



25th world gas conference
"Gas: Sustaining Future Global Growth"

Gas Markets Globalization: Perspectives and Limits

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Sonatrach, Algeria

Date: 04 June 2012

Venue: Kuala Lumpur



Patron



Host

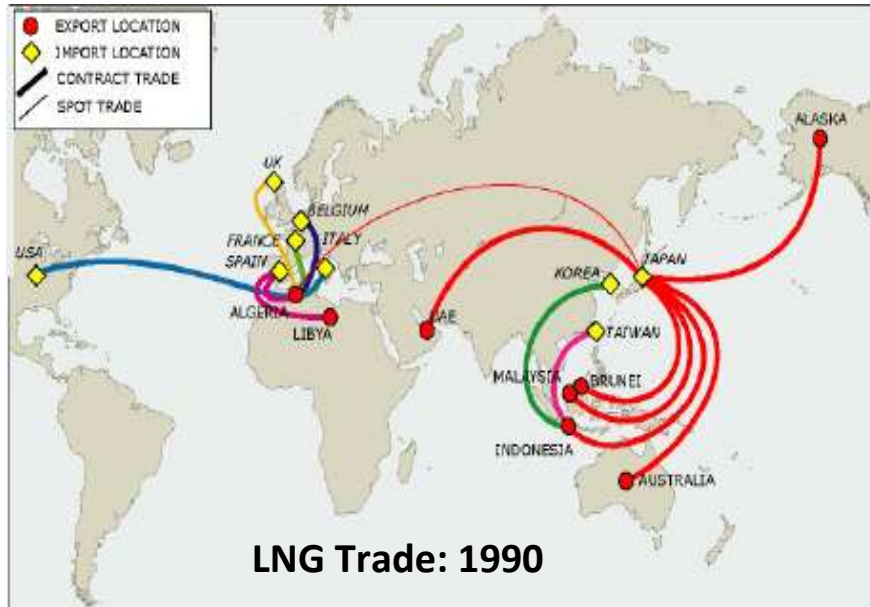


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Towards Gas Market Globalization ?

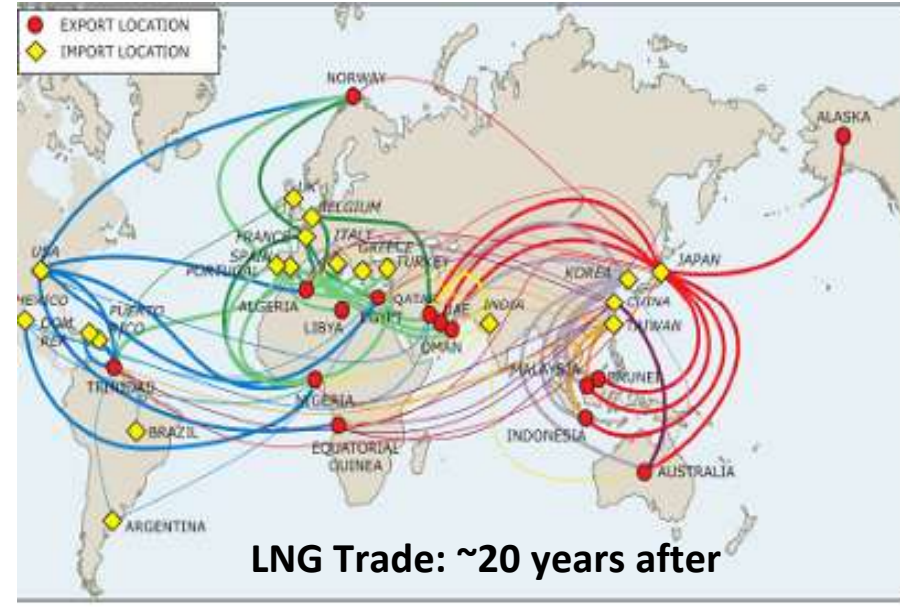
Increasing inter regional links & flexibilities



Source: Poten & Partners

From regional :

Lack of physical links & trade between regions,
 Almost all traded volumes are based on Long Term oil indexed contracts



To global configuration

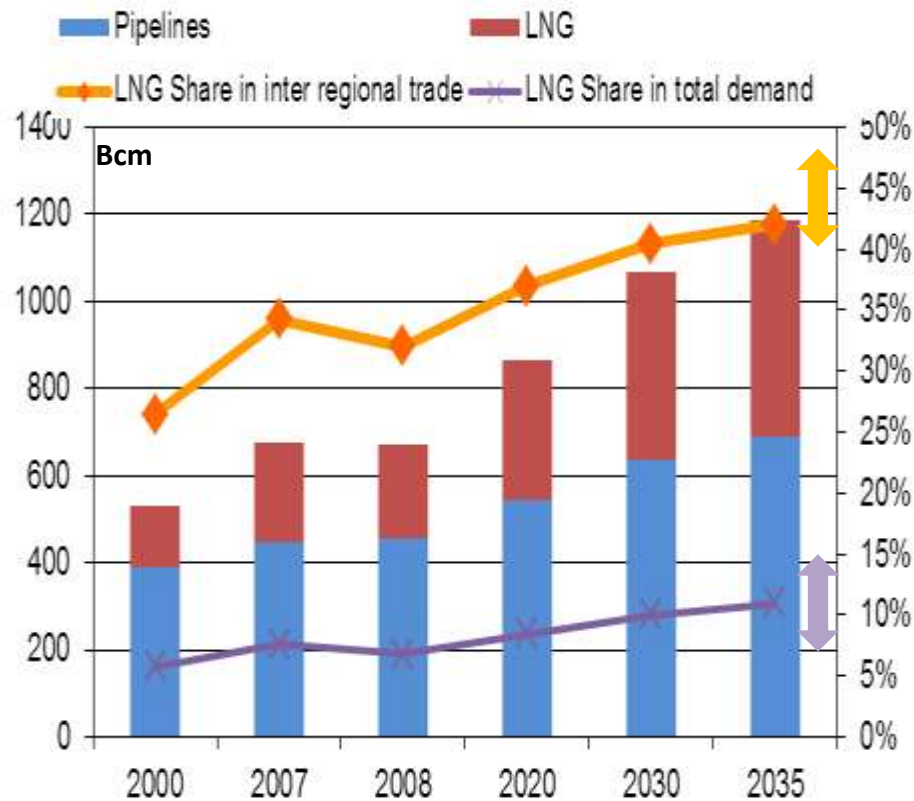
- ① Increasing inter regional gas trade
- ② Increasing trade flexibility
- ③ Arbitrage opportunities between regional prices that contribute to connect these prices.



Towards Gas Market Globalization ?

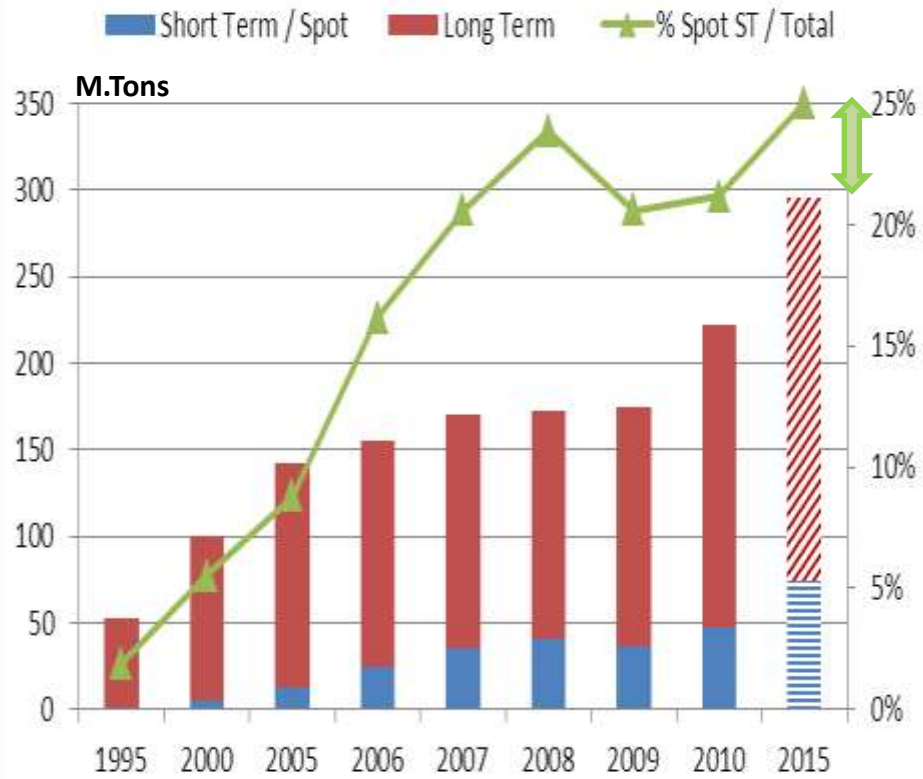
Increasing inter regional links & flexibilities

1 Inter regional trade (LNG Vs. Pipeline)



Source: IEA Outlook 2010

2 LT Vs. Spot LNG trade



Source: IGU LNG report 2011 P&P (for 2015 projections)

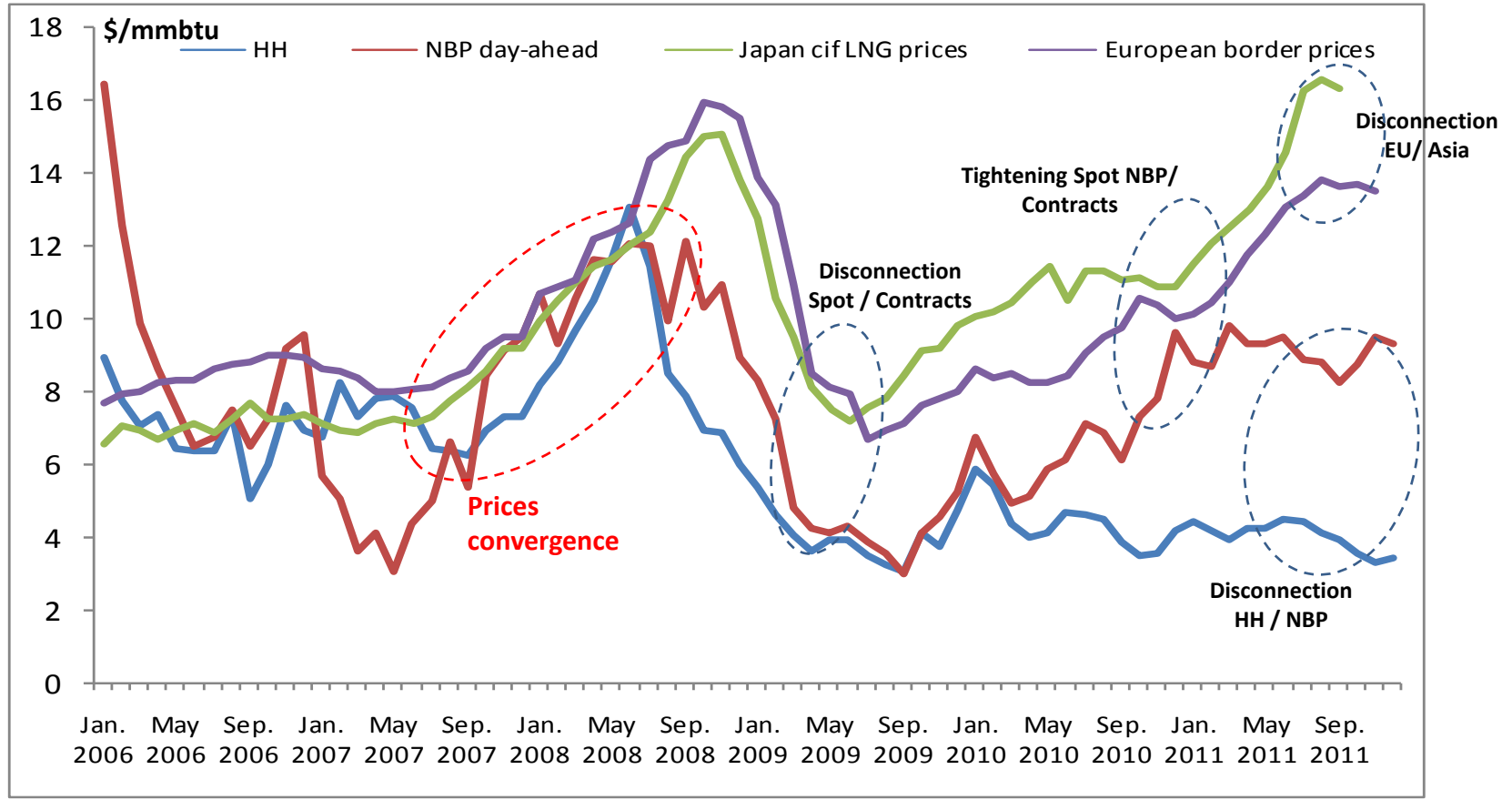


Many uncertainties affect globalization perspectives

Towards Gas Market Globalization ?

Increasing inter regional links & flexibilities

3 Spot Vs. Contractual Prices Dynamics

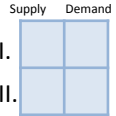


Source: CEDIGAZ



Many uncertainties affect pricing dynamics

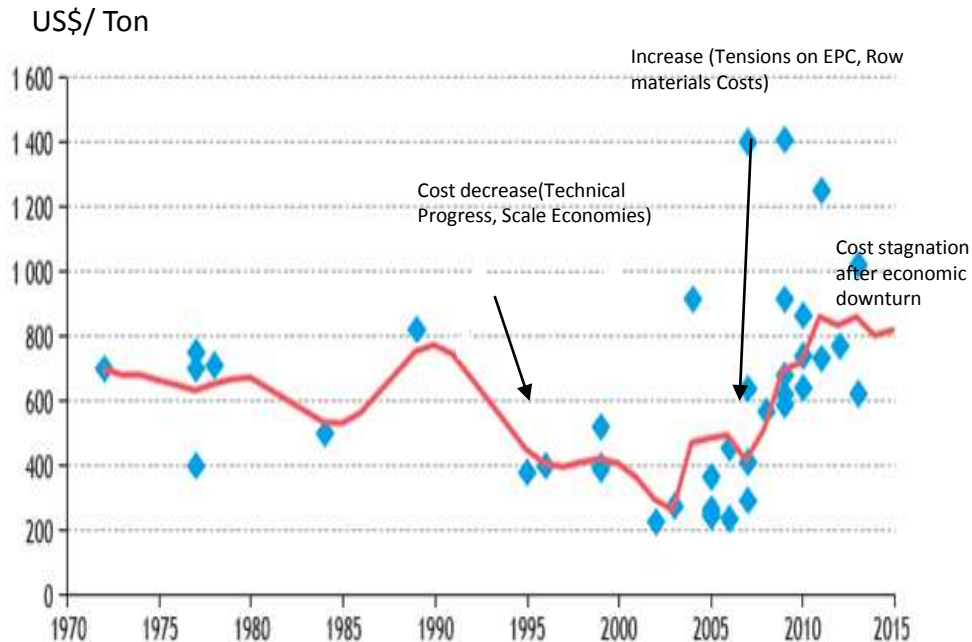
Determinant factors for gas markets globalization



	Supply Side drivers (Suppliers)	Demand Side drivers (Consuming markets)
1) Increasing links and LNG trade between regions	<ul style="list-style-type: none"> • LNG Supply Chain Costs • Liquefaction Capacities & Emergence of New Sources (Players) • Shipping Capacities • Internal Gas Demand in Producing Countries (Effect on gas exports) • LNG & Pipeline Competition 	<ul style="list-style-type: none"> • Demand Growth in main Consuming Regions • Domestic Production in Consuming Markets (ex: US unconventional) • Market Liberalization • Regasification Capacities Expansion • Gas Quality and Inter-changeability
2) Developing trade flexibilities	<ul style="list-style-type: none"> • Availability of LNG flexible volumes 	<ul style="list-style-type: none"> • Spot market development on the Regional, and on the Global scale

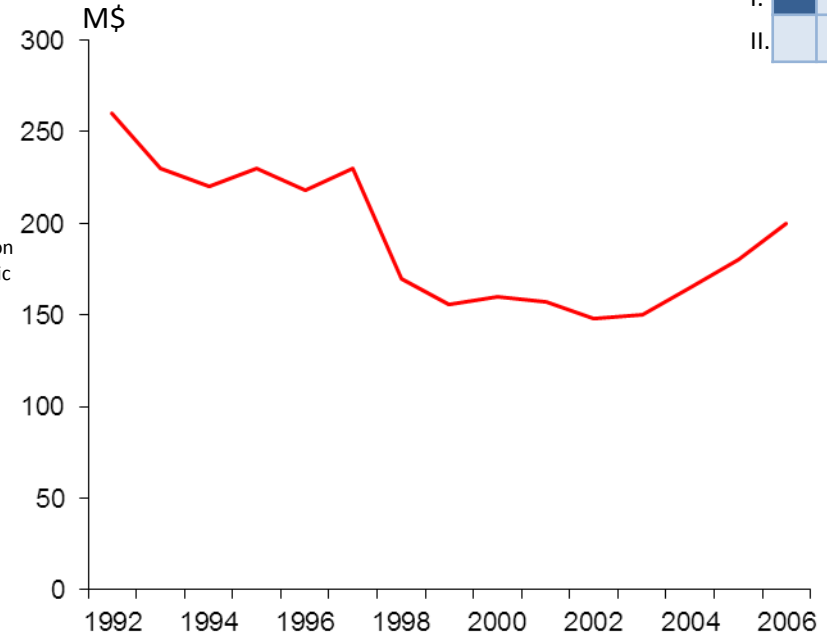
LNG supply cost evolution: still high costs that need visibility on demand

LNG plants unit costs evolution



Source: IEA

Ship building costs



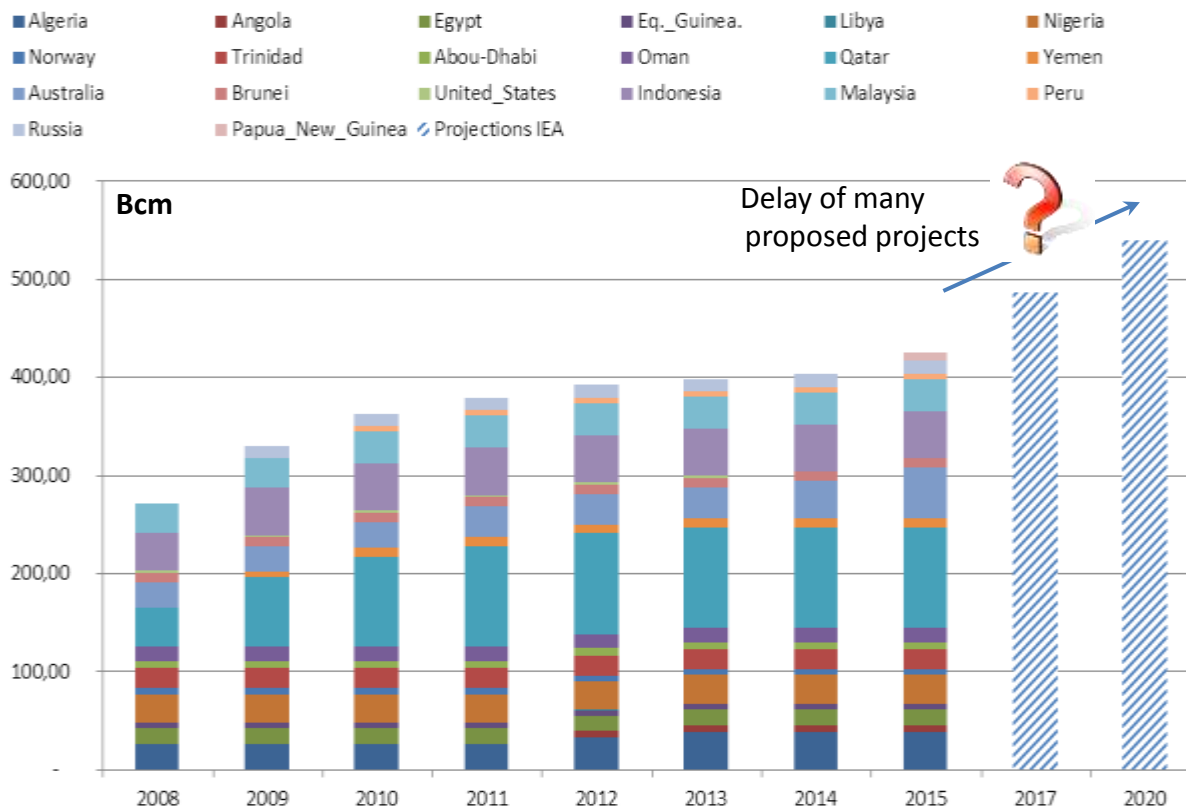
Source: EIA, LNG Shipping Solution, Simon & company International
* 125000 m3 entre 1992 et 2000, et 138000 m3 entre 2001 et 2006

	Supply	Demand
I.	Dark Blue	Light Blue
II.	Light Blue	Light Blue

- LNG supply chain: **Capital Intensive** requiring demand visibility & stable cash revenues
- Building costs of Liquefaction Plants & LNG tankers: **sharp increase** after a period of decline

Liquefaction capacity increase: Market conditions delay the execution of many proposed projects

Liquefaction Capacity Evolution



Source: Cedigaz 2011 +
Projections after 2017 (IEA 2011)

- Capacity increase with emergence of new players

- Specific market conditions after the crisis: Decline in Demand Vs Additional liq. Capacity commissioning

Outlook:

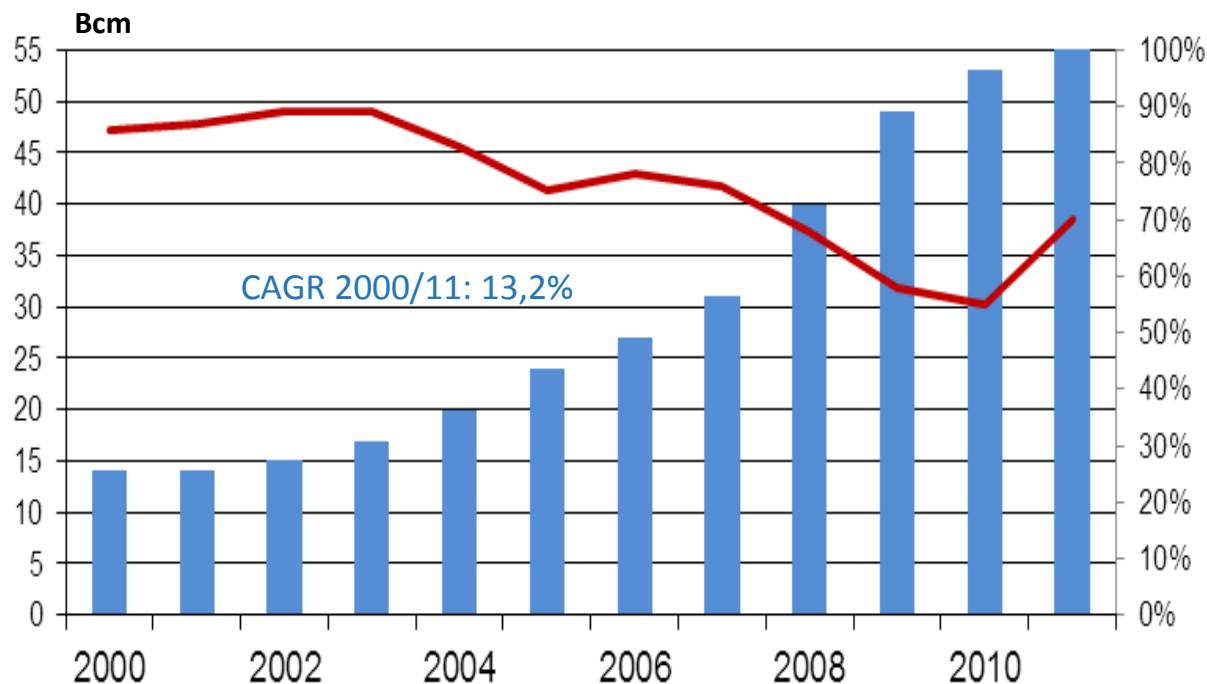
- Uncertainties on the future markets conditions
- Many announced projects in US, but uncertainties on the US Export's business
(US Supply/ Demand balance, Political & environmental constraints...)

	Supply	Demand
I.	Dark Blue	Light Blue
II.	Light Blue	Light Blue

LNG shipping: an intermediate link that follows LNG market development

	Supply	Demand
I.	Dark Blue	Light Blue
II.	Light Blue	Light Blue

Evolution of LNG shipping capacity and its utilization rate



Source: P&P, MOL

Before 2011: Faster growth in shipping capacity than LNG trades

Since 2011: Tightening of shipping markets with:

- Slowdown in new orders and in commissioning of tankers;
- Recovery of LNG trades

Shipping rate reach more than 120000\$/day

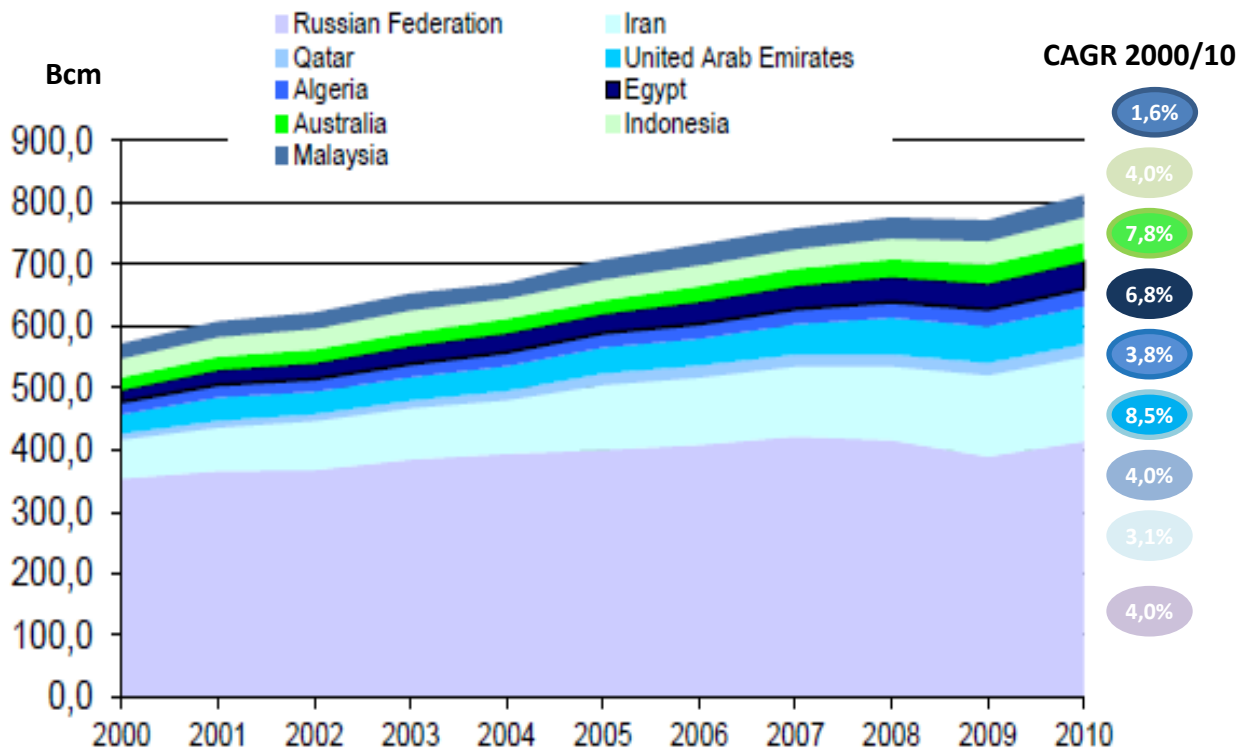
Outlook:

Tensions could remain on the short to mid term (expected decommissioning of old shipping capacities),

Gas demand in the producing countries: Growing needs but high resource potential

	Supply	Demand
I.	■	■
II.	■	■

Demand Growth in main producing countries



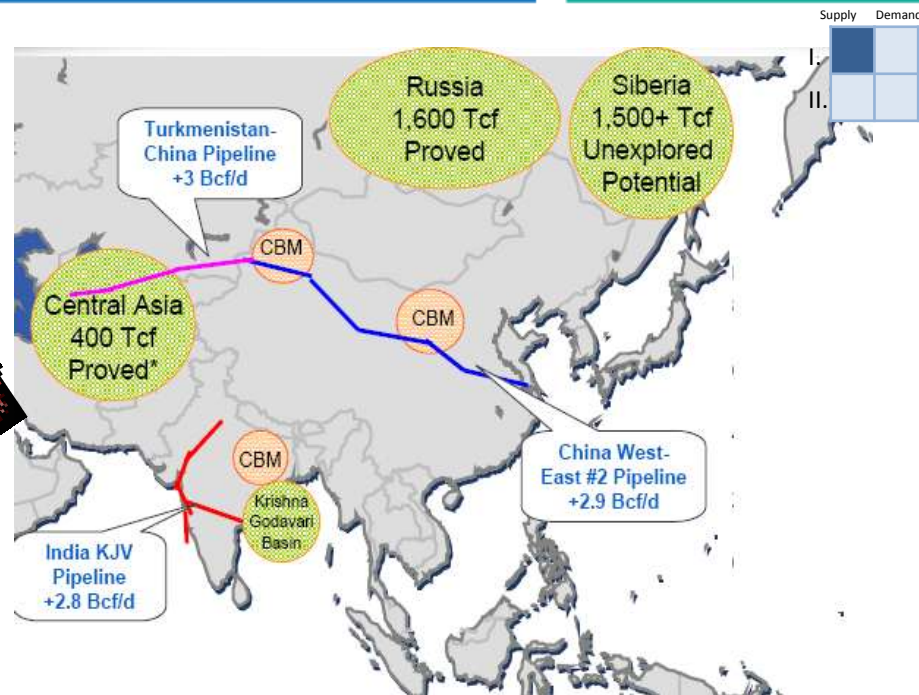
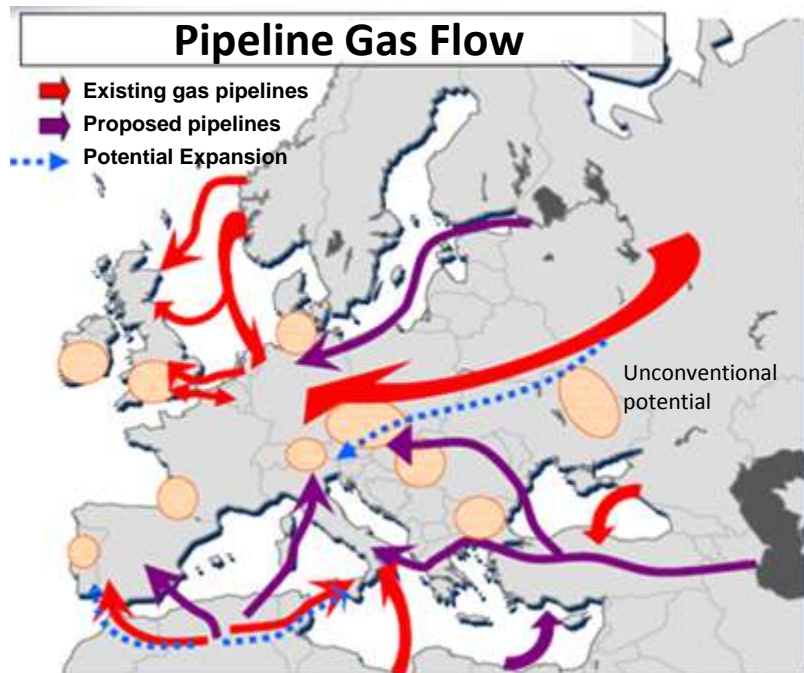
Sustained growth of internal consumption

Priority given to internal markets for major exporting countries

Outlook:

- Prospects for internal demand growth,
- Still high resources potential which development depend on future markets conditions

Competition LNG / Pipeline: Many pipeline projects that could slow LNG trades



Source: Chenière- - 14th International Gas and Electricity Summit 2009

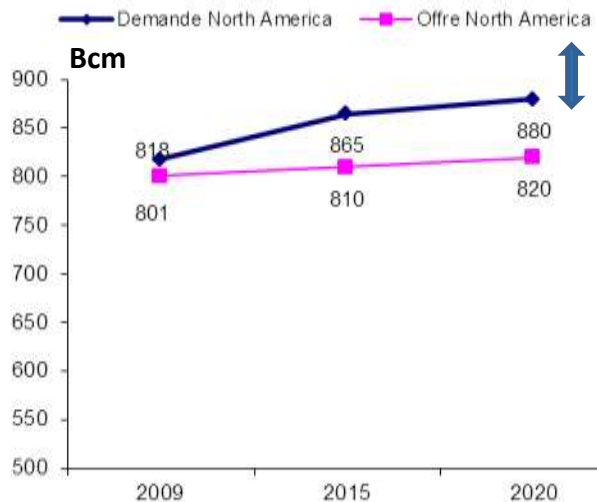
LNG Capacities development and their utilization rate could be challenged by pipelines' projects
Many proposed pipelines, even in **traditionally LNG supplied Asian markets**

Outlook:

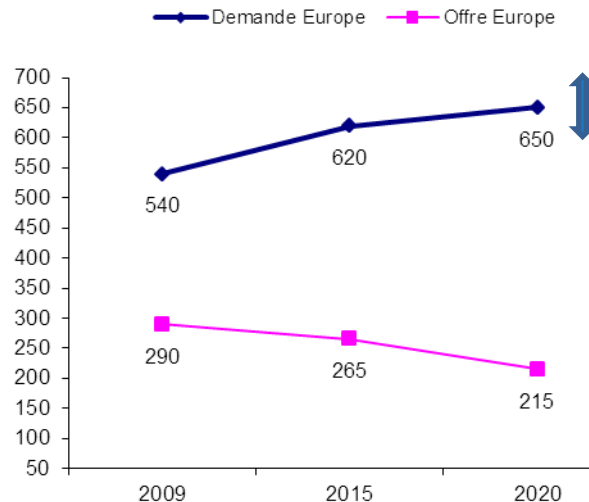
Many uncertainties: Economic perspectives; Transit issues & Geopolitics constraints, (Few projects are under construction or taking FID)

Gas demand growth in main consuming areas: large uncertainty that affect imports' needs

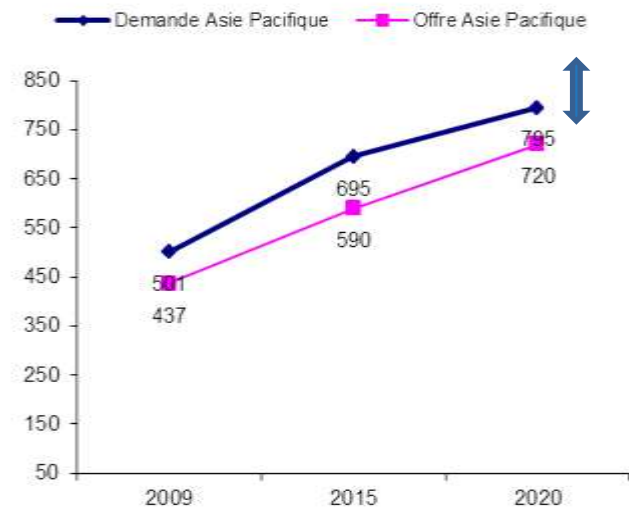
North America



Europe



Asia Pacific*



Source: Cedigaz 2011-

* including Russia

- Increase in regional supply / demand imbalances is projected.
- But Demand growth affect largely the evolution of this imbalances,
- **Demand Outlook:**
 - Demand growth driven by Power Sector: which shows more demand variations than other end user sectors;
 - Effect of liberalization & environmental policies;
 - Nuclear future uncertainties.

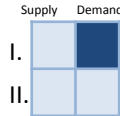
Domestic production evolution : a slowing factor for gas imports

Outlook for gas production



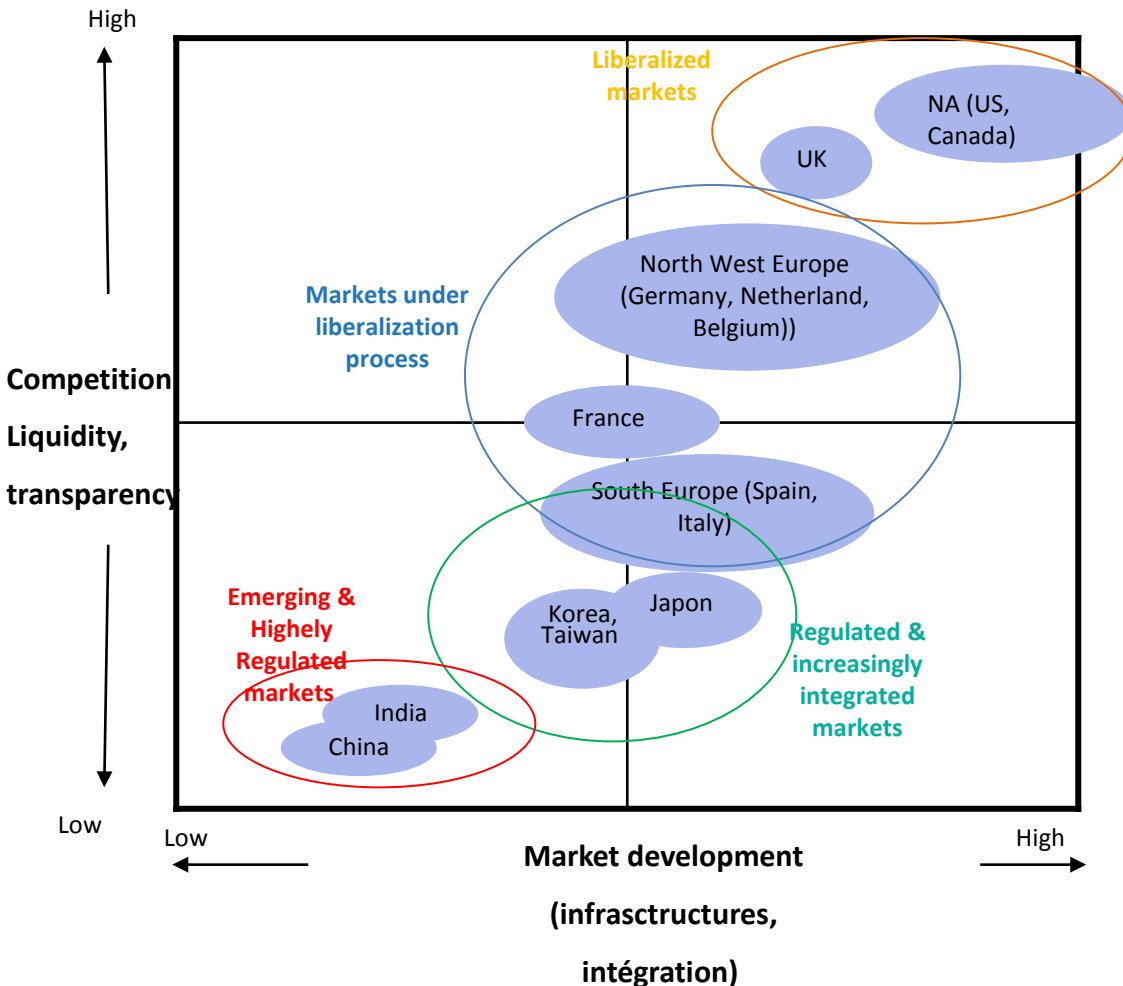
Source: IEA Outlook 2011

- Expected production growth in North America, China and India, boosted by unconventional.
- Important projections gap that reflects the great uncertainties



Market liberalization: Disparities in progress and security of supply issues

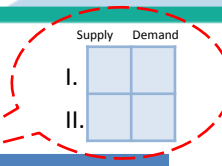
	Supply	Demand
I.		
II.		



Liberalization outlook:

- **Europe:** Many Challenges and issues to be clarified: Security of supply, 3rd package implementation and suppliers' concerns, Future of Euro zone.
- **Asia Jap. / S.Ko.:** Difficulties with very large dependence on LNG imports & Preference for LT contracts, Oil indexation likely to remain.
- **China & India:** Less mature markets; Uncertainties on price reforms policies, domestic production perspectives

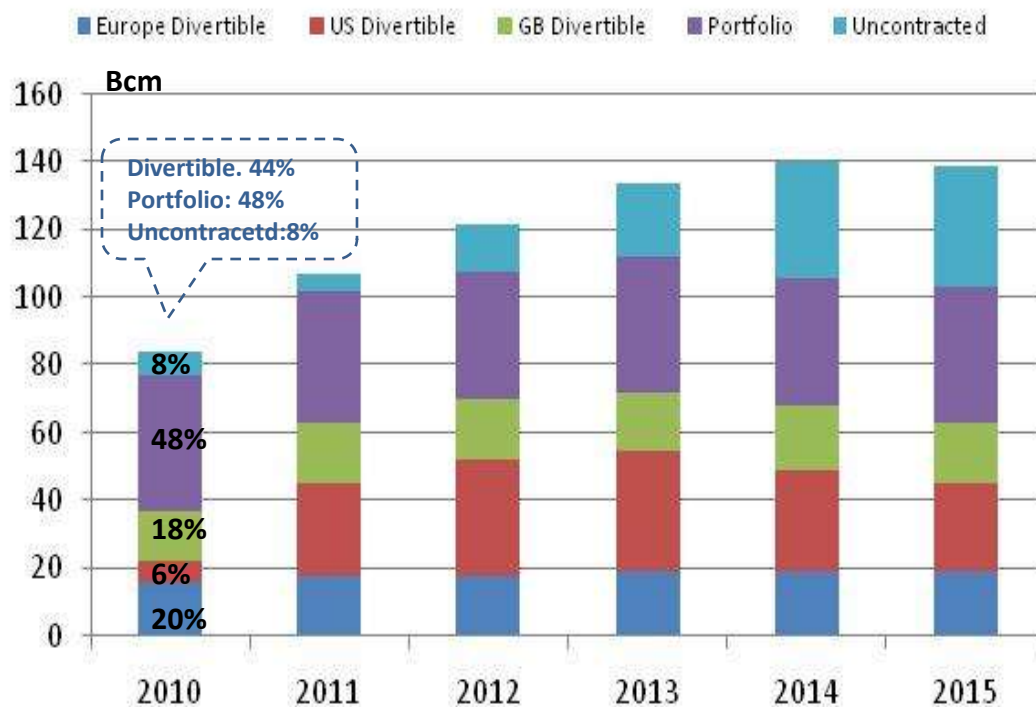
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2) Developing trade flexibilities	<ul style="list-style-type: none"> • Availability of LNG flexible volumes 	<ul style="list-style-type: none"> • Spot market development on the Regional, and on the Global scale

	Supply	Demand
I.	Light Blue	Light Blue
II.	Dark Blue	Light Blue

Evolution of LNG Flexible Volumes availability*



Source: POYRY 2010

- 3 flexibility sources :
 - Spare or Uncontracted capacity;
 - **Contractual flexibilities** that permit to divert volumes;
 - Flexibility related to the suppliers portfolio strategy
- Strong growth in 2011 driven by Qatar new trains (divertible volumes)
- Expected growth to 2015 driven by un-contracted LNG capacities
- But many uncertainties could affect this figure (LT contracts perspectives, Suppliers pricing strategies, Markets conditions)

Note: These volumes do not include those of the Pacific basin, estimated at around 5 bcm in 20089(Energy Charter,); these flexible volumes are essentially related to some spare capacity due to uncommitted supply

Development of spot Markets

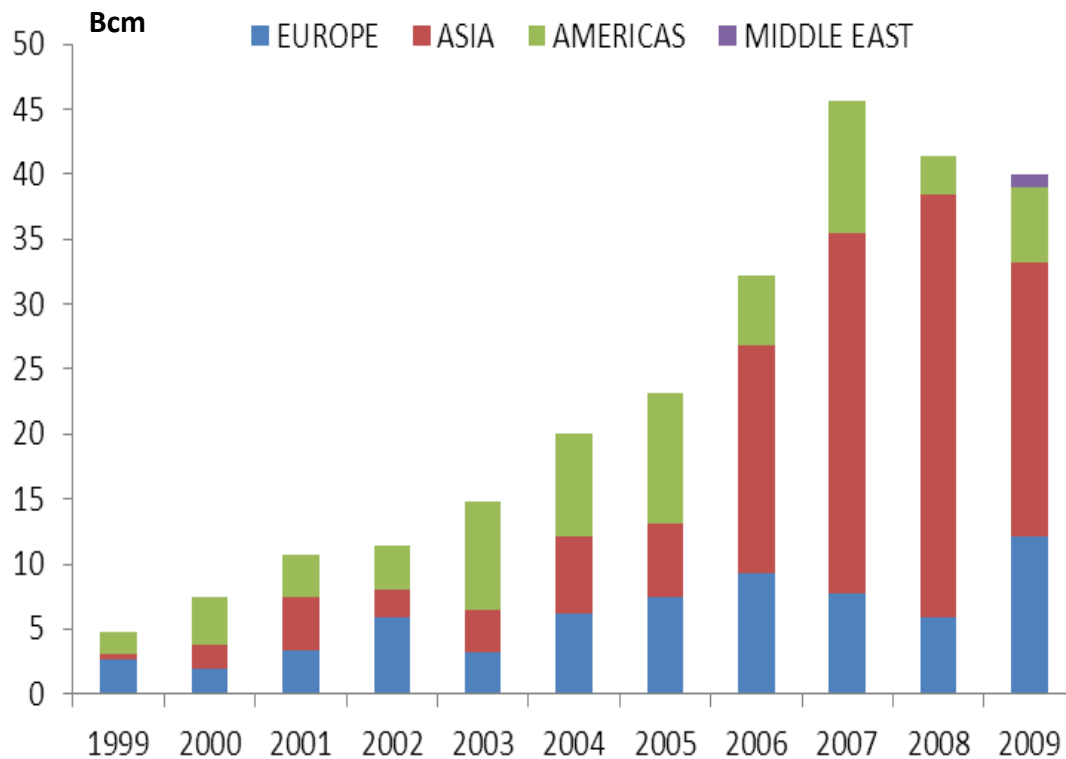
Regional scale

	Supply	Demand
I.		
II.		

	North America & UK	Continental Europe	Asia Pacific
Perspectives	<ul style="list-style-type: none"> Spot market continue to play important role Strongly Established Market Pricing mechanisms Expected Increase in spot based transactions in UK ; 	<ul style="list-style-type: none"> LT contracts continue to play important role despite some spot growth on gas hubs (mainly NW Europe) Uncertainties on Liberalization process 	<ul style="list-style-type: none"> Spot transactions driven by unpredictable events & seasonality Slowing liberalization process Oil indexed contracts to remain predominant
Main issues	<ul style="list-style-type: none"> Price volatility Security of long-term supply 	<ul style="list-style-type: none"> Liquidity & Prices transparency Prices Volatility Gas hub development (Trading products and hedging mechanisms) Security of long-term supply External Gas suppliers strategy 	<ul style="list-style-type: none"> Security of supply constraints Developments in the Atlantic Basin Indexing reference alternatives to oil prices

Development of spot Markets Global Scale

Spot / Short term trade by importing regions



Source: Cedigaz 2010



Global spot market mainly driven by Short term opportunities
(Unpredictable events and Seasonality);

But also by Mid / Long term drivers:

i) Increasing links & opportunities of trade between regions; ii) Development of trade flexibilities)

Outlook :

- Strong fluctuations in response to unpredictable events,
- Potential growth on the LT but uncertainties on inter regional trade & flexibility drivers

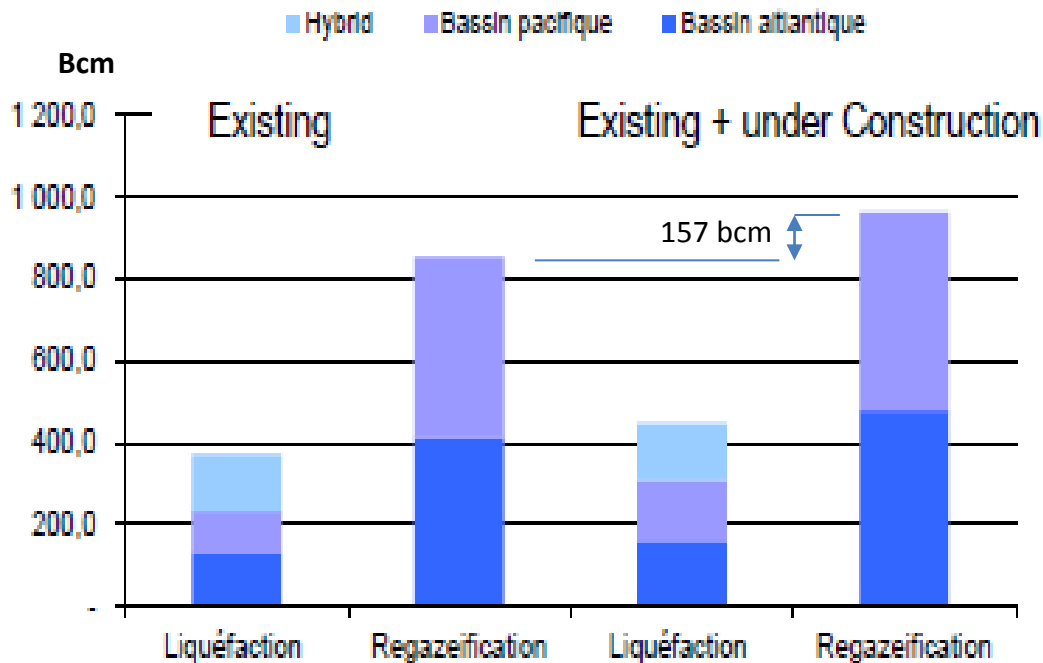
- ❑ Evolution of regional Supply / Demand Balances has affected inter-regional trades.
- ❑ Recent increase in spot trading activity in the Continental Europe has been driven by Gas Over Supply Conditions that would not persist over the medium and long terms in Europe and also in Asia. Long Term contracts will continue to play a major role
- ❑ Large uncertainties on globalization driving forces do not support trend towards gas markets globalization
- ❑ Security of supply in Europe and Asia remains the major challenge. Stable Long Term relationships between Consumers and Suppliers is one way of dealing with gas market uncertainties and ensuring security of supply

BACK UP

Regasification capacities: exceeding largely LNG available volumes

	Supply	Demand
I.		
II.		

Existing and Under Construction Capacities



Source: IEA

Global Regas. more than doubling the available liqu. Capacities

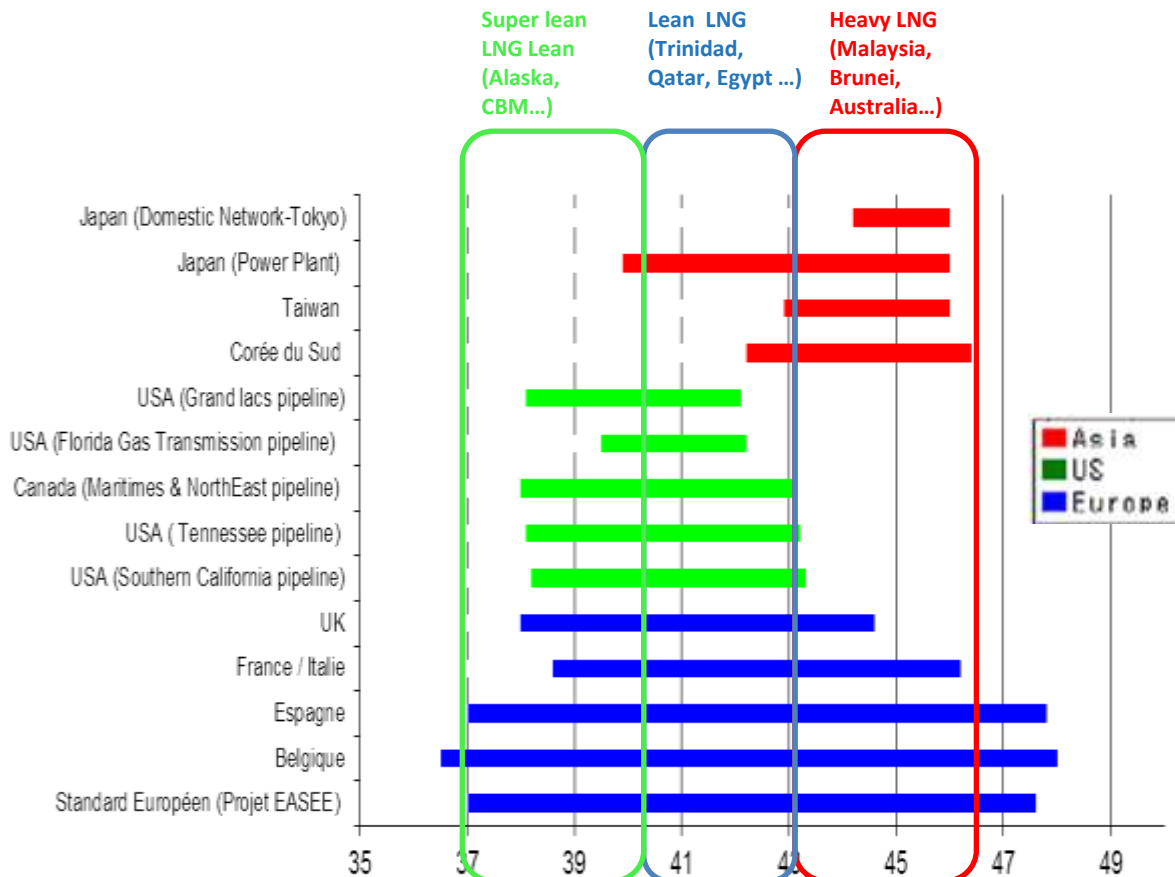
Emergence of Floating LNG (less costly & more flexible)

Outlook:

Further increase expected (Under construction + Planned capacities), but uncertainties on the LT surpluses sustainability

Gas Quality and inter-changeability: a constraint on the diversification of LNG sources

Gas Quality by Calorific value & Markets



- Flexible trades & LNG diversification constrained by Gas Quality differences;
- Inadequacy of LNG Regas. terminals to accommodate various gas qualities

Outlook :

- Uncertainties about Gas End Use harmonization (Technical & Economical rigidities)
- LNG chain adaptation could be difficult to achieve