

LNG: THE NORTH AMERICAN GORILLA

USAEE/IAEE NORTH AMERICAN CONFERENCE

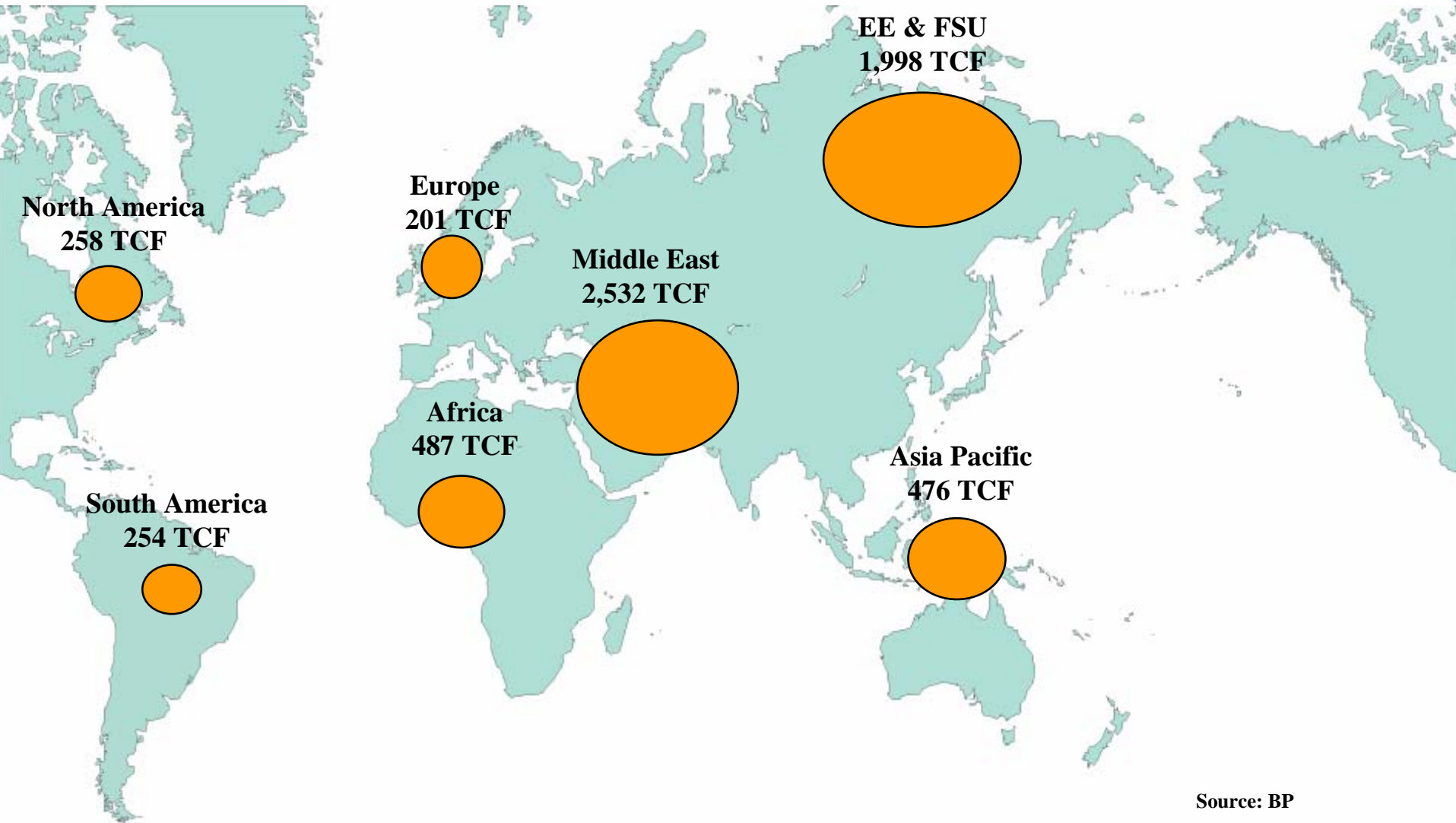
JULY 9TH, 2004

WASHINGTON, DC



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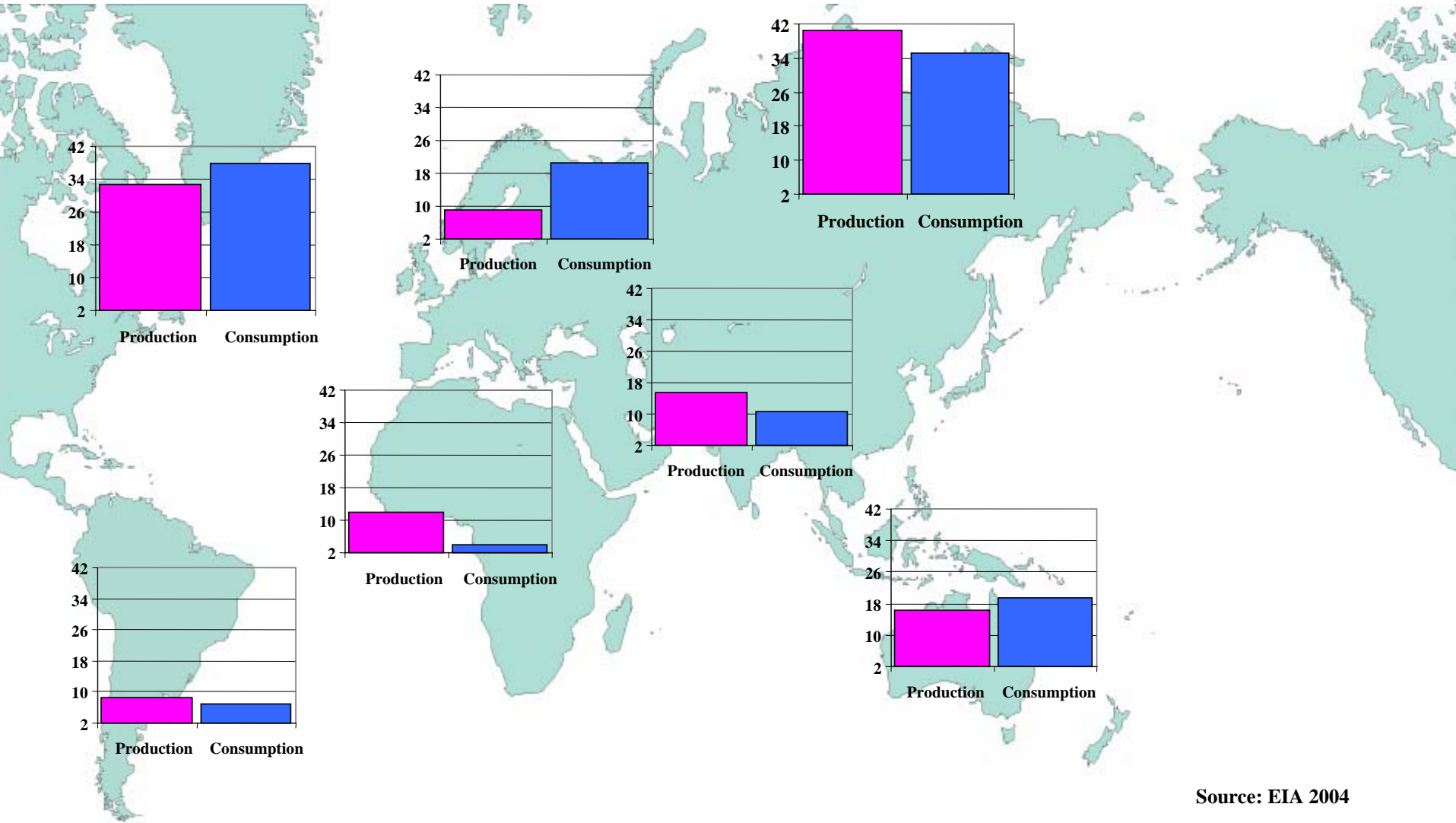
Natural Gas – Proven Reserves 2003



Source: BP

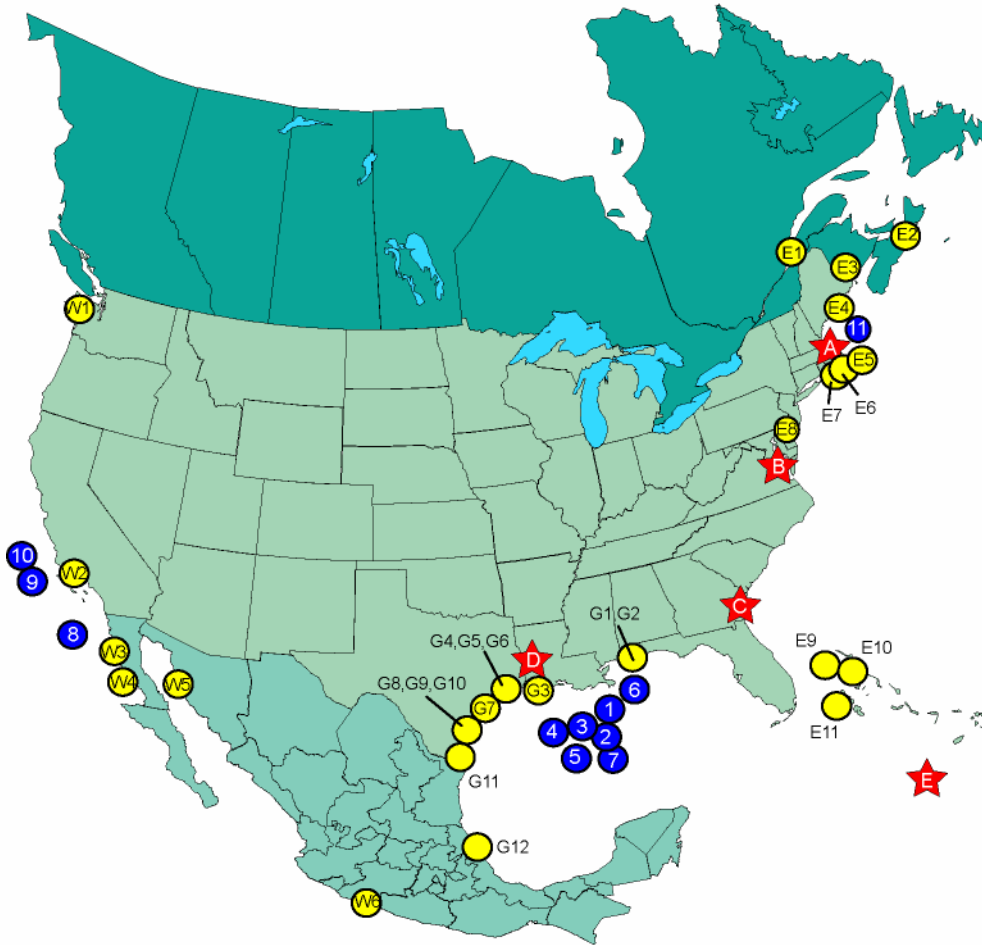
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Forecast Gas Production and Consumption in 2020 (TCF)



Source: EIA 2004

Does North America Change the World? - Yes

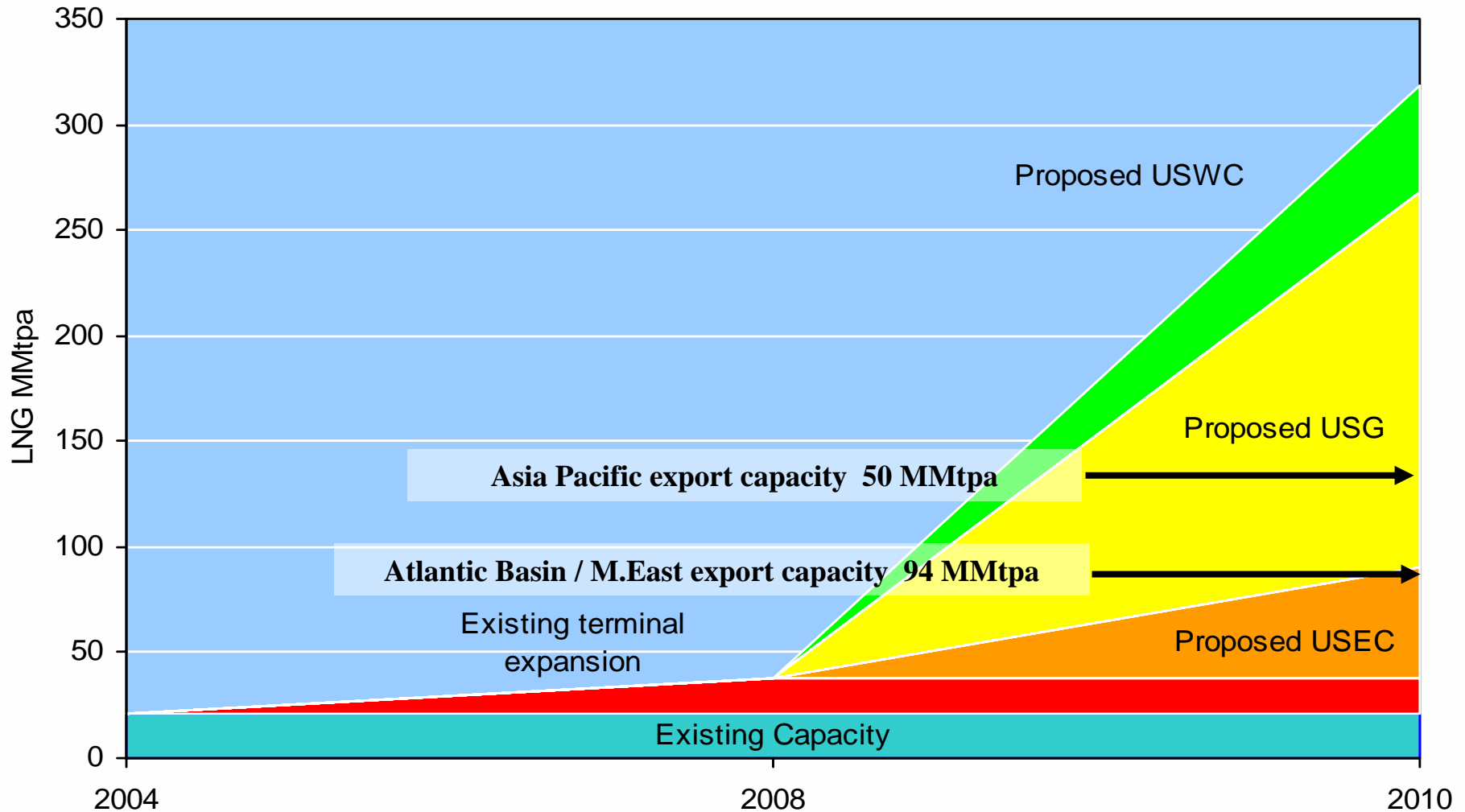


- ★ EXISTING (capacities as of 2008)
 - A - Everett MA (*Tractebel*; 4.4 MMtpa)
 - B - Cove Point MD (*Dominion*; 14 MMtpa)
 - C - Elba Island GA (*Southern*; - 5.8 MMtpa)
 - D - Lake Charles LA (*So. Union*; 14 MMtpa)
 - E - Guayanilla PR (*EcoElectrica*; 0.7 MMtpa)
- PROSPECTIVE ONSHORE
 - E1 - Quebec, Canada (*Gaz Metro, Enbridge, GdF*; N/A)
 - E2 - Nova Scotia, Canada (*Bear Head LNG*; 5.7 MMtpa)
 - E3 - New Brunswick, Canada (*Irving Oil*; 3.8 MMtpa)
 - E4 - Eastport, ME (*Quoddy Bay LLC*; 3.9 MMtpa)
 - E5 - Fall River MA (*Weaver's Cove*; 3 MMtpa)
 - E6 - Somerset MA (*Somerset LNG*; 3.3 MMtpa)
 - E7 - Providence RI (*KeySpan*; 1 MMtpa)
 - E8 - Crown Landing LNG NJ (*BP*; 7.0 MMtpa)
 - E9 - Grand Bahama Is. BH (*Tractebel*; 6 MMtpa)
 - E10 - Bimini Cay BH (*AES/Repsol*; 6 MMtpa)
 - E11 - Grand Bahama Is. BH (*El Paso/FP&L GR*; 5.9 MMtpa)
 - G1* - Mobile AL (*ExxonMobil*; 15.6 MMtpa)
 - G2 - Mobile AL (*Cheniere*; 7.5 MMtpa)
 - G3 - Cameron LNG LA (*Sempra*; 11.4 MMtpa)
 - G4 - Sabine Pass LA (*Cheniere*; 15.6 MMtpa)
 - G5* - Sabine Pass TX (*ExxonMobil*; 7.8 MMtpa)
 - G6 - Port Arthur LA (*Sempra*, 11.25 MMtpa)
 - G7 - Freeport TX (*Freeport LNG*; 11.4 MMtpa)
 - G8 - Corpus Christi TX (*Corpus Christi LNG*; 7.8 MMtpa)
 - G9* - Corpus Christi TX (*ExxonMobil*; 7.8 MMtpa)
 - G10 - Ingleside TX (*Occidental*, 7.5 MMtpa)
 - G11 - Brownsville TX (*Cheniere*; capacity N/A)
 - G12 - Altamira MX (*Shell, Total*; 5.3 MMtpa)
 - W1 - Cherry Point WA (*Cherry Point Energy*; capacity N/A)
 - W2 - Long Beach CA (*Sound Energy Solutions*; 5.2 MMtpa)
 - W3 - Ensenada Baja (*Sempra/Shell*; 7.6 MMtpa)
 - W4 - Colonet Baja (*to be determined*)
 - W5 - Puerto Libertad Sonora (*Sonora Pacific LNG*; 9.5 MMtpa)
 - W6 - Lazaro Cardenas (*Repsol*; 3 MMtpa)
- PROSPECTIVE OFFSHORE**
 - Gulf of Mexico (offshore LA)
 - 1 - Vermillion 179 (*Conversion Gas*; 15 MMtpa)
 - 2 - Gulf Landing (*Shell*; 7.6 MMtpa)
 - 3 - Port Pelican (*ChevronTexaco*; 12 MMtpa)
 - 4 - Energy Bridge (*Excelerate*, 3.8 MMtpa)
 - 5 - Main Pass Energy Hub (*Freeport McMoRan*; 7.6 MMtpa)
 - 6 - Compass Port (*ConocoPhillips*; >7.5 MMtpa)
 - 7* - Pearl Crossing (*ExxonMobil*; 7.5 MMtpa)
 - Offshore West Coast
 - 8 - Coronado Is. (*ChevronTexaco*; 10.6 MMtpa)
 - 9 - Cabrillo Port (*BHP*; 5 - 7 MMtpa)
 - 10 - Offshore Oxnard CA (*Crystal Energy*; 7.8 MMtpa)
 - Offshore East Coast
 - 11 - Energy Bridge (*Excelerate*, 3 MMtpa)

Source - Poten & Partners
Last Updated June 11, 2004

* ExxonMobil will choose only one of the potential sites listed
** Locations of offshore terminals approximate

US LNG Import Capacity Existing & Under Development



Source: Poten & Partners

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North American Terminal Siting Issues

- Public perception versus reality
- Federal or state jurisdiction?
- Will terminals go where the market needs them?
- No perfect sites
- Not just a US problem
- Offshore may not be the solution

Offshore Terminals – Issues & Perceptions?

Negatives?

Technology

Market Access

Operational Risk

Execution Risk

Competitiveness

Security of Supply

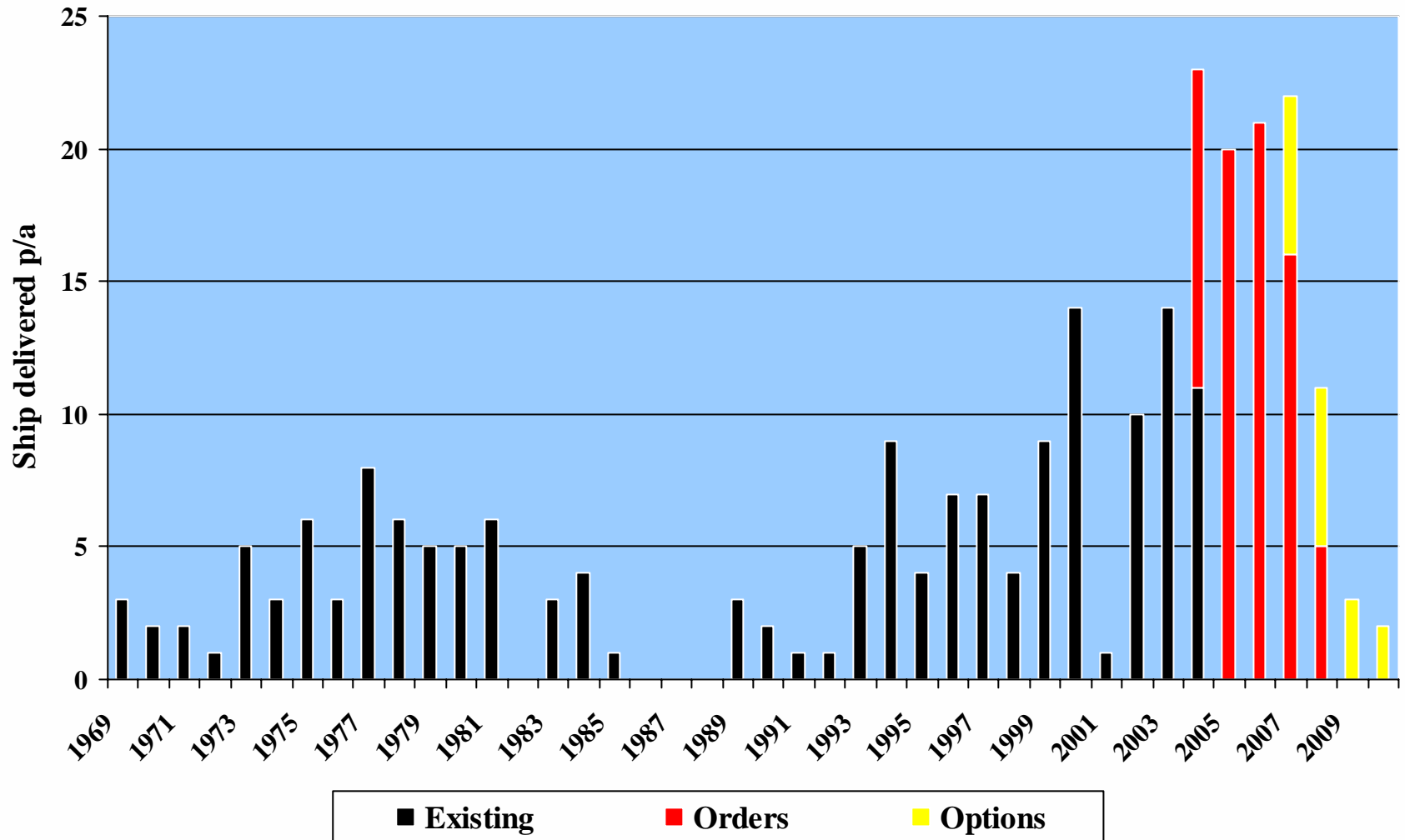
Positives?

Safety & Security

Permitting

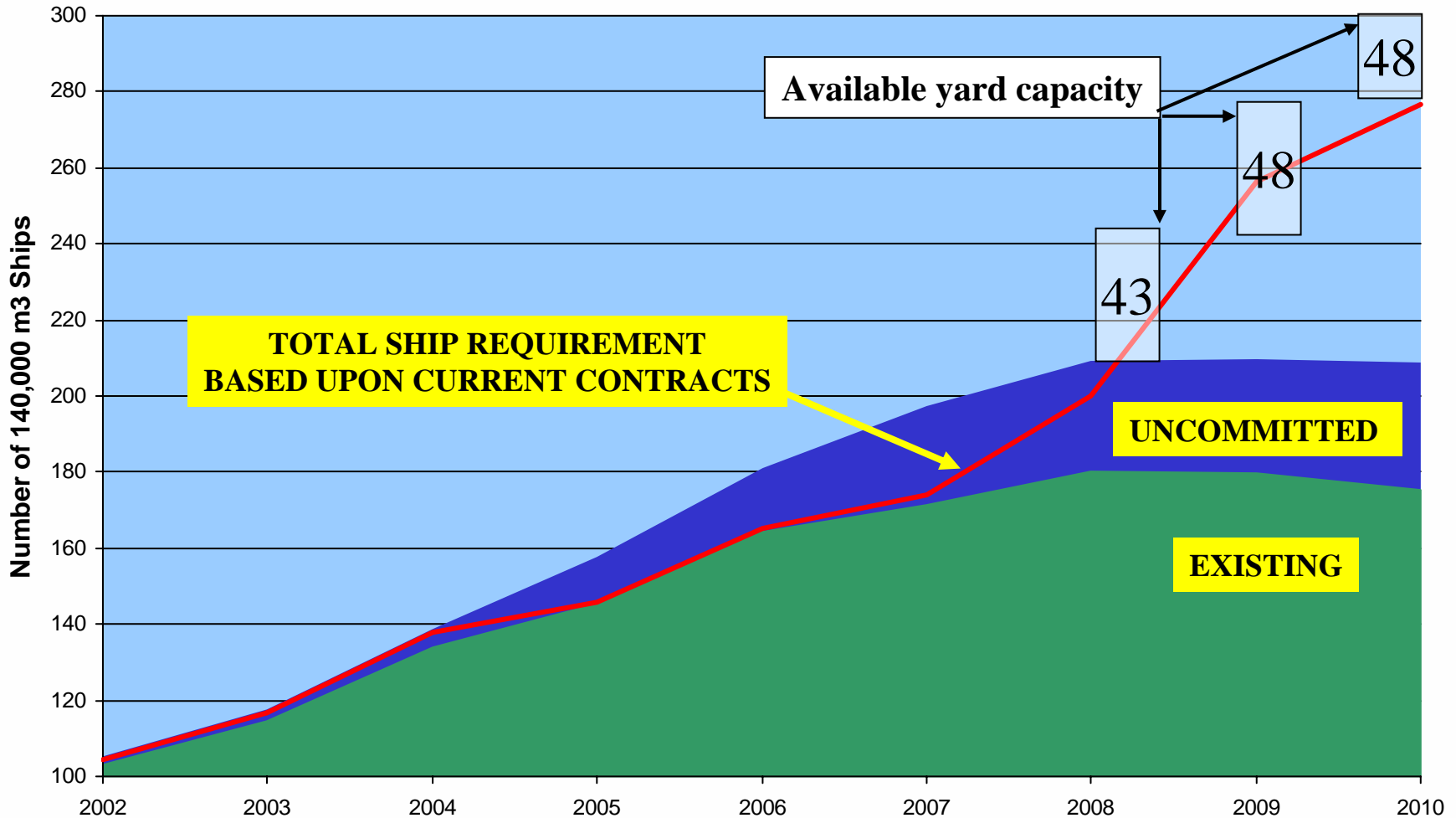
Rapid Expansion of the LNG Fleet

74,000m³ and above (Mid-June 2004)



Will Uncommitted Vessels be Stranded?

LNG SHIP BALANCE 2002-2010



Source: Poten & Partners
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“Mega Ships”

Are they the “monsters” or the next “standards” ?

- Rationale behind this move?
 - Economies of scale – “lowest cost provider”
 - Dedicated trade routes: Mid East – USCG/UKC, Asia – USWC/Mexico
- Challenges
 - Technical
 - Step change in capacity between 50-100%
 - Sloshing loads in cargo tanks (50,000m³/tank)
 - Shallow draft, broad beam, high speed vessels (twin screws)
 - Dual fuel, diesel engines, re-liquefaction equipment
 - Commercial
 - Limited flexibility (port access, tankage)
 - Financial
 - Security of asset, residual value
 - Increased capital investment (vessel and shore facilities)

Influences on LNG Project Costs

- Capacity in EPC contractor market, or host country
- Impact of steel and nickel price increases
- Exchange rate fluctuations and material / equipment constraints and pricing
- Government and national aspirations can override cost considerations
- Potential impact of project delays

Is Global LNG the “New” Oil Market? - No

- Nature of the cash flow profile is different – longer payout for LNG
- “Security of supply” has over-ridden low cost
- Higher transportation cost per unit of energy
- Regional pricing, limited liquidity
- Fuel switching – asymmetric substitution favors oil

Issues & Challenges

- Timing is everything
- How long and how high can Henry Hub fly?

THANK YOU

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