



Towards a World Gas Market, Observations Along the Way

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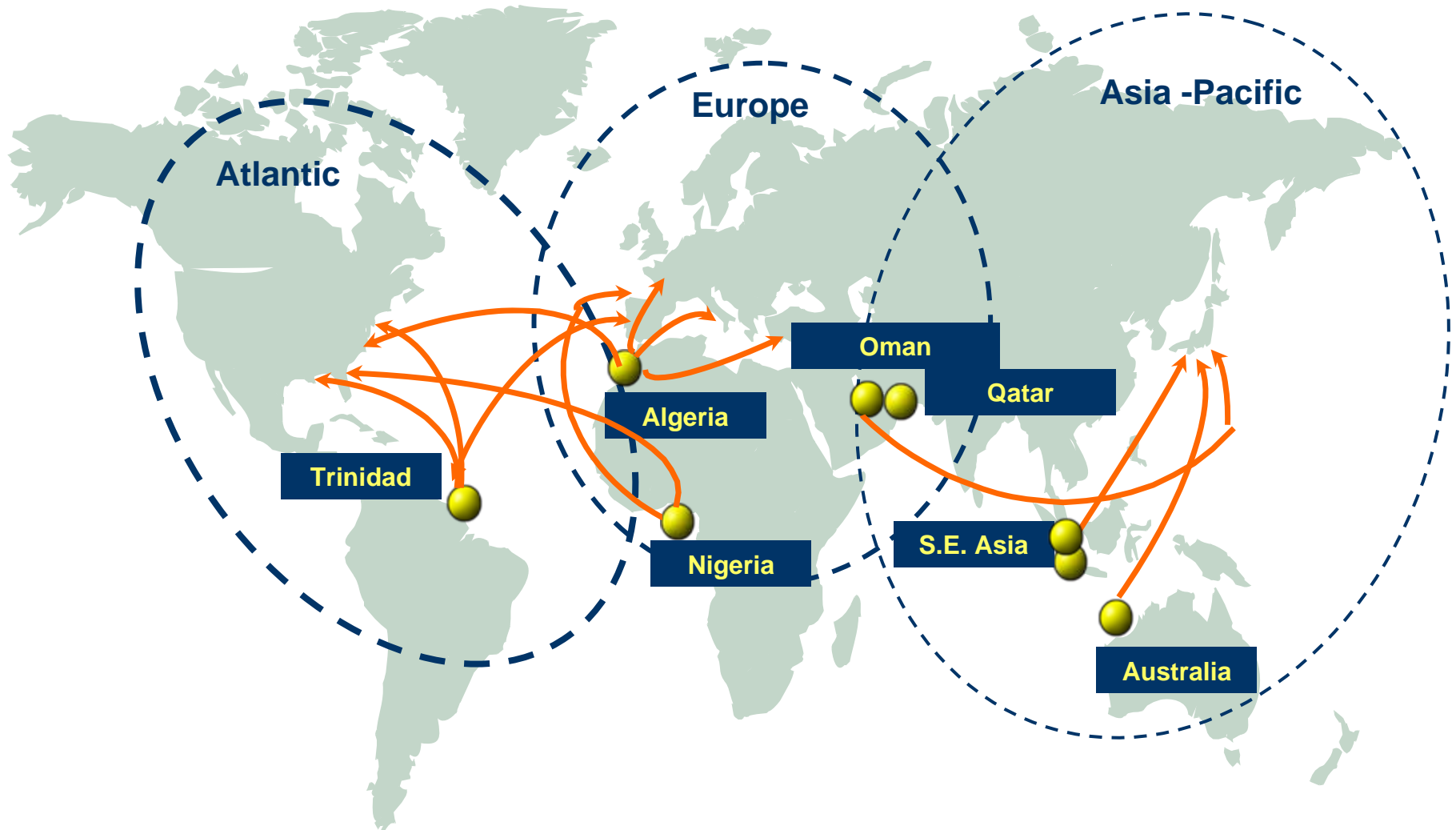
Outline

- North America in the World
- LNG Markets Today
- Emerging Trends
- Observations – The Rain in Spain . . .

Gas Reserves are Abundant

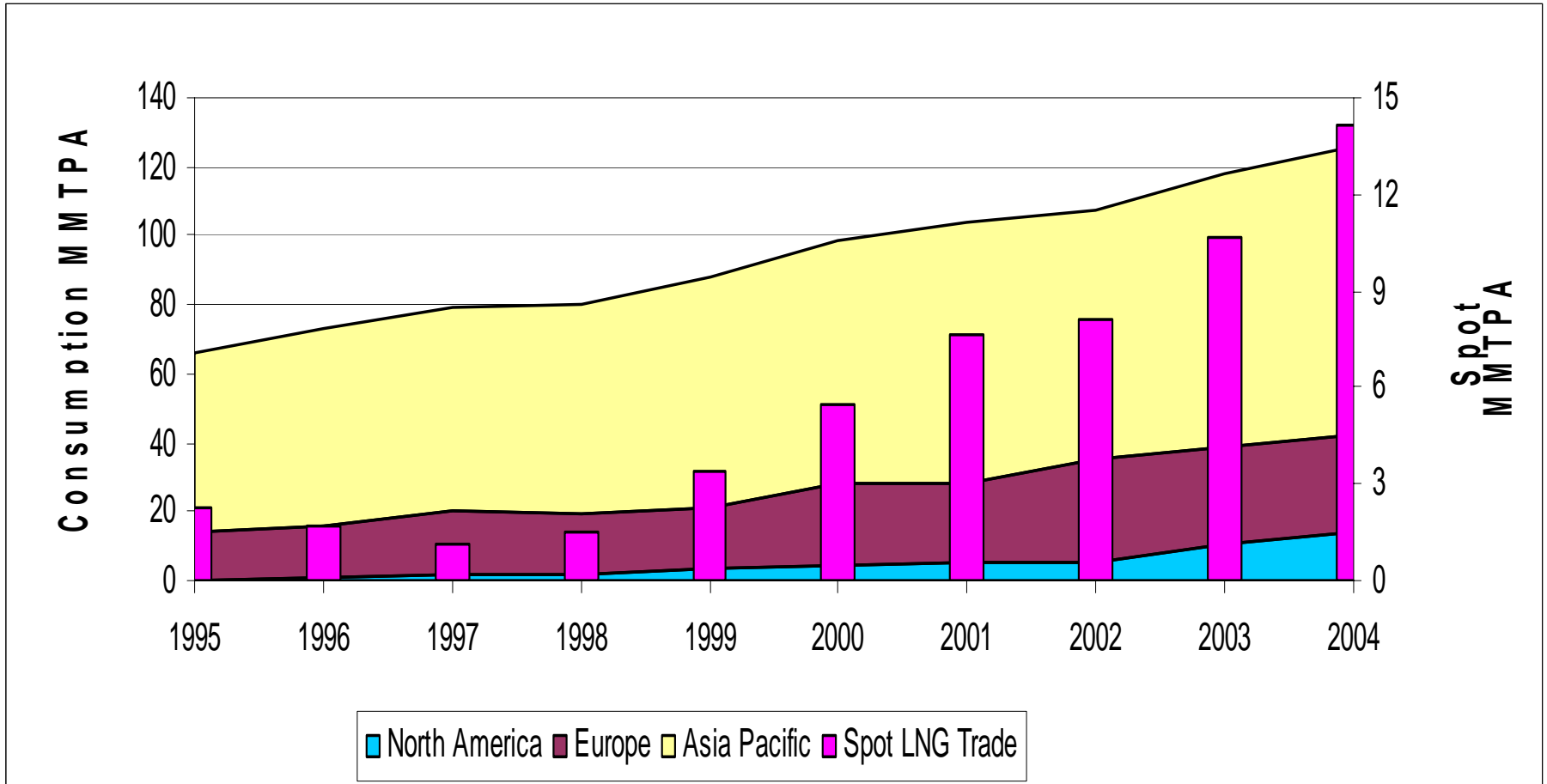


Current World LNG Flows



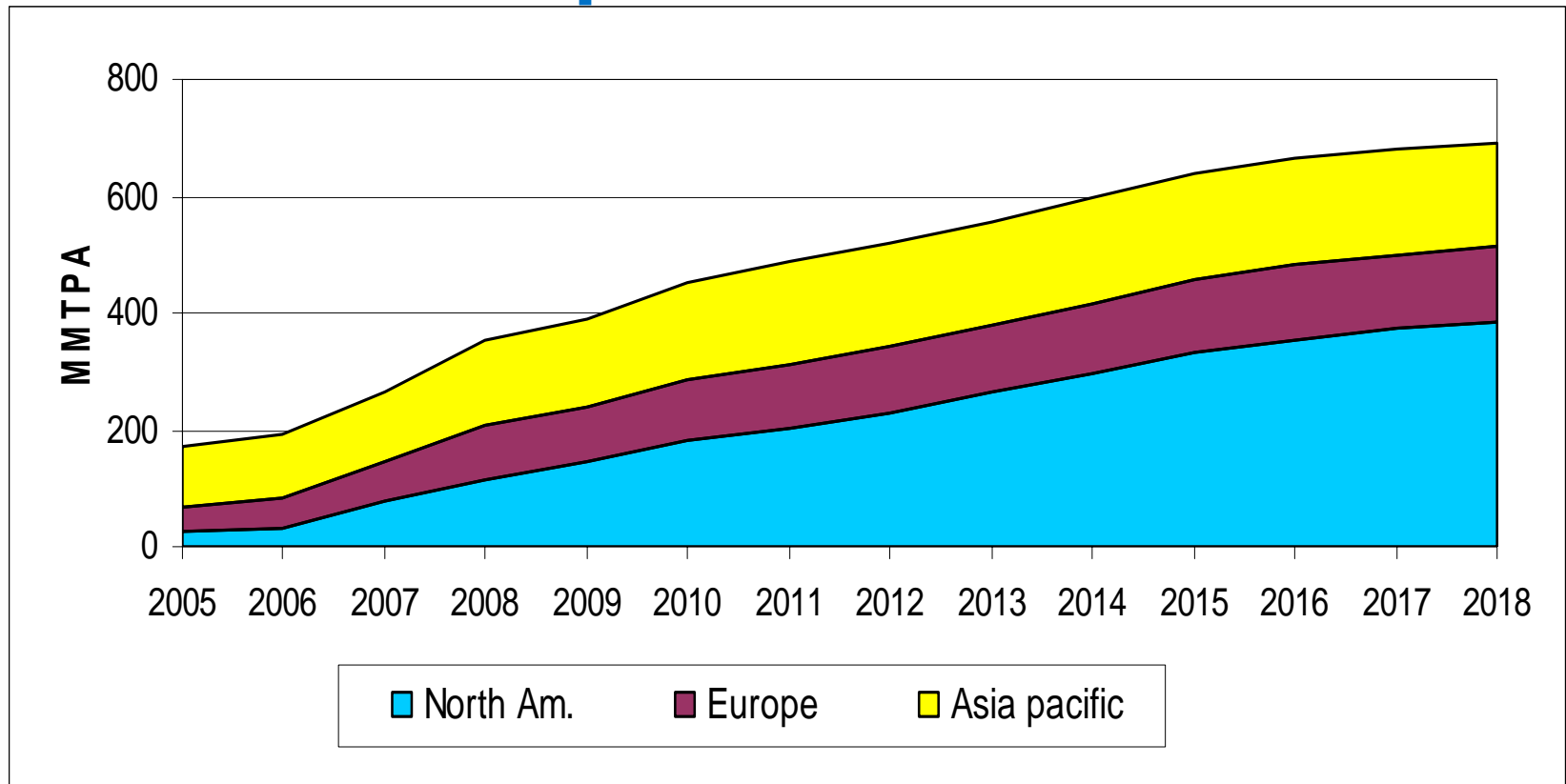
Regionalized trade dominates – with important overlap

World LNG Trade is Increasing



Source:-EIA, BP statistical review, 2005

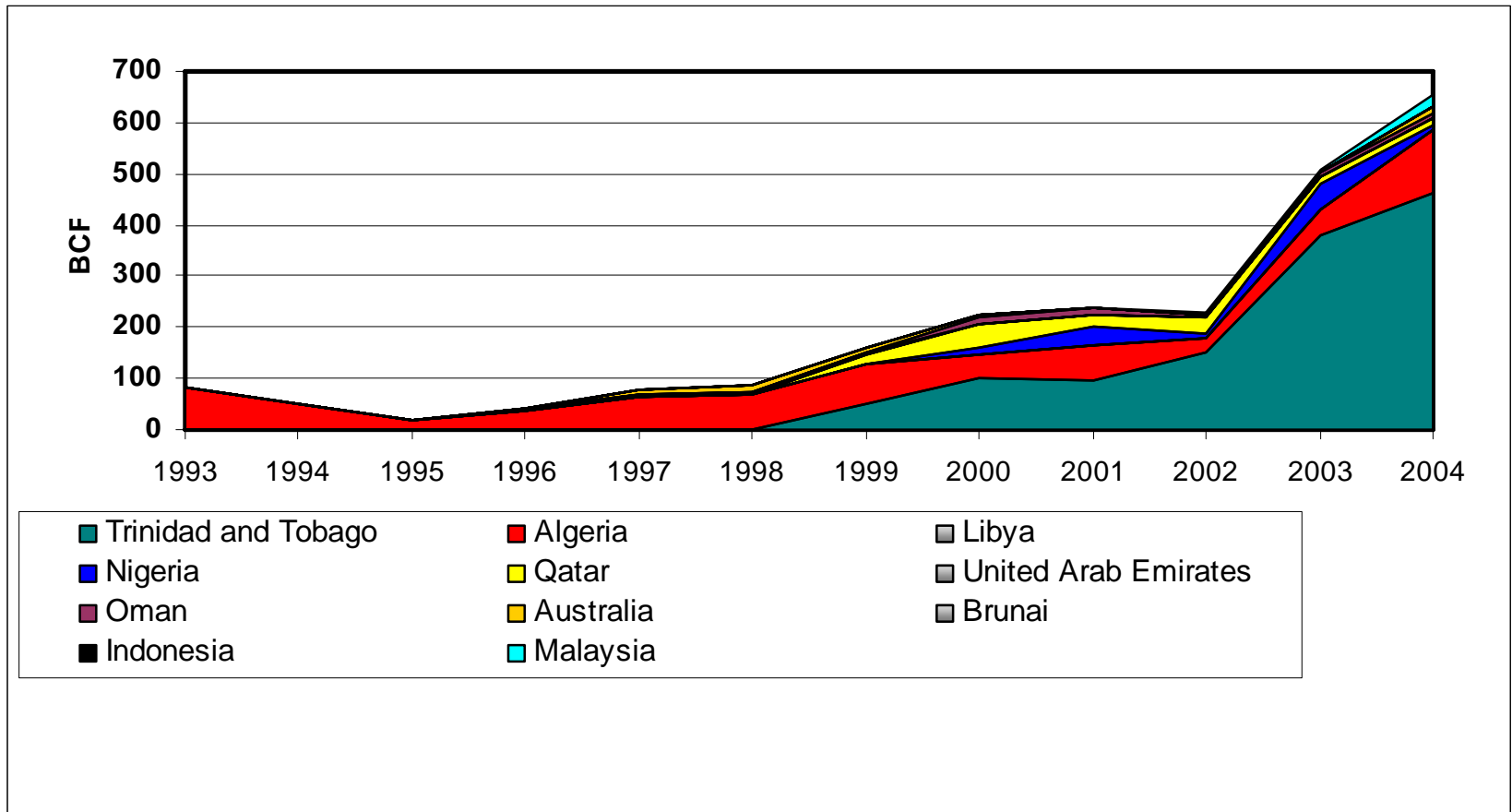
North America Market Growth is Driving LNG Market Expansion



Source:-Cedigaz ,IEEJ, PIRA Energy Group ,World LNG Map 2004 ,EIA,USB and from company websites.

Existing+ SPA Signed

Despite Falling off in 2005, LNG Imports have Increased Significantly



Source:-EIA

Major Differences between North American and Global Gas Markets

- Global Gas Markets (and LNG)
 - Bilateral deals between monopolists
 - Dedicated pipe and shipping with destination limitations and high take or pay
 - Importers had little domestic gas, so LNG provided base load
 - No spot market
- North America (post Order 636)
 - Many buyers and sellers
 - Open access
 - Active spot market
 - Seasonal demand

Contracts Reflect Market Structures

■ Global

- Gas prices indexed to oil
- High take or pay
- Annual contract delivery regime
- Delivery restrictions

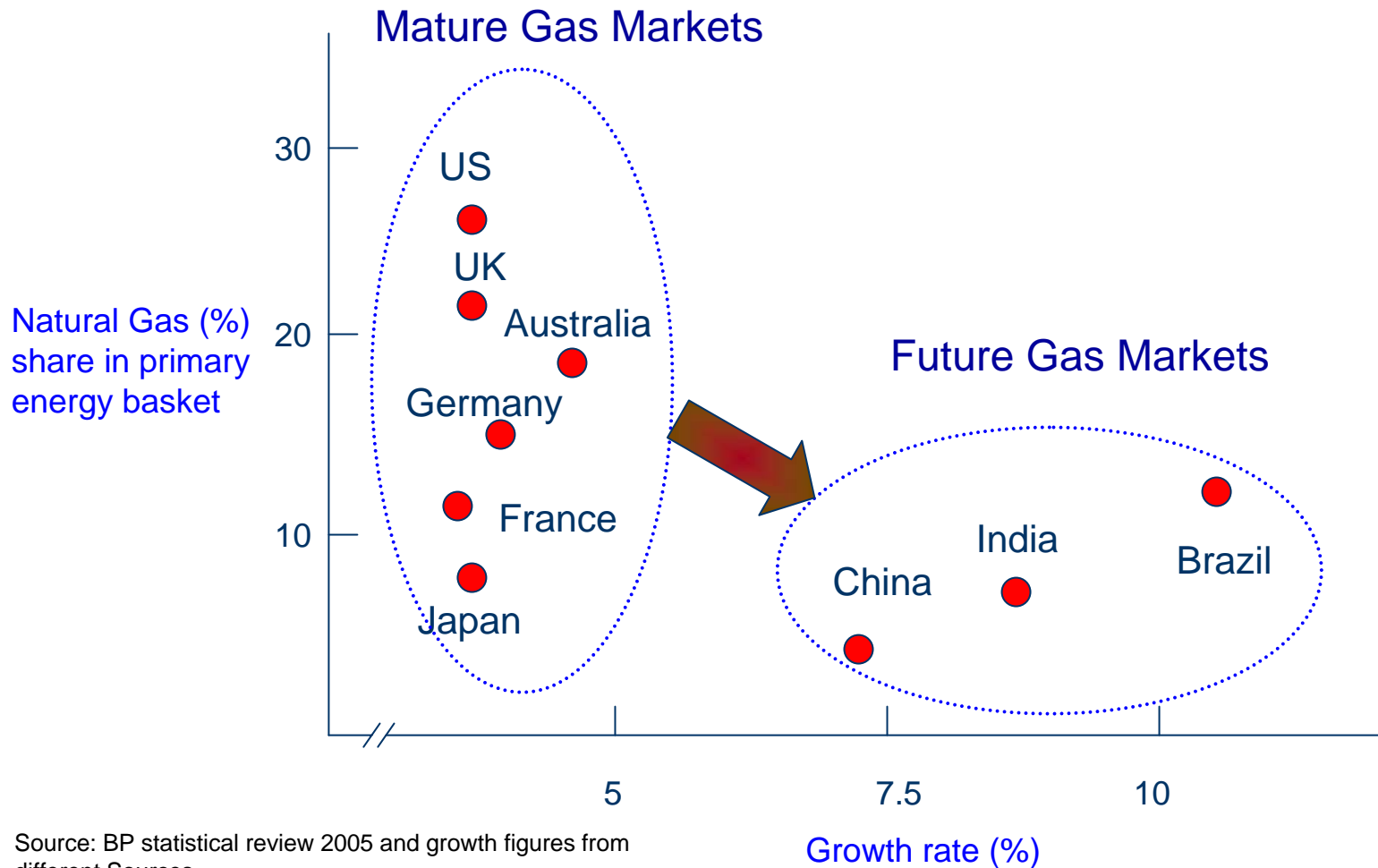
■ North America

- Gas prices set in open market
- Multiple contract forms
- Daily contract quantities
- Open access, secondary capacity markets

Changes in World Markets Driving towards Convergence

- Strong demand growth led by growing economies, power sector, and carbon policies
 - In Europe, drive for energy diversity
 - In Pacific (China, India, SE Asia, Korea) strong economic growth
- High oil prices, making gas more competitive where it can be de-linked from oil
- Entry of many more suppliers of LNG and pipelines from FSU
- Declining LNG costs with scale economies in ships and liquefaction plants
- Regulatory policies – EU Gas Directive
 - Liberalization to address anti-competitive behavior
- Expansion of North American and European import capabilities

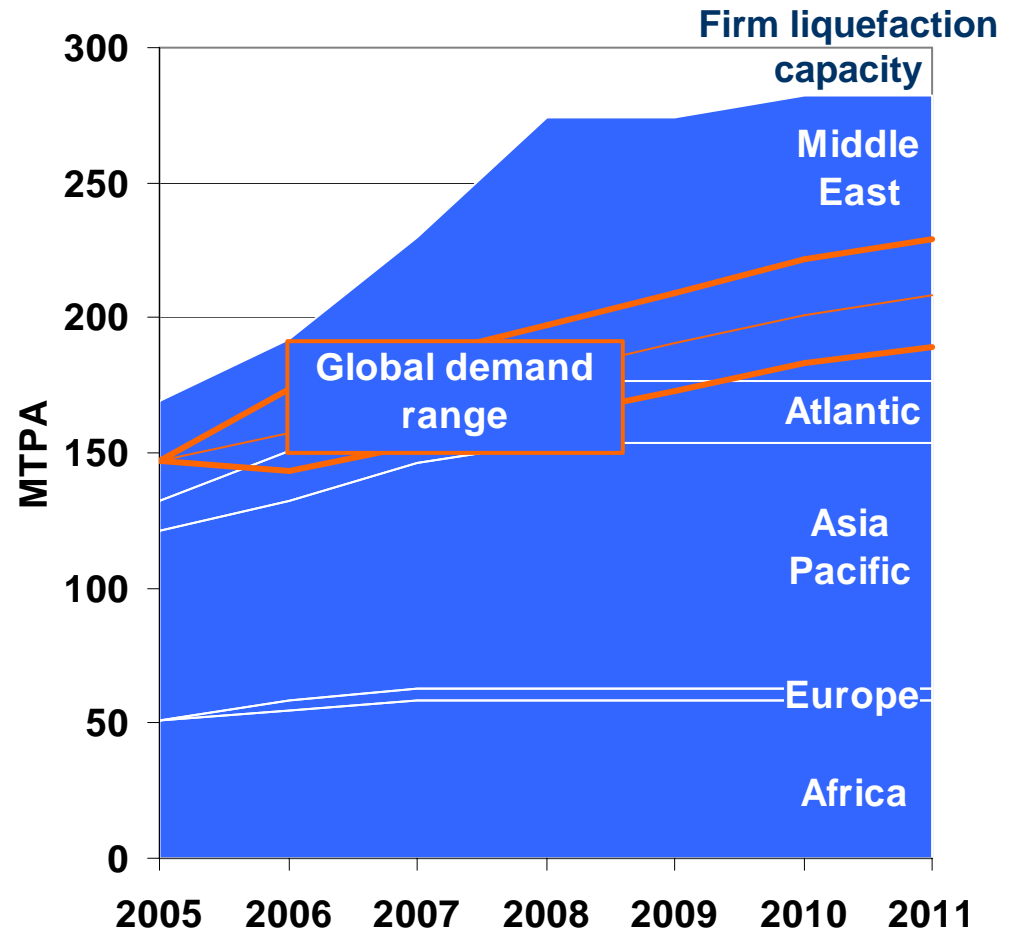
Emerging Markets are Growing Faster



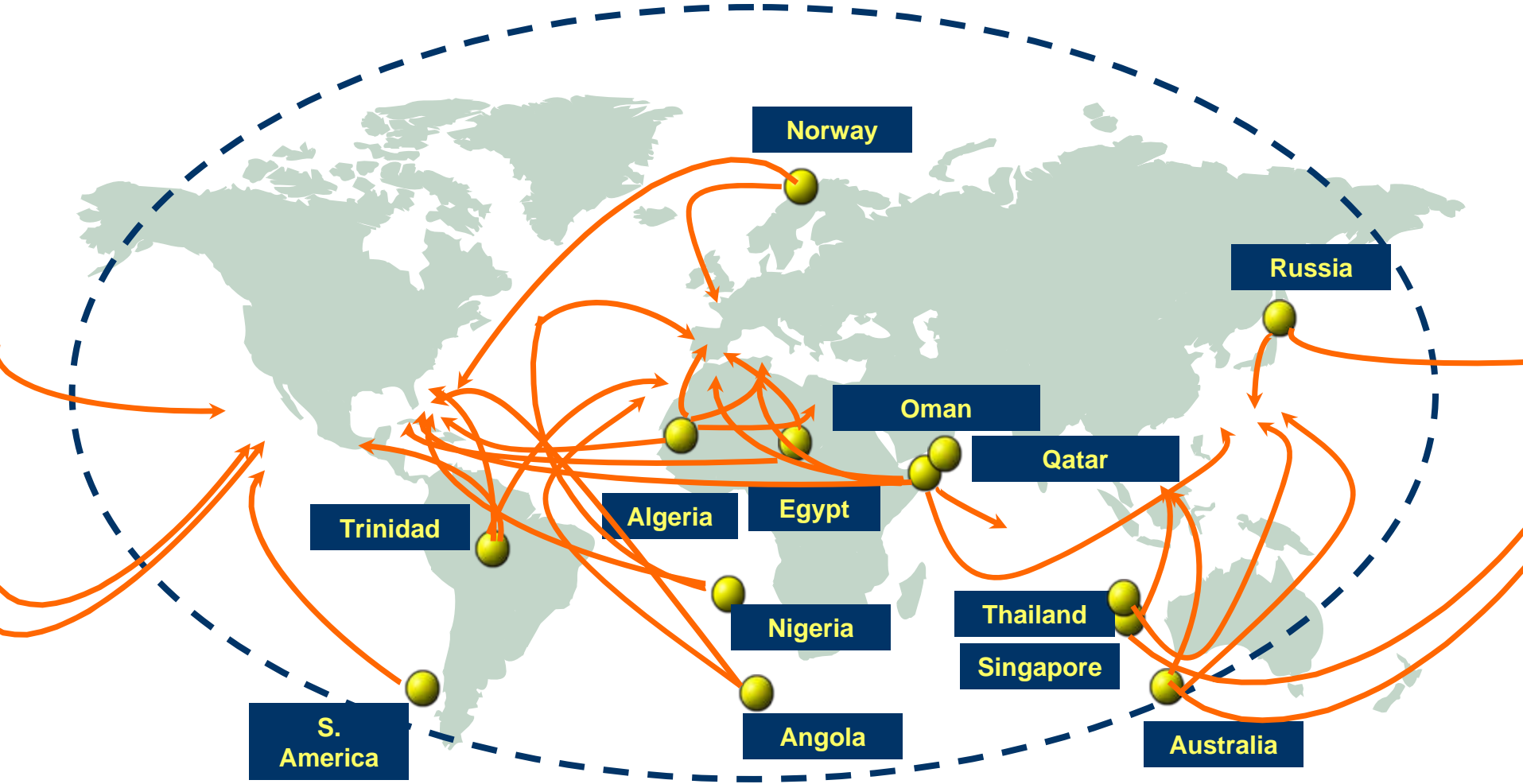
Source: BP statistical review 2005 and growth figures from different Sources

Growth of Liquefaction Capacity and LNG Demand

- Spare liquefaction capacity probable from 2008
- Typical utilization rates ~85%, 2008-2011 average 70%
- Scheduling, delays may reduce excess and timing

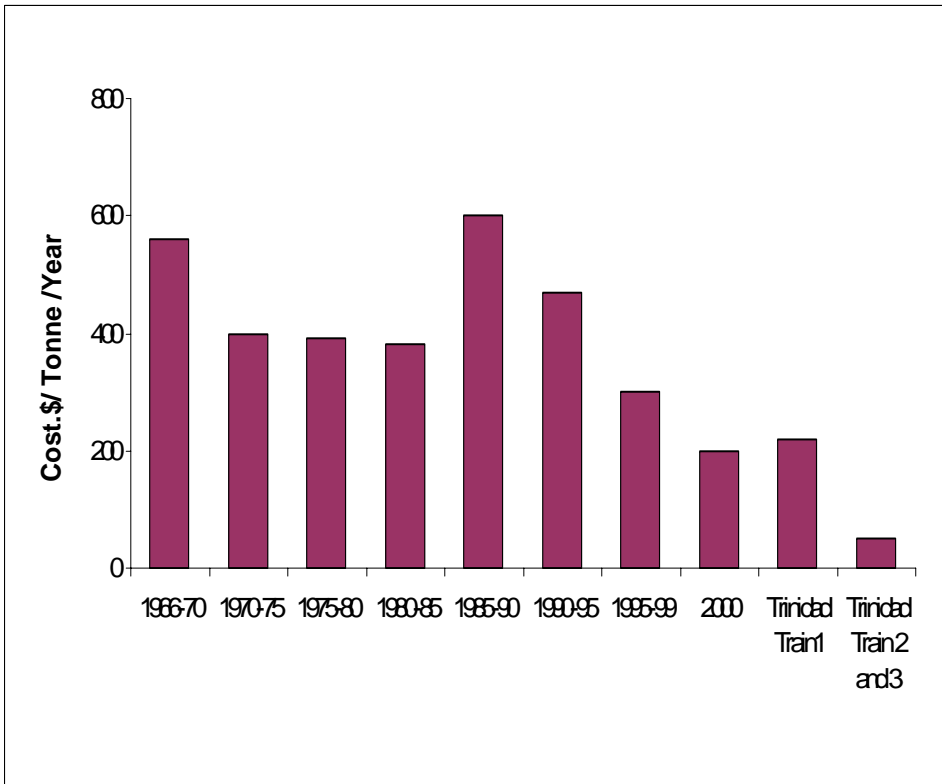


Future LNG Flows

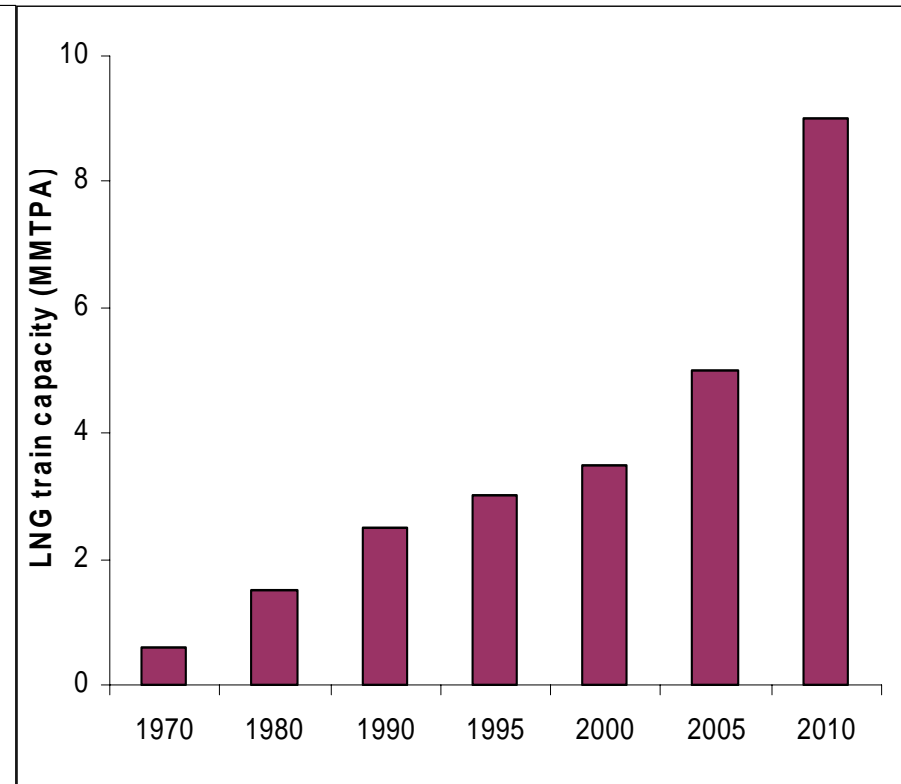


Trends in Liquefaction Terminals

Falling cost of Liquefaction Train



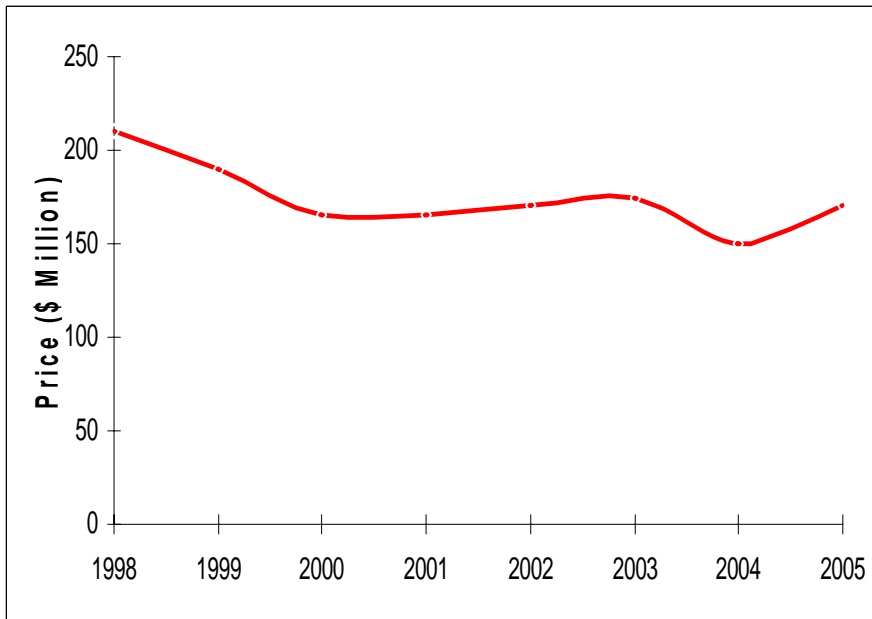
Changes in Train size



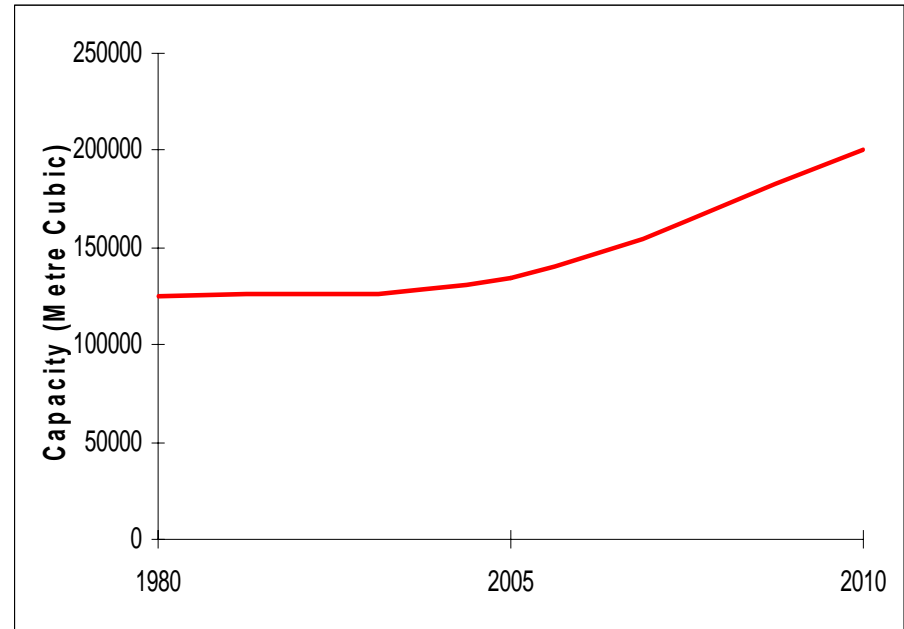
Larger Train size will drive the Economics of scale

Trends in LNG Vessel Costs

Drops in Vessel Price



Changes in Vessel Size



Contracting is Becoming more Flexible

- More unbundling of the supply chain (independent shippers, aggregators)
 - More FOB less CIF contracting
 - Competitive tendering
- Multi-tiered contracts with short term and long term elements, seasonal deliveries, base deliveries
- Reduced downward adjustments in deliveries (take or pay)
- Alternative pricing mechanisms – less firmly tied to oil
 - Fixed component plus oil indexation
 - Net back pricing
- Destination flexibility
 - Swaps to rationalize transportation

Pricing Trends

- Asia Pacific
 - Moving from crude indexation (JCC) towards other products, including coal
 - Collared prices
 - S-curve prices (floor, escalator, ceiling)
- North America prices tied to Henry Hub, regional hubs
- Europe
 - Moving from fuel oil indexation towards net-back pricing (UK), and even electricity pricing

Observations – the Rain in Spain . . .

- Changes in world markets resemble the same process that occurred in North America
 - Rationalization driven by increased capacities everywhere
- We are already in a world market
 - Contributing to low LNG imports despite high prices in the U.S. has been strong international demand, technical difficulties at LNG facilities
 - Low hydro year in Spain led to large demand for gas and pricing above Henry Hub
 - Gazprom-Ukraine tiff is likely to accelerate Europe's interest in LNG
- Interconnectedness is likely to lead to interesting outcomes.

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