



Developments in the Global LNG Market

Would Venezuelan LNG find a ready Market ?

Association of Venezuelan Gas Processors

Caracas , 16 April 2009

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President GIIGNL

Presentation of GIIGNL

- The International Group of LNG Importers, better known by its French acronym GIIGNL, is a non-profit organisation which was established in Paris, France, in December 1971
- GIIGNL membership presently includes 61 member companies from 20 countries of Asia, Europe and the Americas , or nearly every company involved in the importation of LNG and the operation of LNG receiving terminals
- Membership has evolved in line with the development of the LNG industry and now includes gas merchant and power companies, infrastructure companies and several of the major international oil companies



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- The information presented here represents the views of the author and not necessarily those of the member companies of the International Group of LNG Importers (GIIGNL)



Major Themes:

Global LNG Supply/Demand Outlook Near-term: next 5 years

Global LNG Supply/Demand Outlook Long-term: 2015-2030

Developments in LNG Markets and Trade



Global LNG Supply/Demand Outlook : next 5 Years

« Sudden » supply overhang due to:

- Worldwide reduction gas demand, primarily in industry and power (economic crisis, fuel switching to cheaper oil)
- Collapse U.S. LNG import needs (push unconventional gas production)
- Offtake commitments on long-term pipegas in Europe
- Sharp increase liquefaction capacity 2008-2009 (+50% over 2007) from pre-2006 FID's

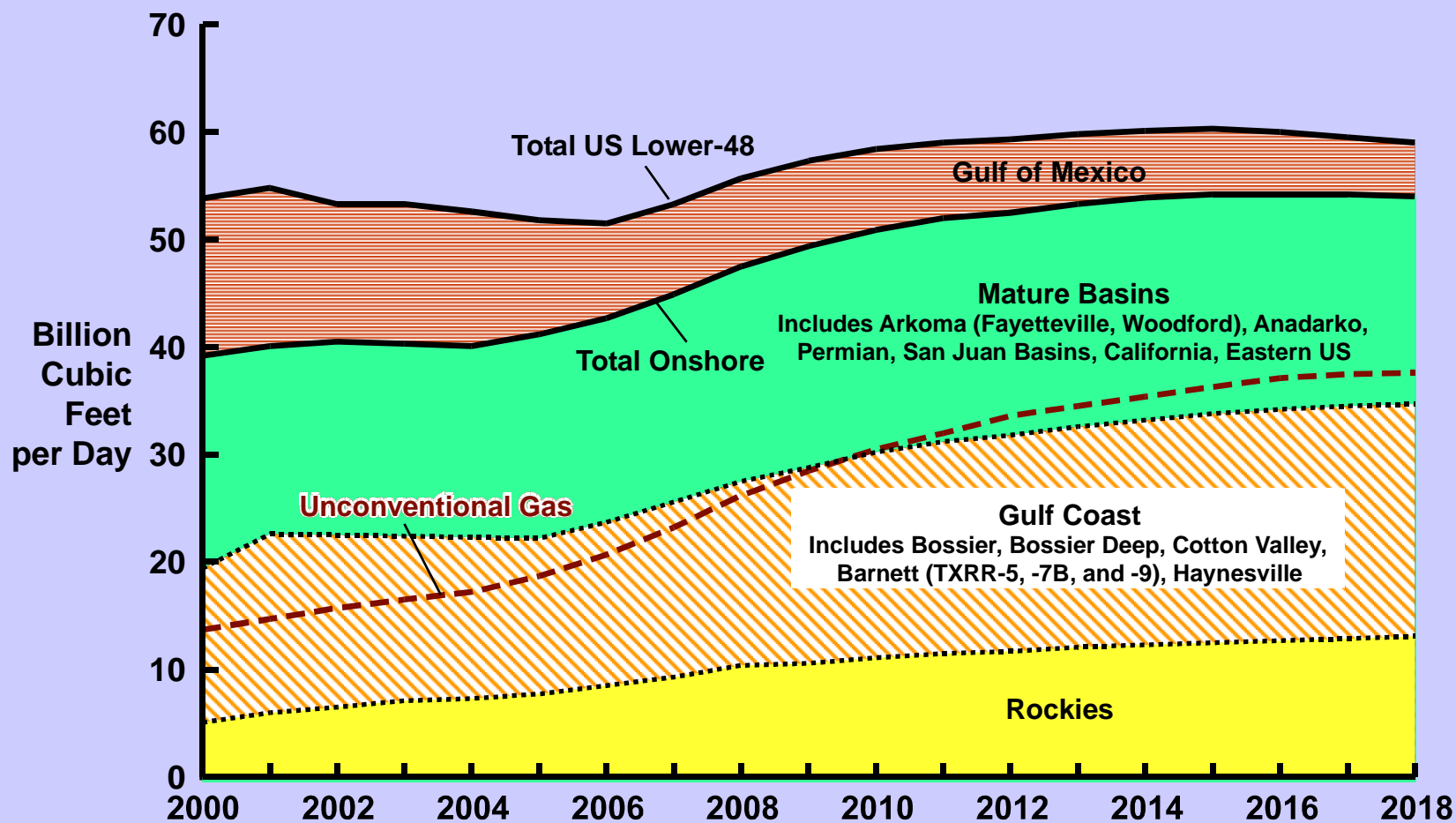


North America functions as market of last resort and soaks up surplus

- LNG is price taker
- Increase of summer cargoes into G of M
- Low prices cause rapid decline U.S. production
- Alternative of shutting-in LNG production technically and commercially unattractive



US Lower-48 Regional Wet Gas Capacity



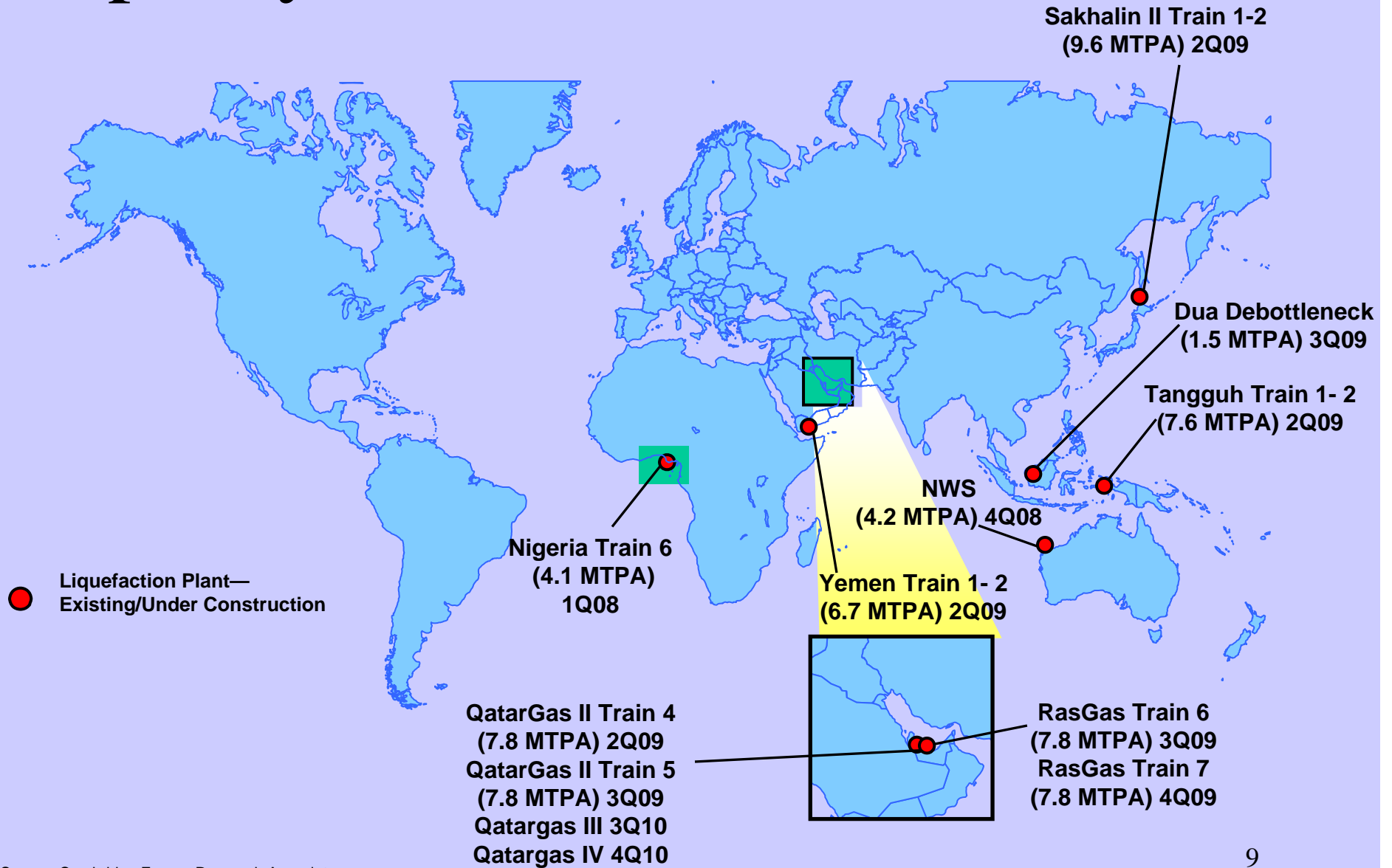


Global LNG Supply/Demand Outlook : next 5 Years

- **New projects suffered start-up delays and commissioning hick-up's leading to supply surge in 2009:**
 - Qatar mega-trains, Yemen, Tangguh, Sakhalin, Australia NWS train 5, etc ...
- **Limited supply additions between 2010 and 2013:**
 - Peru, Australia Pluto, Algeria Skikda and Gassi Touil, Angola
- **Postponement FID for several projects may lead to supply shortage from 2014/2015 onwards as demand recovers:**
 - Awaiting further cost reductions
 - Declining prices (and faster than costs ...)
 - Security of demand concerns (recession)
 - Environmental hurdles
 - Conflicts in allocation feedgas between domestic and export use
 - Financing obstacles
 - Political tensions



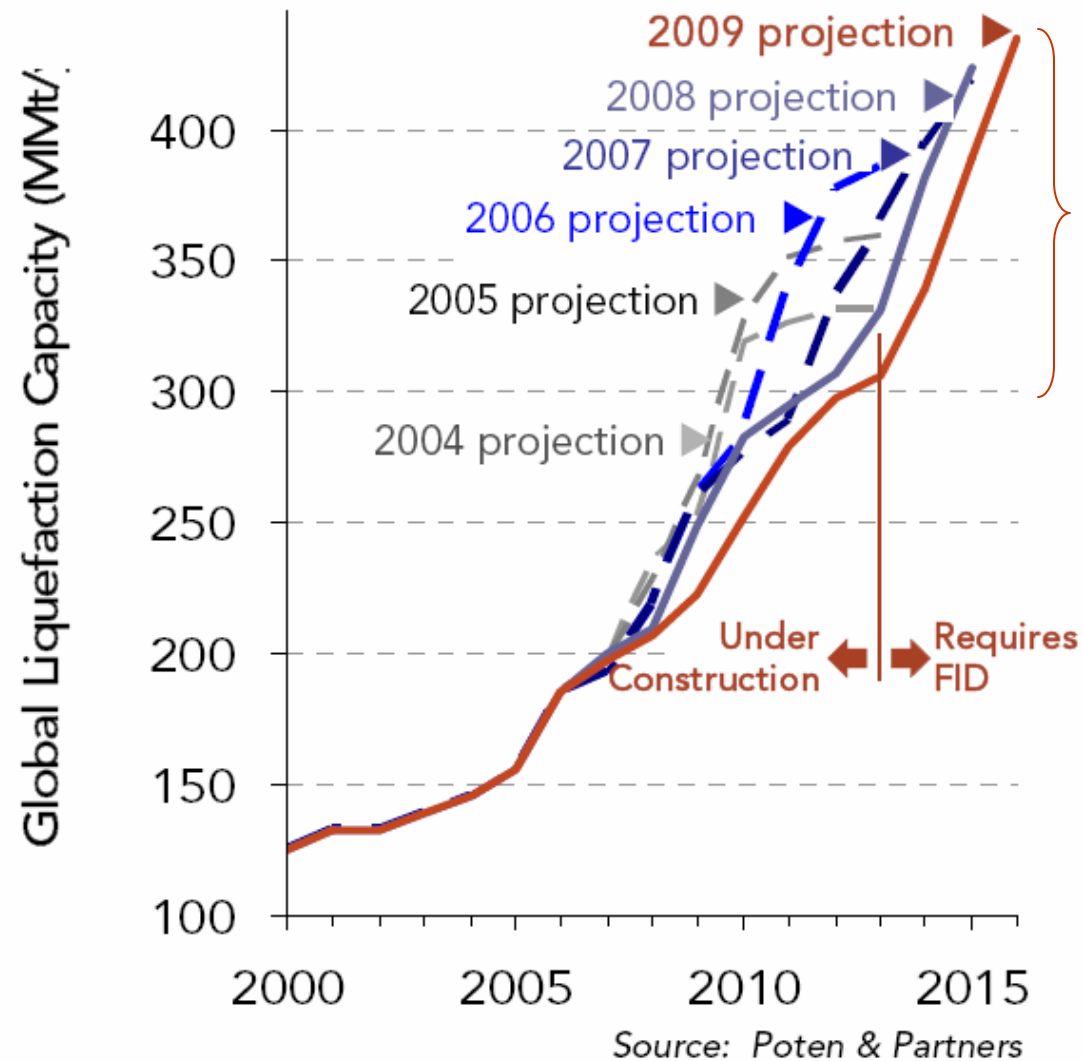
Capacity additions 2008 to 2010



Source: Cambridge Energy Research Associates.
own updates

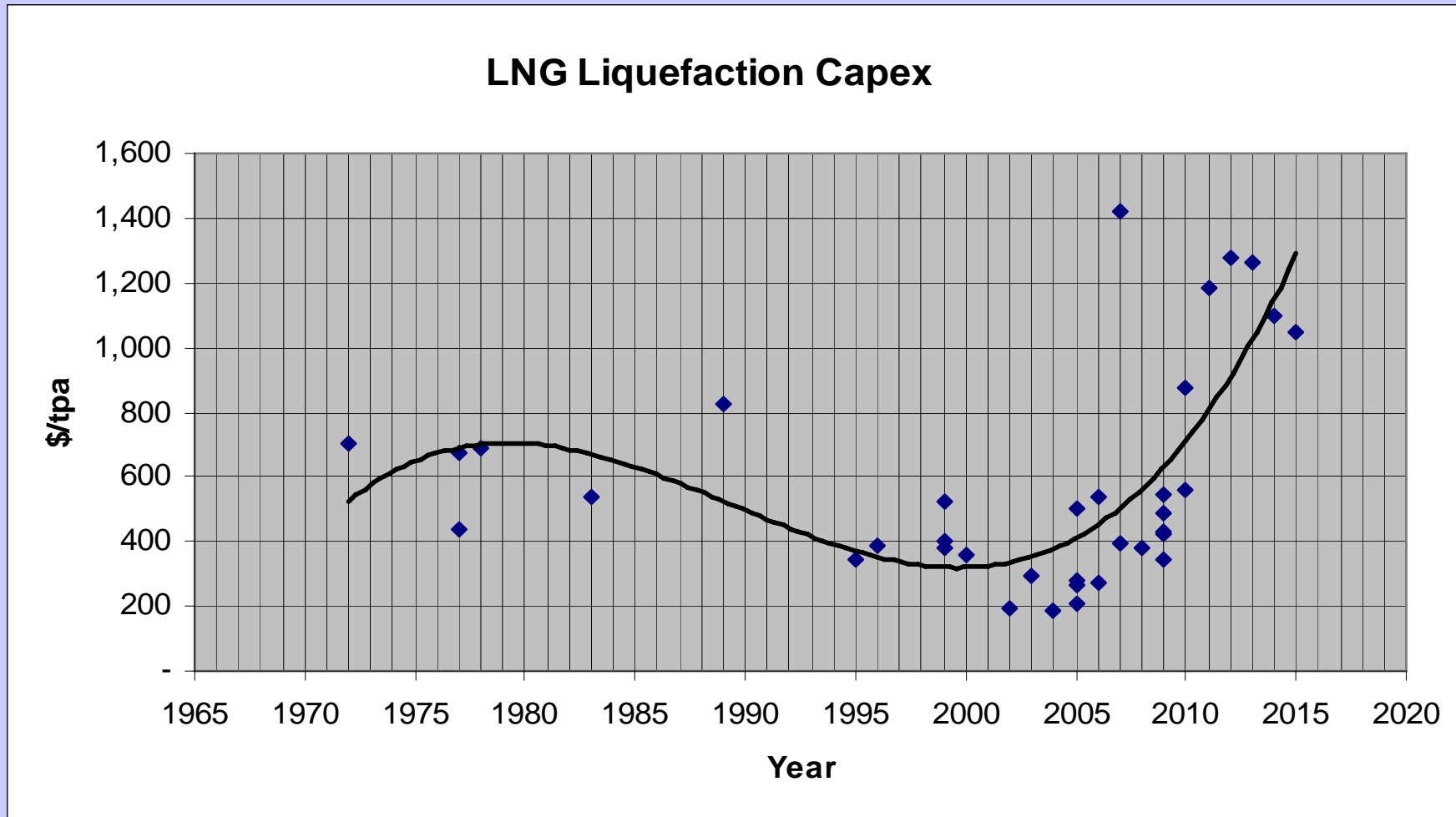


Supply Growth Continues to Slide

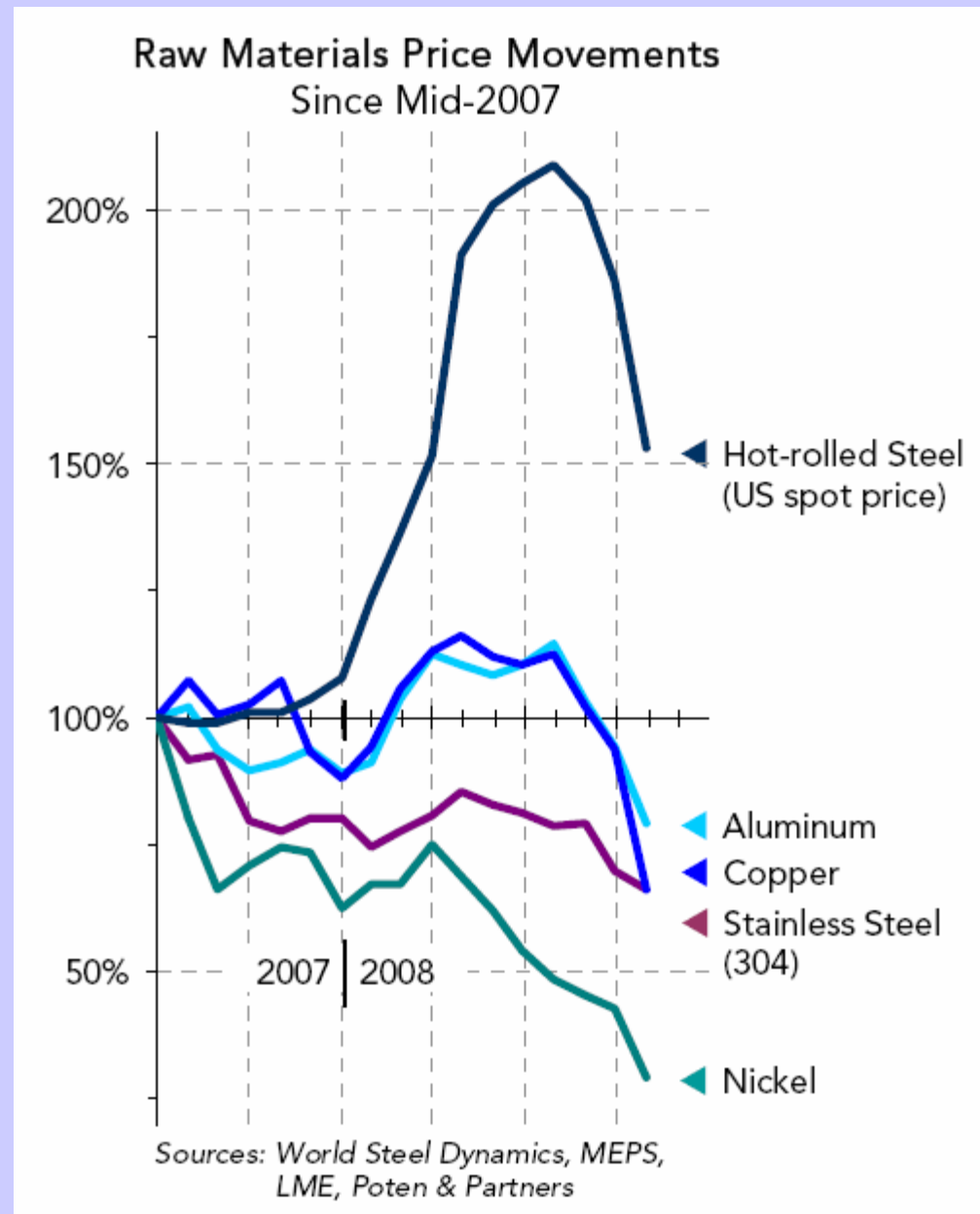




Historical Trend in 2008 Term Dollars

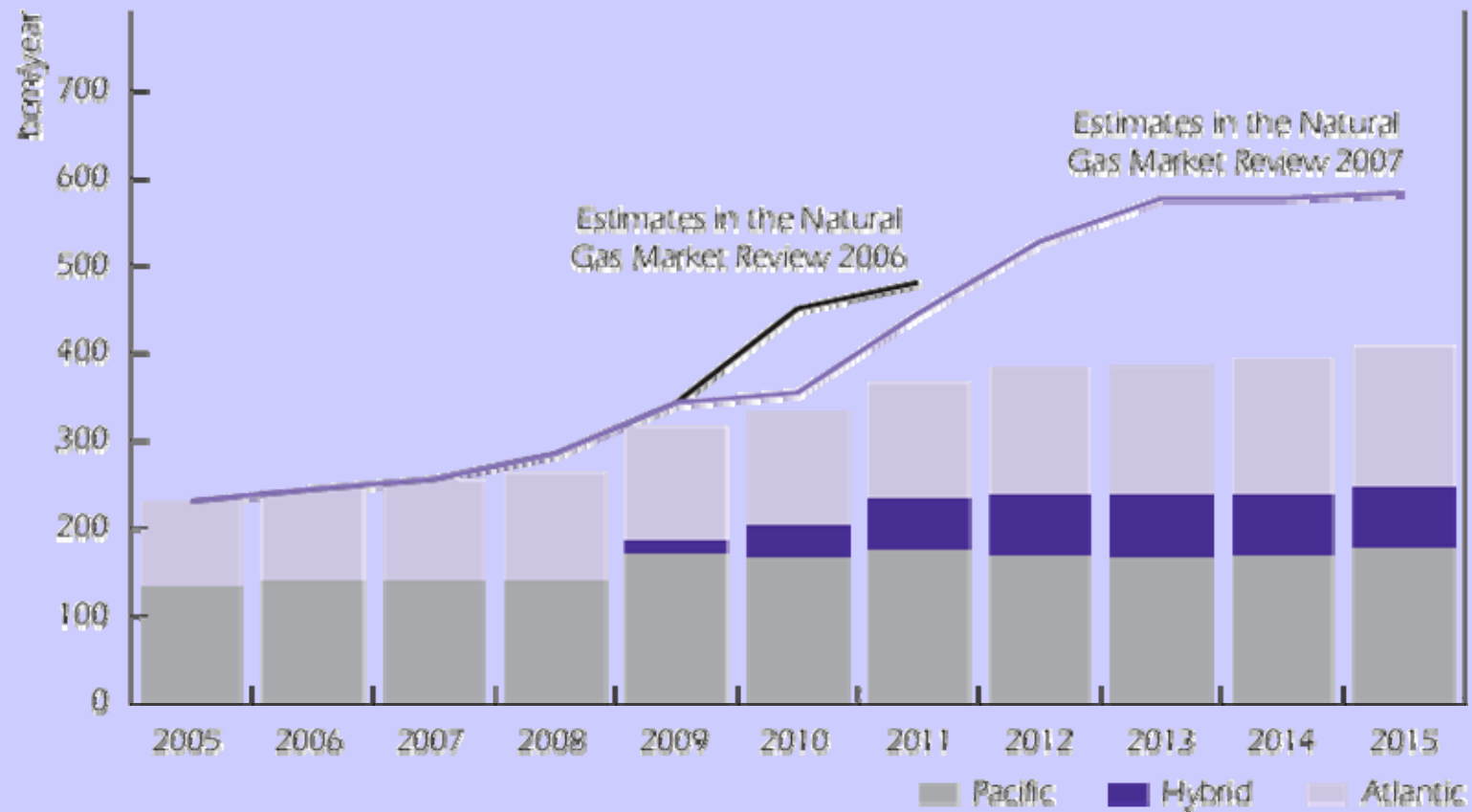


Data from Wood Mackenzie (used by permission)





Expected LNG export capacity by region



Note: Hybrid = Capacity which could routinely supply both the Atlantic and Pacific region LNG markets, not necessarily rigidly committed to particular markets at present

Source: IEA analysis.



Global LNG Supply/Demand Outlook: next 5 Years

- Summary:
- World LNG demand well covered next 3 to 5 years but extra supply needed to satisfy expected LNG demand growth
 - Investment delays may lead to LNG supply gap by 2015



Global LNG Supply/Demand Outlook Near-term: next 5 years

Global LNG Supply/Demand Outlook Long-term: 2015-2030

Developments in LNG markets and trade



Global LNG Supply Demand Outlook : 2015-2030

- **Worldwide LNG demand forecast influenced by - but not necessarily parallel to - gas demand forecast**

Distinguishing factors between LNG and gas demand scenarios :

- Monetizing new discoveries « remote » gas
- Geopolitics and interregional pipeline development
- Security of supply and diversification of sources
- Exploration/production performance domestic (unconventional) resources
- LNG chain construction costs



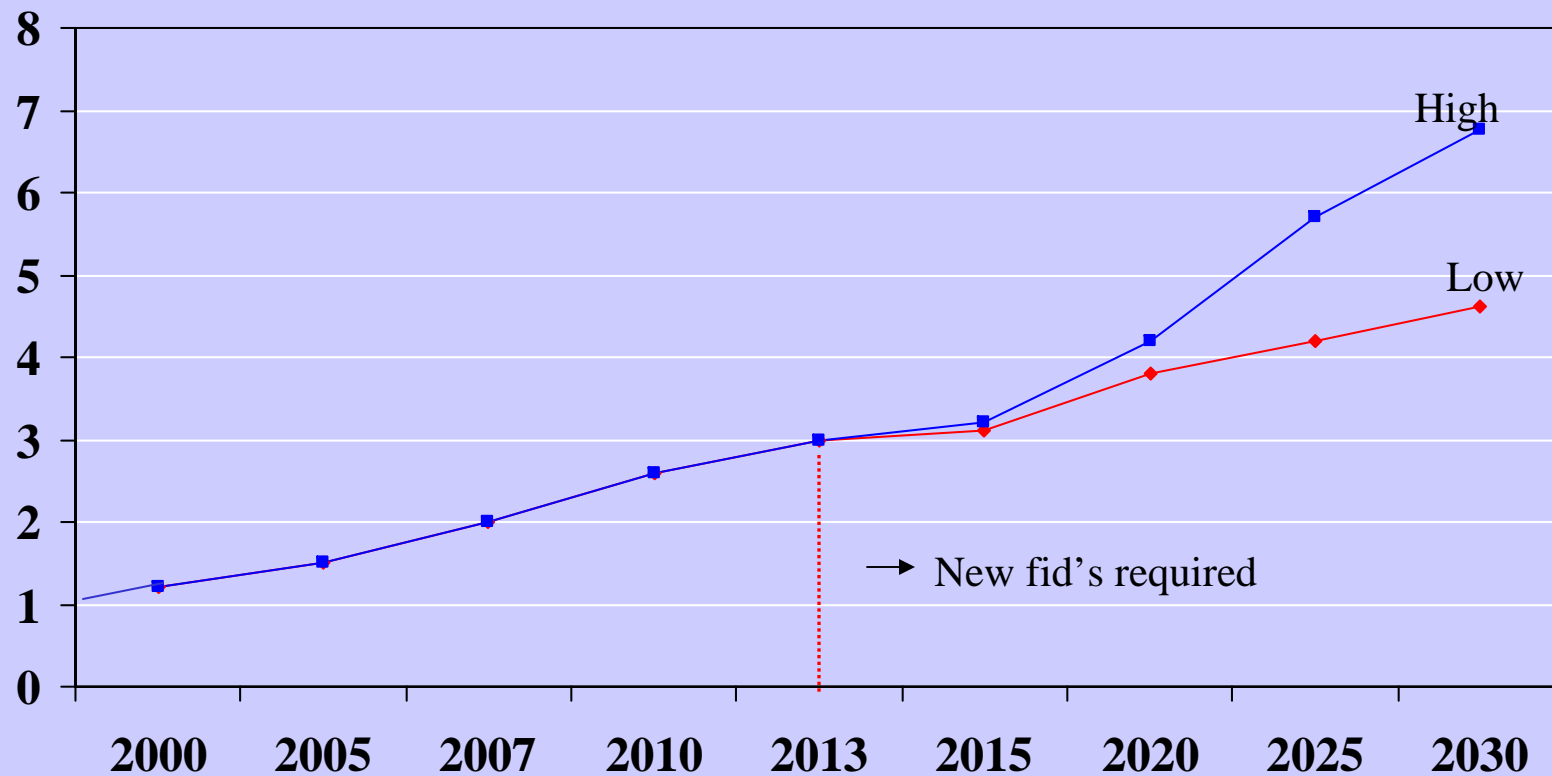
Gas demand projections 2010-2030

- **High scenario:** strong economic performance
favorable investment climate for supply.
2.7% p.a.growth rate (compared to 2.8% p.a. 1980-2006)
demand growth in all regions
- **Low scenario:** sustained economic slowdown
geopolitical tensions
unfavorable climate for export projects
and/or
low carbon policies in Europe and N. America
1.5% p.a. growth rate
demand stagnates in Europe and slows down in N.America
- IEA base scenario is close to above « Low senario »
- Power is major contributor to gas demand growth (up to 50%) in all scenarios and in all regions
- Latin America: growth range 3% to 4% p.a. (mainly power !)



Long-term liquefaction capacity projections

Million MT/year



Source: Cera, own estimates



Range of LNG supply scenarios to 2030

High

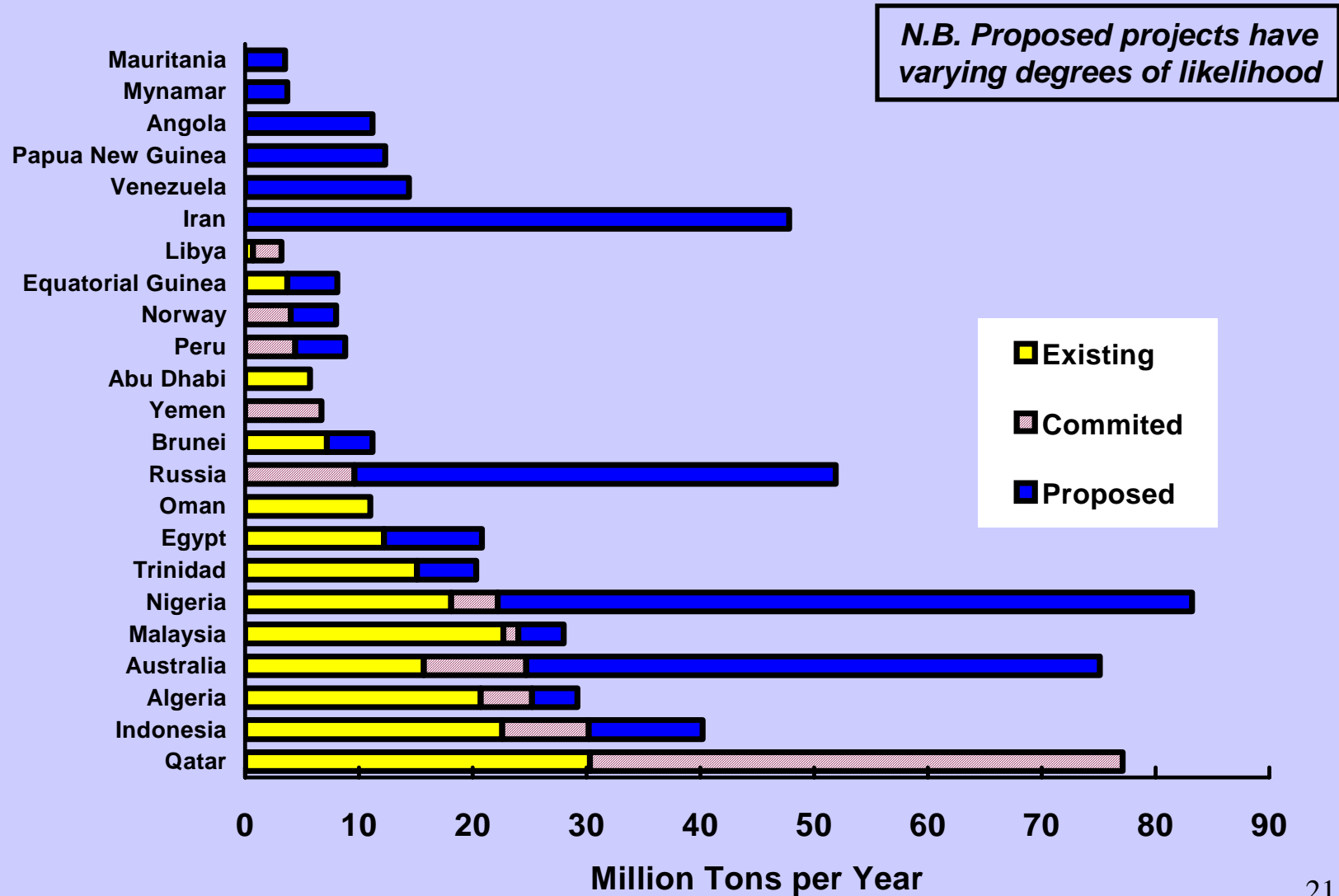
- 2013-2030: 7% p.a.
(compared to 7.5% in 2000-2013)
- Bullish view on new export projects
(significant new discoveries, security of supply concerns, decline domestic production, construction cost decline)
- Largest contributors:
 - Atlantic: Nigeria; Russia
 - Pacific: Australia
 - Hybrid: Iran
- Australia and Nigeria may overtake Qatar

Low

- 2013-2030: 2.5% p.a.
- High development costs and political /commercial uncertainties; unconventional production sustained
- Growth barriers in Atlantic and Middle East, but Pacific less affected
- Supply shortages likely if U.S. import needs turn out higher
- Qatar remains largest exporter

Where Will Next Generation LNG Come From?

LNG Capacity by Status and Country





Global LNG Supply/Demand Outlook Near-term: next 5 years

Global LNG Supply/Demand Outlook Long-term: 2015-2030

Developments in LNG markets and trade

- **Changes in Business Models**
- **Spot Trade, Flexible LNG and Arbitrage**
- **Pricing: is convergence likely?**



Changes in Business Models

- **Structural changes in the LNG industry and underlying reasons**
 - Traditional model: “tramline projects” with long-term dedicated contracts and bi-lateral trade
 - Major expansion was expected in US, catalyst for change in Atlantic Basin
 - Transition in Europe further induced by early cargoes or additional volumes associated with long term contracted production
 - Growing trend towards portfolio play with shorter term contracts, cargo deviations, spot trade and arbitrage play
 - Destination flexibility is key, but who controls ?



Changes in Business Models

- **Commercial Strategies**

- Resources holder/producer strategies
 - Shorter contracts
 - Not contracting entire capacity
 - Self-contracting
- Marketers and gas merchants pursue LNG trading for arbitrage gains and to mitigate volume risk
- Aggregators assume volume risk under long-term contracts in return for flexible destination LNG



Changes in Business Models

- Vertical integration in both directions to mitigate risk (security of supply as well as demand security) and enhance margins
- All battle for the midstream, with producers holding trump card in sellers' market, but near-term outlook has changed rapidly ...!
- Gas marketers relinquish destination control (and security of supply) for price concessions if alternative supplies available



Spot trade, Flexible LNG and Arbitrage

- **Source and development of LNG Spot Market**

- Annual growth rate last 10 years
 - Spot/Short-term LNG Trade = 15%
 - All LNG Trade = 7.5%
- Source of spot/short-term trade
 - “true-spot”
 - “flexible LNG”
- According to CERA :
 - 50% of capacity added in 2008-2009 is flexible
 - By 2010 25% of total capacity is flexible LNG
 - Major growth of flexible production in Middle East



Spot trade, Flexible LNG and Arbitrage

- **Drivers of and conditions for spot trade**
 - Flexible LNG seeks markets of highest netback
 - Price signals determine redirections and destination of cargo tenders
 - LNG buyers competing on global basis for flexible LNG
 - Trade of flexible LNG requires:
 - spare regas capacity
 - spare shipping
 - ample LNG supplyand buyers !



Spot trade, Flexible LNG and Arbitrage

Spare shipping capacity to allow for cargo deviations and arbitrage

	Rapid expansion	Capacity increase
2006:	28 deliveries	4.0 mln m3 (liquid)
2007:	33 deliveries	5.0 mln m3
2008:	52 deliveries	10.0 mln m3
2009 (est.)	50 deliveries	8.5 mln m3
End of 2009	355 vessels in fleet	45.5 mln m3 total cap.

Source: Poten and Partners

"Theoretical redundancy in LNG shipping capacity: +/- 30%" (CERA)



Spot trade, Flexible LNG and Arbitrage

- **Impact on security of supply and prices**
 - Flexible LNG supply suitable for demand peaks and supply disruptions, less for base load needs (unless ample access to alternative supplies)
 - Need to outbid competition on global basis to attract cargoes, leading to increased volatility of wholesale prices
 - Critical will be the timing of transition of US market from current “sink” to base load buyer (unconventional resources are key)



Implications for pricing: is convergence likely?

- **Price Setting mechanisms**

- Concepts for gas pricing can be based on: traded markets, bi-lateral contract markets or government determination
- Europe has dual price-setting mechanisms for spot and for long term transactions
- Europe and US have different supply/demand drivers and have different short-term clearing price mechanisms
- Can physical trading link between markets lead to price convergence in traded markets?



Implications for pricing: is convergence likely?

- **Conditions for price convergence**
 - Conversion understood as: operation of single price mechanism between two traded markets
 - Requirements for LNG trade to establish convergence between US and Europe (and eventually Asia)
 - Sufficient discretionary supplies which respond to price signals
 - Surplus shipping capacity
 - Accessible surplus regas capacity
 - Supply and demand in balance in respective markets



Implications for pricing: is convergence likely?

Outlook on convergence or divergence

- Past: occasional influences between HH and NBP but no convergence
- Recent: increased divergence between markets
- Outlook: convergence in Atlantic Basin only if USA needs more LNG and ample supply of flexible LNG available
- Critical developments
 - Can recent increase US gas production be sustained?
 - Will new LNG projects feed sufficient LNG into Atlantic Basin?
- Dual pricing mechanism not expected to disappear soon in Europe

Thank you for your attention