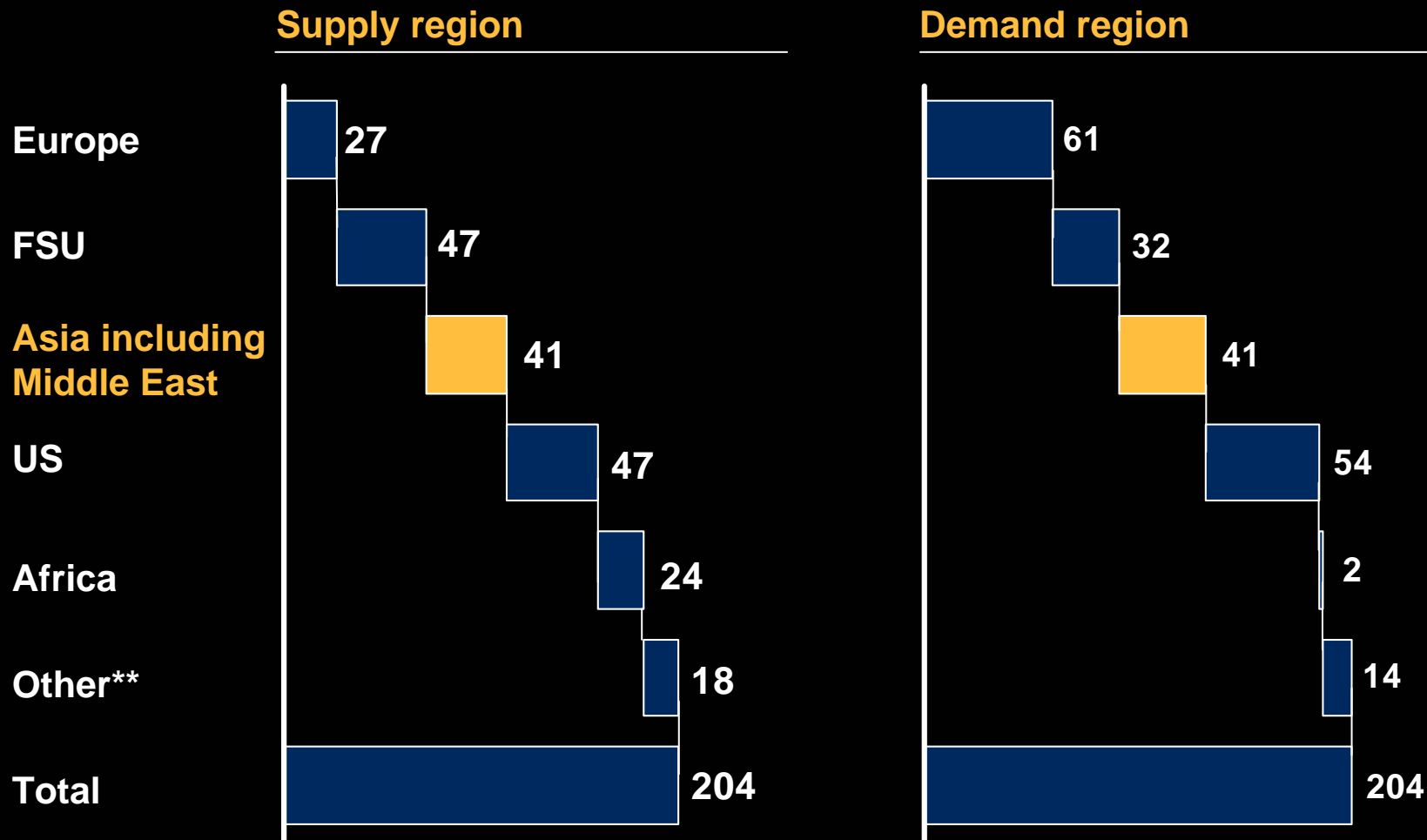
ASIAN OIL AND GAS MARKETS NOT EFFICIENT



Key requirements	Why is it important	Asian market situation
<p>1 Active backing of key demand or supply centre</p>	<ul style="list-style-type: none"> • Shallow markets lack credibility • Reduces speculation 	
<p>2 Adequate storage and delivery</p>	<ul style="list-style-type: none"> • Reduces speculation • Encourages participation of all serious buyers and sellers 	
<p>3 Regulations and governance</p>	<ul style="list-style-type: none"> • Minimise legal and financial hurdles • Transparent clearance, settlement and arbitration process 	
<p>4 Large number of contracts – Spot and futures</p>	<ul style="list-style-type: none"> • Enhances liquidity • Encourages hedging 	

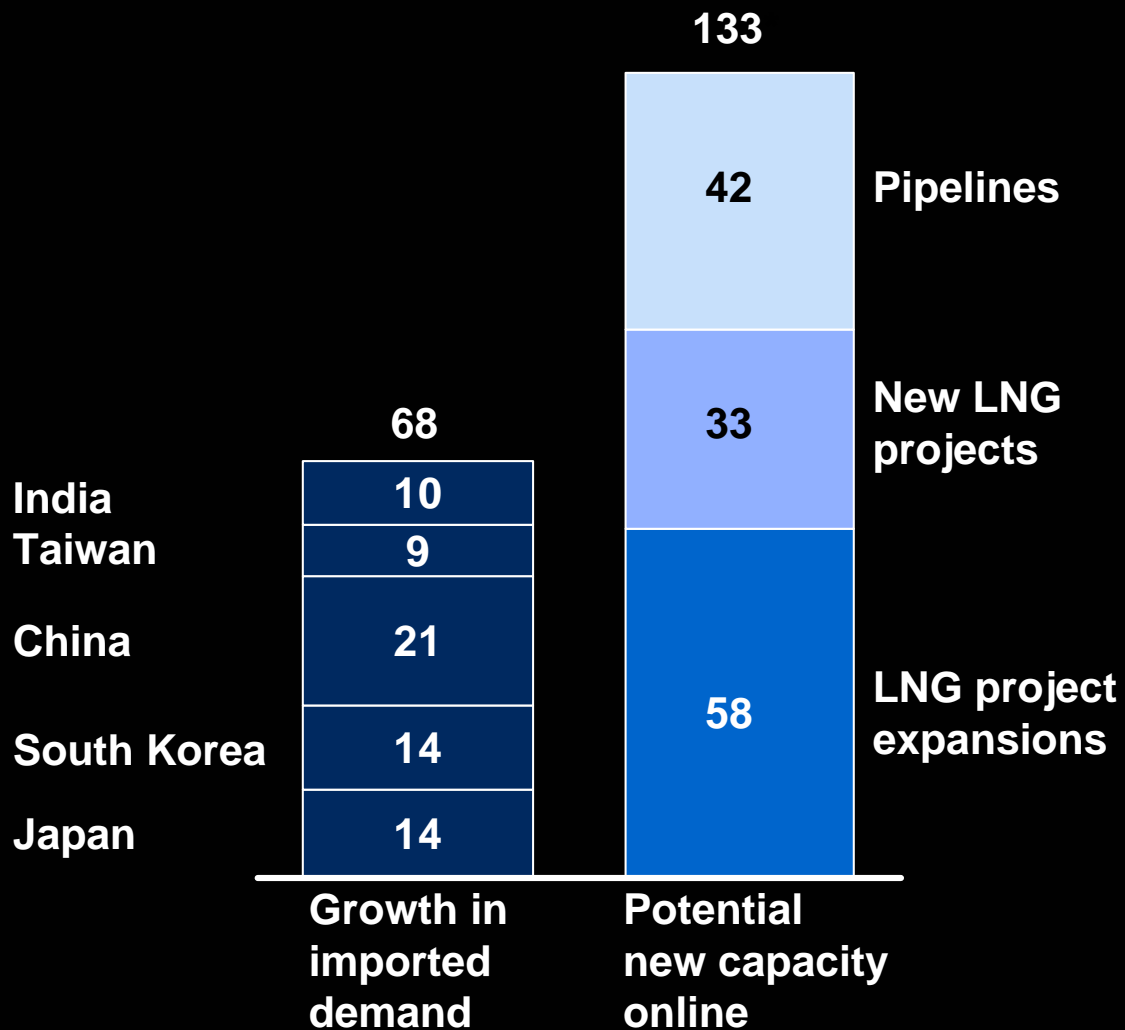
ASIA OFFERS THE THIRD LARGEST MARGIN POOL IN GAS

Annual margin* in US\$ Billion; FY2015



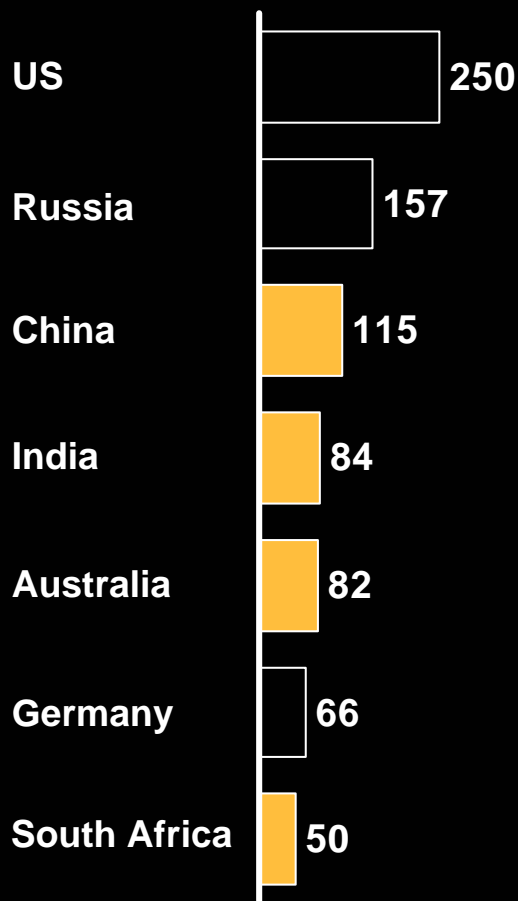
SEVERAL NEW GAS PROJECTS PLANNED IN ASIA

BCM per year; FY2000-2010

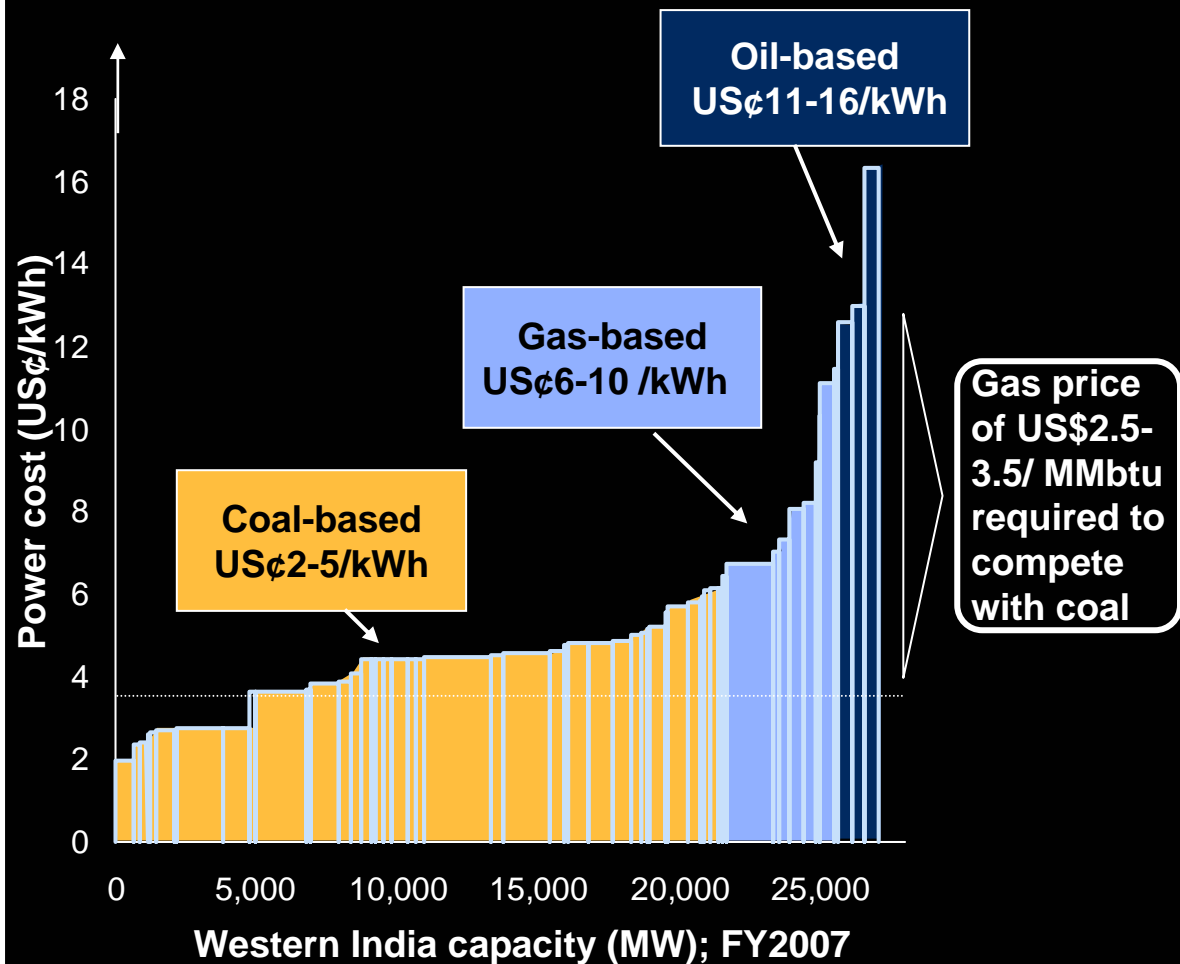


ABUNDANT COAL RESERVES WILL CAP KEY ASIAN CONSUMERS' ABILITY TO PAY FOR GAS

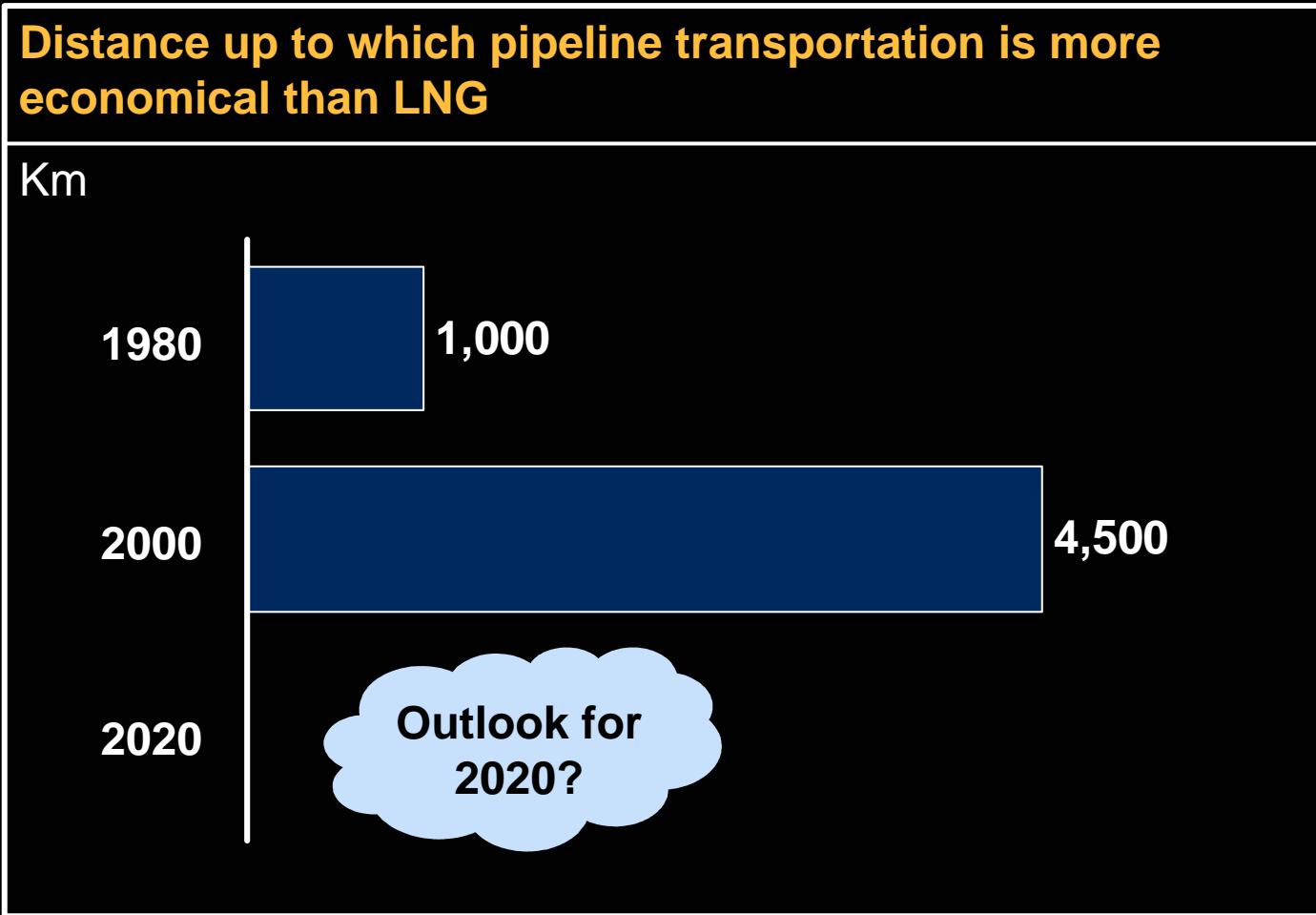
Proven coal resources in billion tons; FY2002



Coal will compete for gas in India/China's power sector



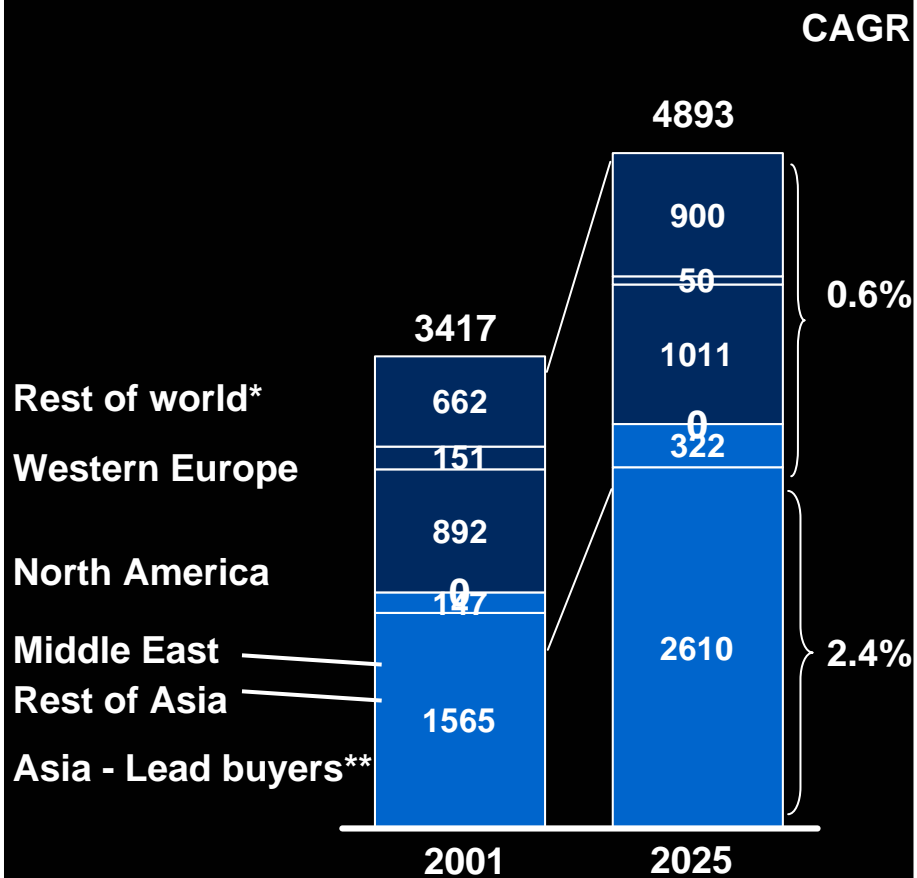
ECONOMICS OF PIPELINE VS. LNG ARE EVOLVING



ASIAN PRODUCTION AND CONSUMPTION OF COAL

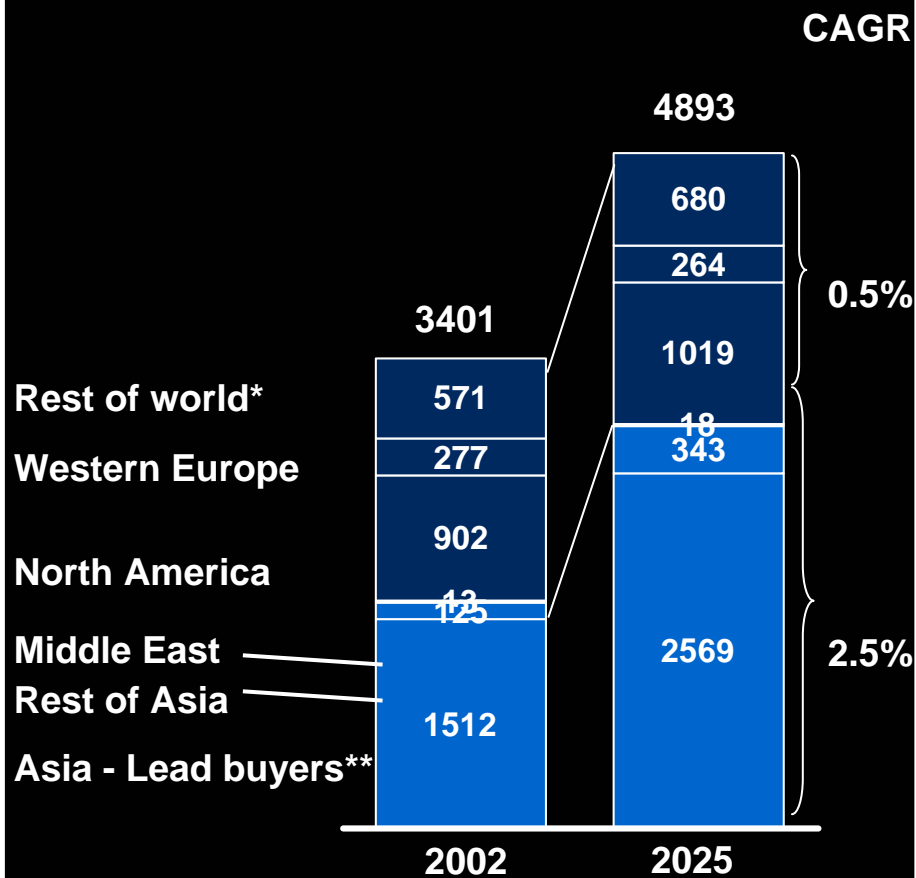
Coal production

Million tons per annum

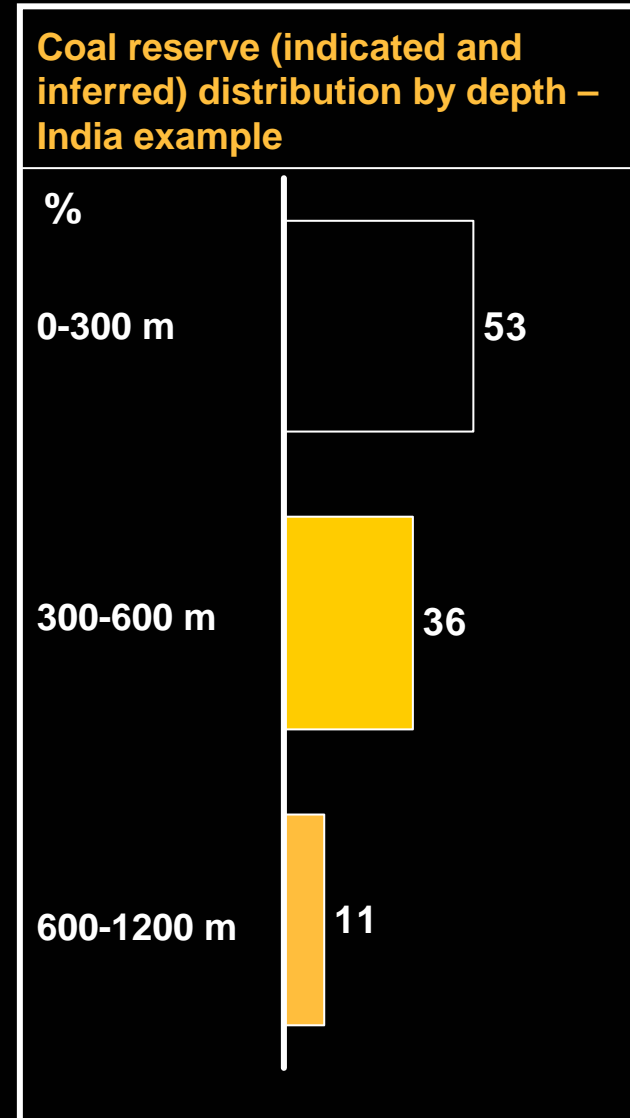
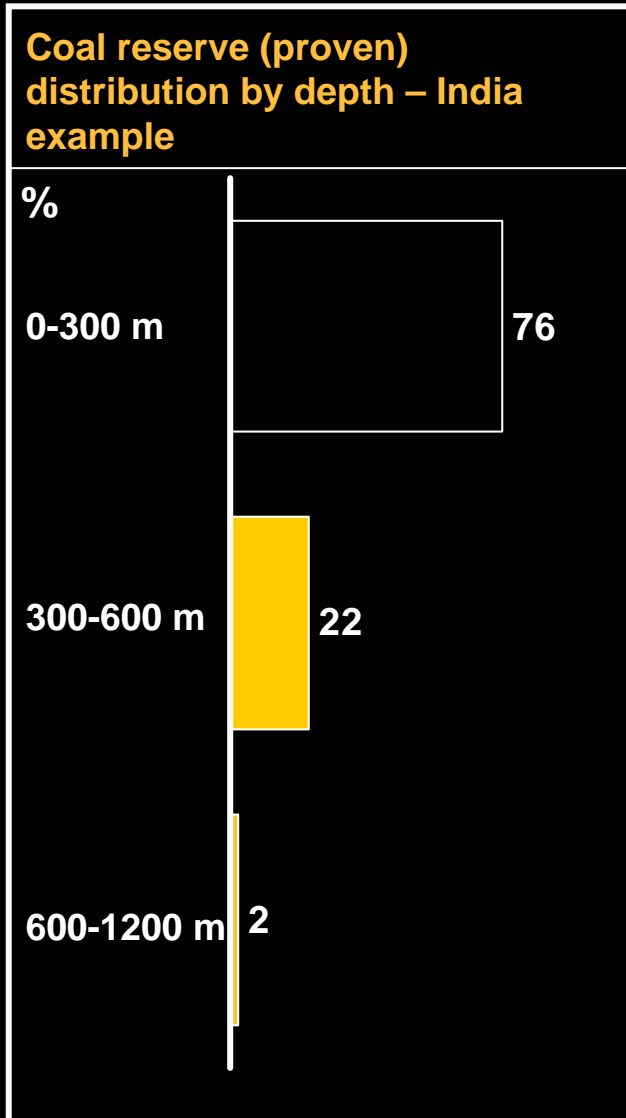


Coal consumption

Million tons per annum



ASIA NEW COAL RESERVES LIKELY AT INCREASING DEPTH



NINE POTENTIAL IDEAS FOR COLLABORATION

	Objectives	Potential win-win areas
Stability	Stable prices, revenue growth	<ol style="list-style-type: none"> 1. Create a deep, liquid and transparent Asian energy market
Security	Capacity creation and physical supply	<ol style="list-style-type: none"> 1. Share information on supply, demand, inventory positions 2. Co-invest in building emergency response mechanisms, e.g., strategic reserves, cross-border inventories 3. Increase scale and pace of joint investments in upstream and feedstock-related downstream 4. Allow private and foreign investment in coal mining 5. Create a pan-Asian gas grid
Sustainability	Making the partnerships endure	<ol style="list-style-type: none"> 1. Pursue multilateral projects to strengthen cooperation, e.g., joint research on energy technologies, standardised product specifications 2. Promote co-operation and joint ventures with regional coal mining companies from South Africa and Australia 3. Strengthen National Oil Companies/National Coal Companies through corporatisation and regional cooperation

Conference on Asian Economic Cooperation

Regional Cooperation for
Asian Energy Security

Vipul Tuli

McKinsey&Company

November 19, 2005