

# 17th International Gas & Electricity Summit

A banker's View on Financing and New Supplies

October 23<sup>rd</sup>, 2012



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# Introduction

## Key Trends

### 1 Volume and Price

- During the last round of Qatargas and Rasgas transactions, Lenders have demonstrated a greater capability to take price risk on US, Europe and Japan indexes such as Henry Hub, NBP and JCC based formulae – but volume risk had to be fully covered
- However in recent transactions tolling / quasi tolling models have been re-emphasized (US exports, Tangguh)
- Project finance lenders seem keen to use major gas aggregators as a buffer

### 2 Players

- LNG is not yet a freely traded commodity and a large portion of the market is still controlled by a small number of exporters and importers
- Nevertheless, the number of players is increasing dramatically thanks to arbitrage opportunities and technology developments (Floating Regas and liquefaction, “mini” LNG...)
- Some seasoned LNG buyers are moving into the ‘Operatorship’ domain (INPEX’s Ichthys and Abadi)

### 3 A Capital Intensive Business

- Availability of funds is critical for LNG developers, and new players are more likely to use project finance than oil majors
- During financial crisis, ECAs have stepped into the gap in order to support access to strategic resources (APLNG, PNG...)
- Debt tenors, constrained by Basell III capital requirements and the availability of USD funding following European Sovereign Debt crisis are negatively impacting the availability of funds

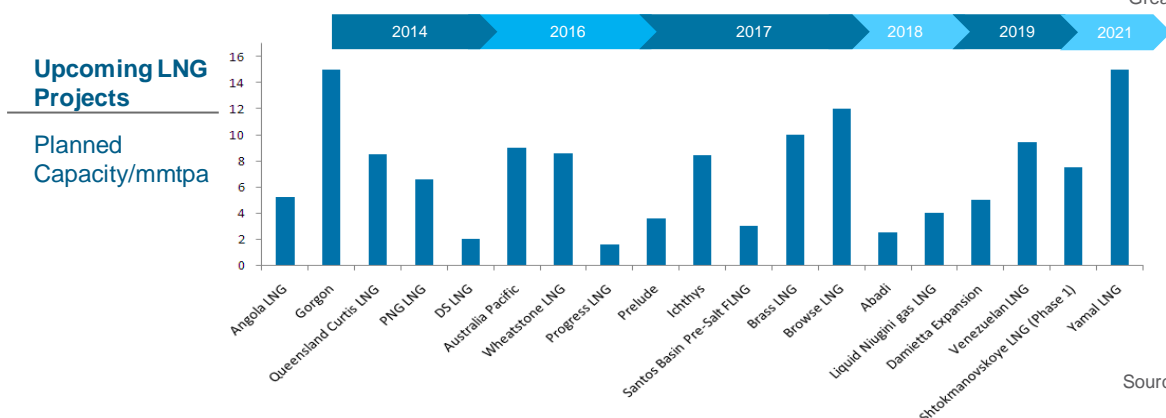
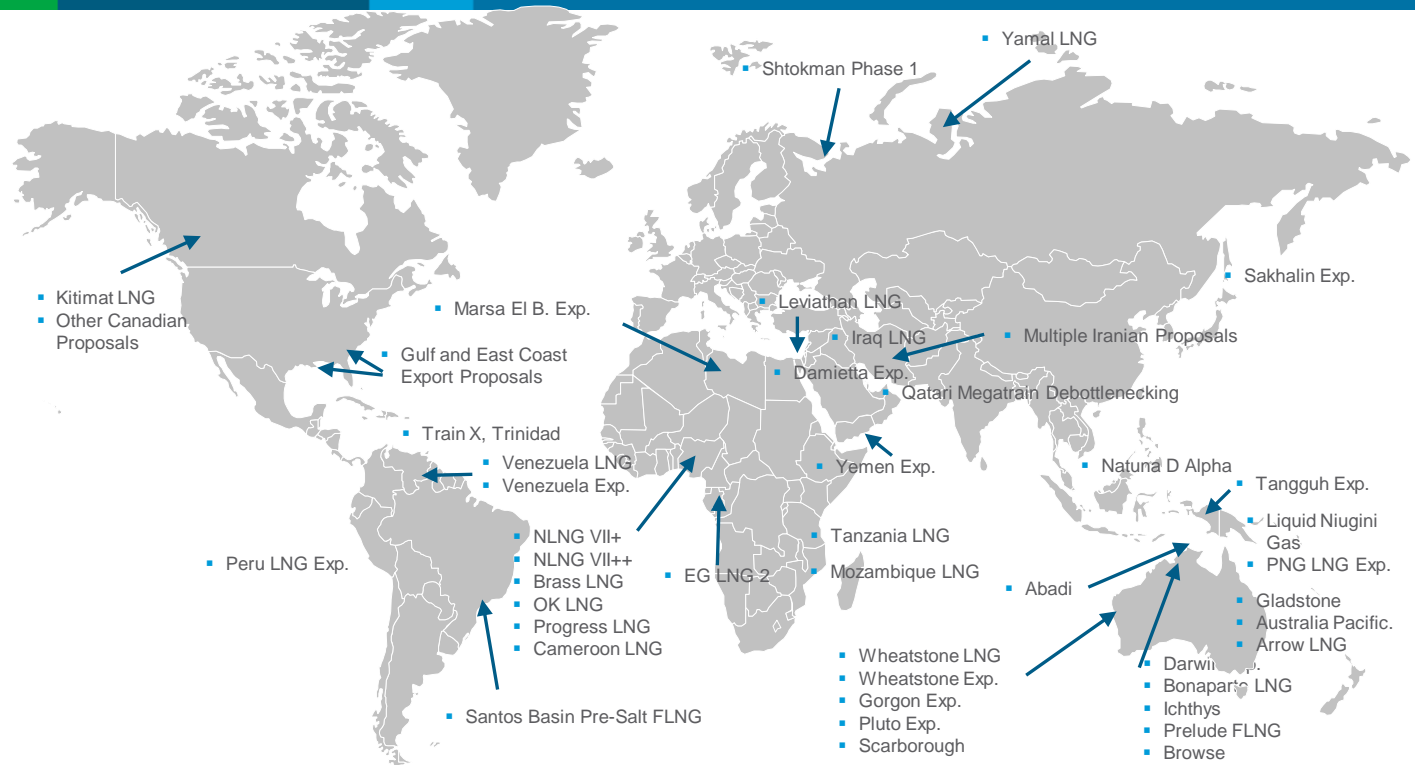
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1. What has changed over the last 5 Years?

# New Source of Supply

## LNG Proposals: Mostly Targeting Long Term Buyers?

- LNG Projects are capital incentive and rely heavily on the debt market**
  - Financial crisis and US Gas market had a double negative impact on LNG investors
- Nevertheless large projects have managed to deliver FID despite difficult market conditions**
  - Australia: Prelude, Ichthys LNG, APLNG
  - USA Sabine Pass
- Breakthrough on the market**
  - Network to LNG
  - FSRU market expansion
  - FLNG



# What has Changed Over the Last 5 Years?

## Crystal Ball is getting cloudy

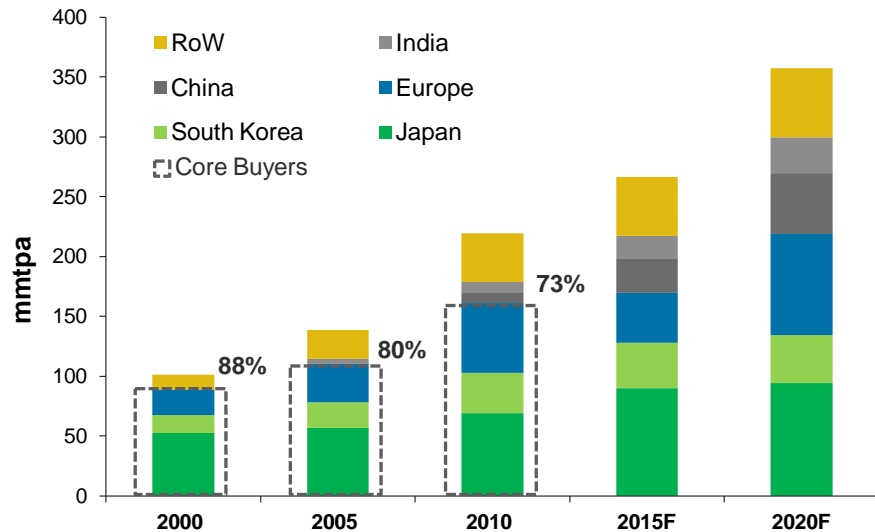
### Lenders Perspective on Recent Changes

Reading through the last few years of Production Forecasts

- Although the US market has dramatically changed the LNG market economics, some key features of the LNG market remain:
  - Japan and Korea are the major importers
  - Europe keeps security and diversification of supplies high on the agenda
- Lenders would back virtually any project serving Europe and Japan/Korea (for 15 years +)
- Key features of the coming growth: Parallel to Indonesia / Australian / Qatar highways to Japan /Korea, new smaller roads will emerge to smaller consumers

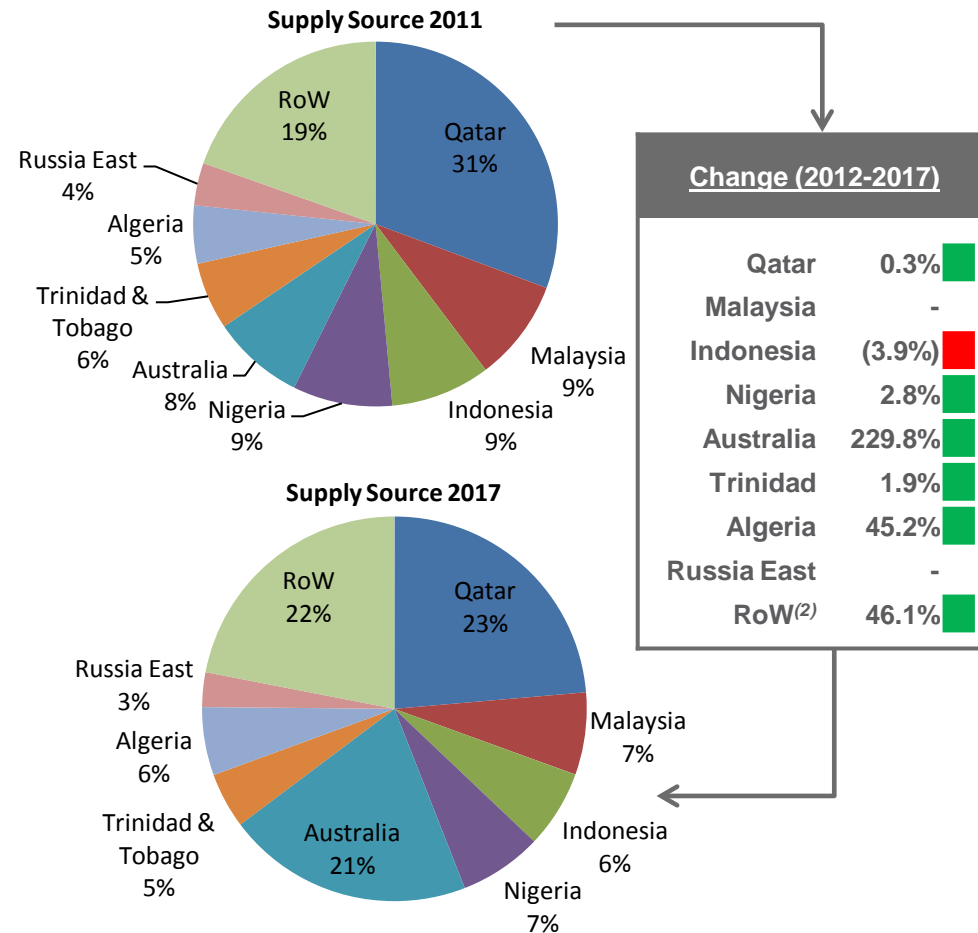
### Demand Overview

LNG Demand Breakdown – 2000 to 2020<sup>(1)</sup>



### Supply Overview

LNG Supply Breakdown – 2011 / 2017 <sup>(1)</sup>



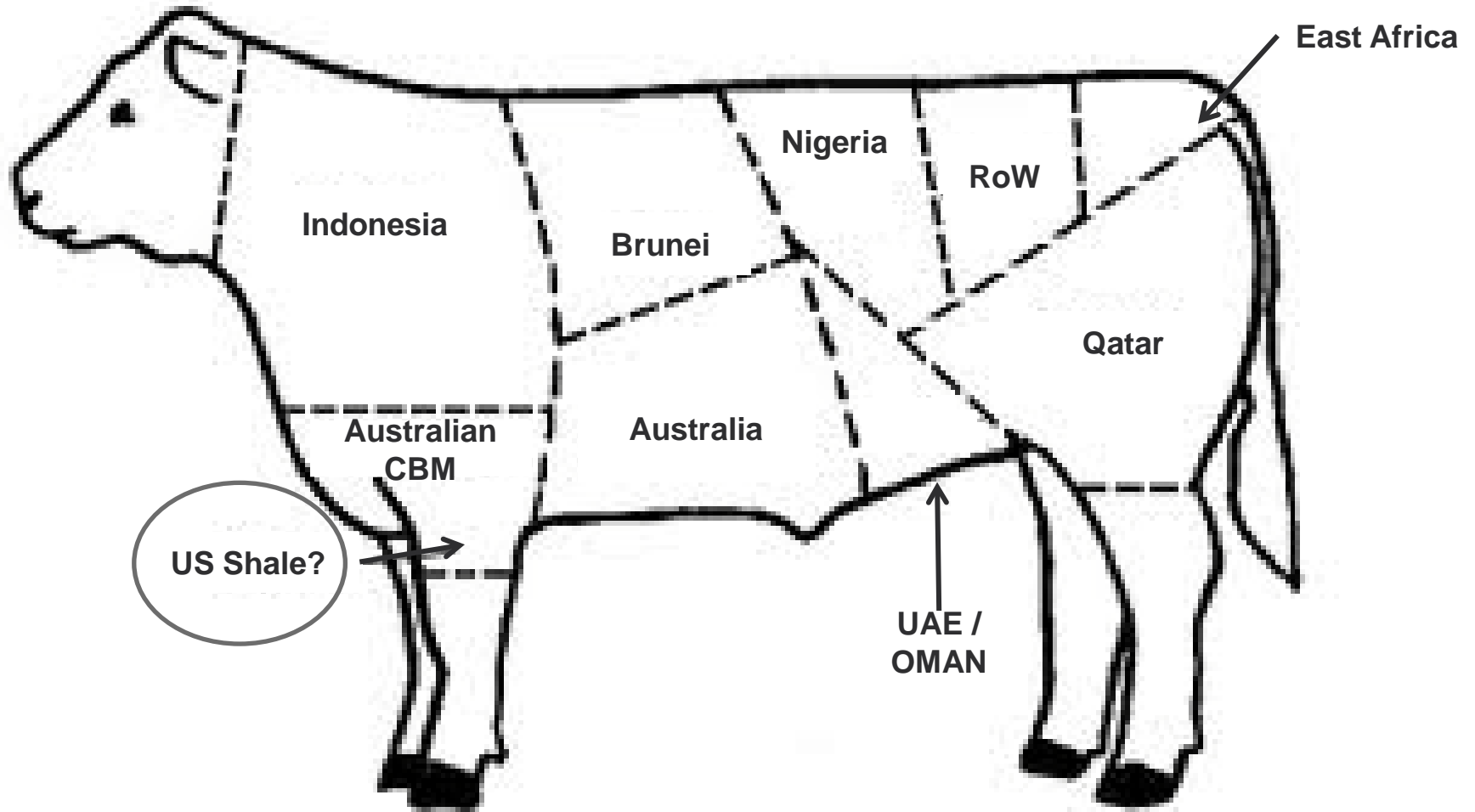
Over the last 5 years, buying patterns of large customers have changed only marginally, but new customers will attract new (smaller) suppliers

(1) Source: WoodMackenzie

(2) Rest of the World includes: Oman, Egypt, Yemen, United Arab Emirates, Brunei, Peru, Equatorial Guinea, Norway and Angola

# What has changed?

## Where Are the Best Pieces



# What has changed over the last 5 Years?

## Is LNG still an Oligopolistic Market?

- LNG supply markets are still dominated by a selected number of players
- NOC spectrum is headed by Qatar Petroleum and Petronas with large projects within a limited geographical footprint
- IOC spectrum is led by Shell, Exxon, BP, TOTAL and BG with large diversified supply portfolios
- Nevertheless, composition of the supply is dramatically more diverse than 10 years ago
- In recent projects we have seen the large LNG players playing a role of gas aggregator

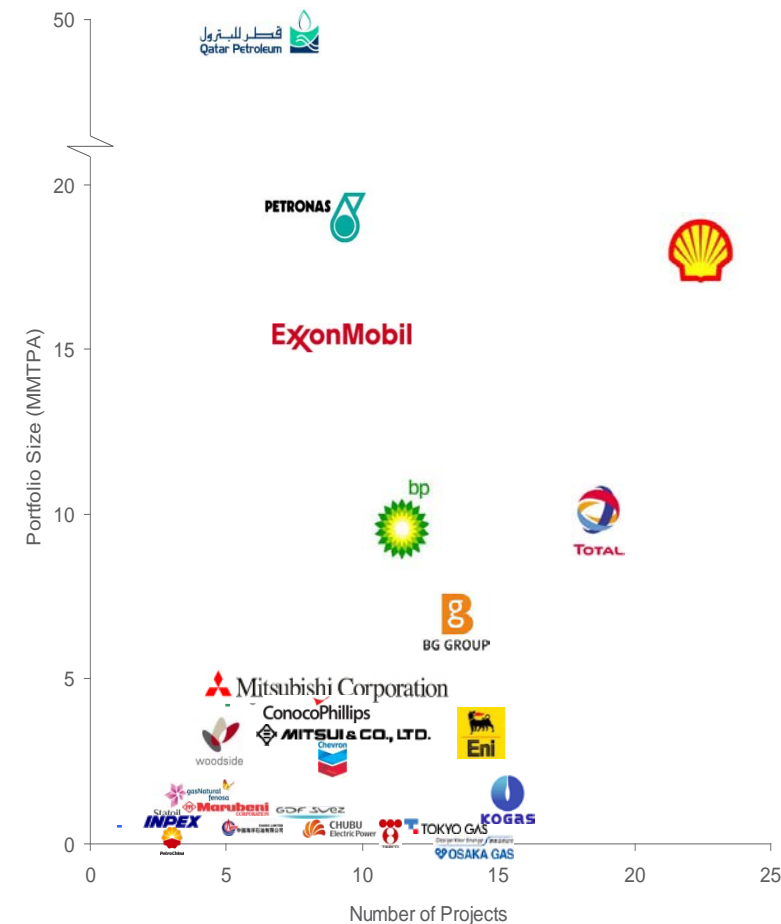
### LNG Suppliers <sup>(1)</sup>

Understanding the positioning

Company	Number of Projects	Production in 2011 (MMTPA)
Qatar Petroleum	7.0	49.7
PETRONAS	9.0	18.8
Shell	23.0	17.6
ExxonMobil	10.0	15.2
TOTAL	19.0	9.5
BP	12.0	9.2
BG	13.0	6.6
Mitsubishi	9.0	4.8
ConocoPhillips	6.0	4.3
Woodside	5.0	4.2
Eni	14.0	3.3
Mitsui & Co	10.0	3.3
Chevron	9.0	2.7
Gas Natural	4.0	1.3
Marubeni	4.0	1.3
Statoil	3.0	1.0
GDF Suez	8.0	0.8
KOGAS	15.0	0.8
INPEX	3.0	0.4
TEPCO	11.0	0.2
Tokyo Gas	13.0	0.2
Osaka Gas	14.0	0.1
Chubu Electric	9.0	0.0
CNOOC	6.0	0.0
PetroChina	3.0	0.0
<b>Total</b>	<b>239.0</b>	<b>155.3</b>
<b>Average</b>	<b>9.6</b>	<b>6.2</b>
<b>Median</b>	<b>9.0</b>	<b>2.7</b>
<b>Max</b>	<b>23.0</b>	<b>49.7</b>

### Mapping LNG Suppliers<sup>(1)</sup>

IOOCs remain ahead of NOCs despite NOC captive resources





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## 2. Understanding Current Financing Market Trends

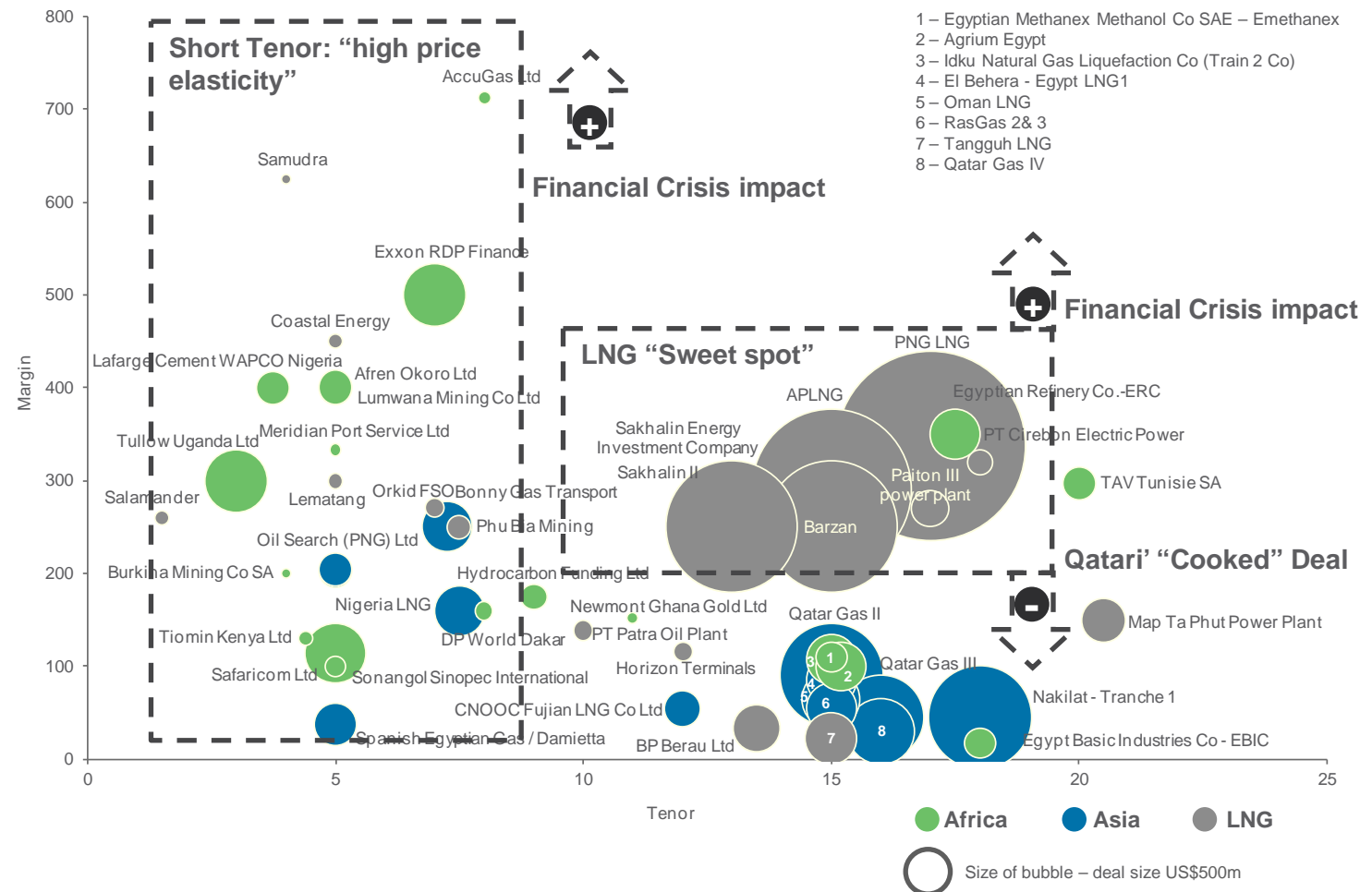
# Recent Financing Benchmarks

## Importance of the Price Signal in Upstream and LNG Transactions

- Global financial crisis had a limited impact on price achieved by LNG transactions during the last 3 years
- LNG deals' pricing has been led by a combination of
  - Regional appetite and liquidity
  - Quality of the sponsors and offtakers
- Contrary to Upstream / Reserve Base Lending, commercial banks are not "lenders in last resort"
  - Upstream transaction demonstrated an important price elasticity
  - On LNG, a reduction in liquidity does not translate immediately in a price increase
  - Reversely, drastically increasing pricing might not attract the relevant liquidity

### Key Market Comparables

Recent Project Finance and RBL Transactions <sup>(1)</sup>



Note:  
 (1) Dealogic as at April 2012

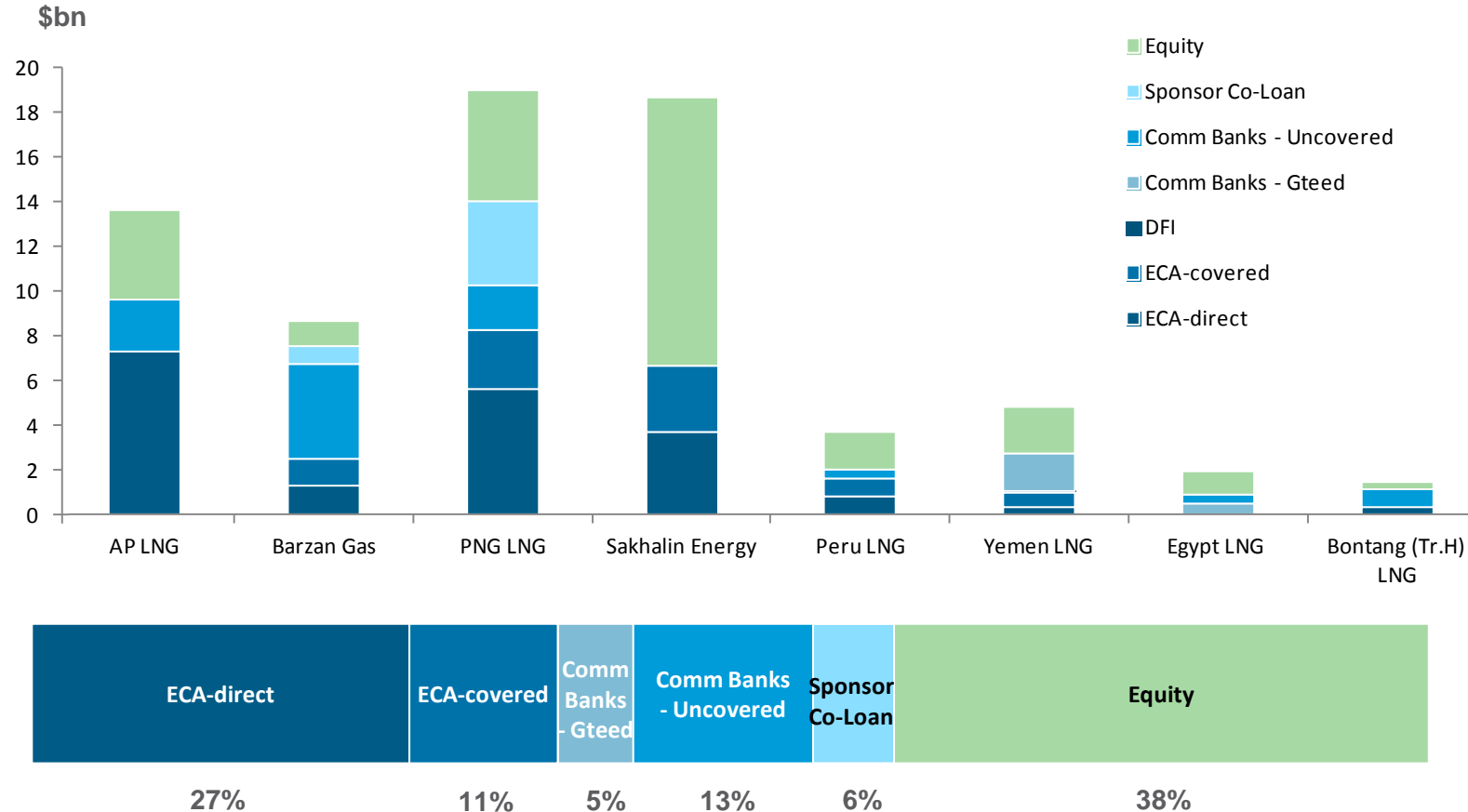
# Funding LNG Projects

## Understanding Primary Sources of Funds

- As mentioned on the previous page reduction in liquidity pool does not translate systematically to dramatic price increase
  - APLNG is a good example of pricing pressure
- Nevertheless Qatar level are exceptionally low and remain unparalleled
- Recently ECAs and Equity had to step in to fill the gap left by commercial banks and Project bonds

### Recent LNG Project Financing

Sources of Funds for Selected Transaction – Average Sources of Funds<sup>(1)</sup>



Notes:

(1) Source: Thomson Reuters, company websites & SCB Analysis

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## 3. What's Next

# New Basins, New Debates

## Reading the Tea Leaves

1)

### A Big Boys Club

- Oil Majors still have an advantageous position on the LNG market
- Capability to play around a large portfolio and offtake large volumes gives a significant advantage for creating bankable projects
- Oil Majors can lead their core banks into financing and can ultimately plug any funding gaps through co-lending

2)

### A Technology Driven Industry

- Technology breakthroughs are critical for the development of LNG market
- Infrastructure is developing at a rapid rate, and breakthroughs like FSRU will allow new importers to access the market at a cheaper cost
- On the production side, FLNG technology might represent the next step into availability of large stranded gas reserves

3)

### A Fragmented Market

- Monopolistic-Oligopolistic, fragmented with large asymmetry of information in pricing formula, the LNG market is not yet a efficient and transparent market
- These features leave important arbitrage opportunities for large players, and Oil Majors are not focusing only on securing access to volume but also on market arbitrage (eg: BG in EG and Sabine, Shell in Canada...)

4)

### Financing

- Next round of Project financing is likely to focus on:
  - ✓ new technologies: FSRU, FLNG, mini-LNG
  - ✓ new exporting markets: North America, East Africa, Russia
  - ✓ good old financing standards :volume risk absorption and competitiveness on the cost curve

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# Appendix

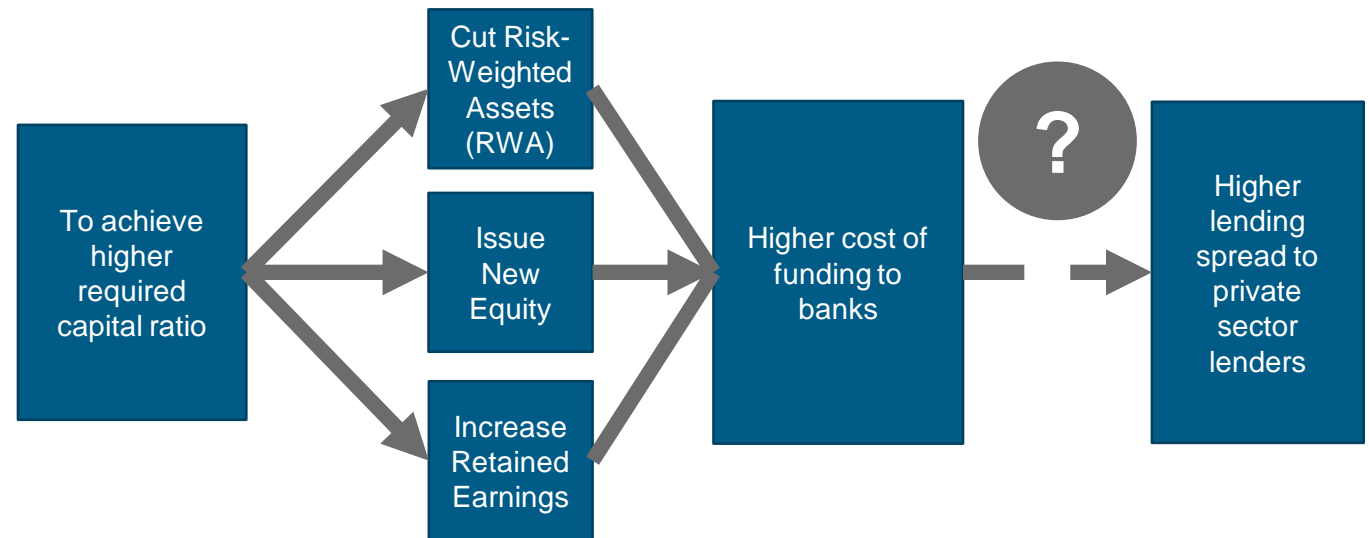
# Basel III Impact on Project Finance

## Market Rationale behind the Potential Impacts of Basel III

### Market perception on the likely impact of Basel III on credit markets

#### Changes in RWA calculation

- Risk-weighted Assets (RWAs) are used by banks to measure risk and capital requirements
- Calculation of RWA:  
$$\text{RWA} = \text{EAD} \times \text{Risk Weight}$$
, where
  - EAD: Exposure at default;
  - Risk weight is a function of
    - Probability of default (PD)
    - Loss given default (LGD)
    - Maturity
    - Firm size
- In Basel III the RWA calculations have been extended to include a set of credit risks that caused significant losses through the crisis
- The final standard of the new framework introduces the requirement that EAD calculation reflect a higher EAD value for counterparties where specific wrong way risk has been identified



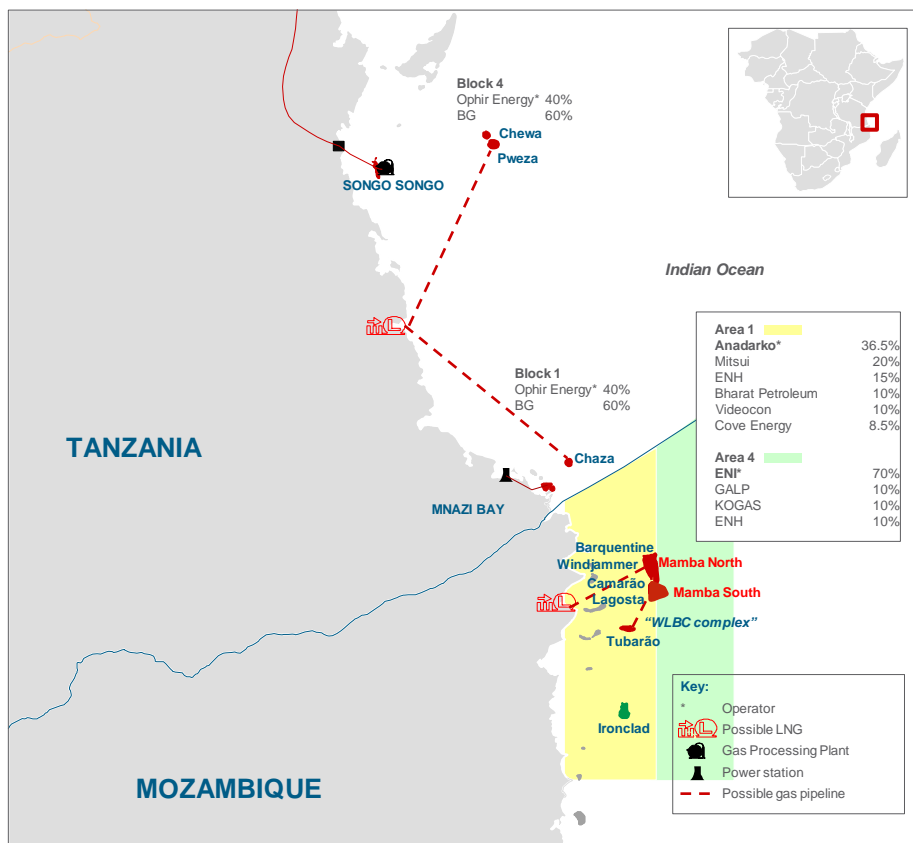
- Market perceptions (above) state that Basel III will result in higher lending costs
- However, no certain conclusions can be drawn at the moment as there are many complicated and far-reaching issues arising from the new framework
- Based on historical data on the trend in BB and AAA corporate spreads across the US and Europe it seems that loan pricing is rather selective – there is an increase in the delta between good and bad credit quality
- In addition, bank loan and project financing liquidity in the Oil & Gas industry is back to pre-crisis levels
- Current rationale behind the possible impacts of Basel III suggests that market perceptions are worse than reality; the pricing of financings will depend on credit quality and alternative sources of financing (e.g. ECA finance) are still expected to remain a strong component in bank lending

# Focus on East Africa

## Delivering the Next World Scale Gas Province

### Delivering a World-Scale Gas Province<sup>(1-2)</sup>

Potential onshore locations for LNG Liquefaction Plants in East Africa



Notes:

(1) Source: Wood Mackenzie

(2) Source: Company presentations and analyst reports, SCB Analysis

### Strategic Fit to LNG<sup>(2)</sup>

Area (Operator)	Sponsor	S/H (%)	Rationale and appetite for LNG offtake	Company's long-term commitment to LNG
Area 1 (APC)	Anadarko*	36.5	<ul style="list-style-type: none"> <li>Growing exposure to Onshore US Shale Gas</li> <li>Proven track-record of E&amp;P experience</li> </ul>	
	MITSUI & CO., LTD.	20.0	<ul style="list-style-type: none"> <li>Willingness to invest in Africa</li> <li>Sound and prudent investor with good experience of delivering project</li> </ul>	
	VIDECON	10.0	<ul style="list-style-type: none"> <li>Mid-size Indian conglomerate</li> <li>Might be keen to build a story around its LNG stake</li> </ul>	
	Bharat Petroleum	10.0	<ul style="list-style-type: none"> <li>Largely owned by the government</li> <li>Large appetite for LNG (ultimately for gas to power)</li> </ul>	
	ENH	15.0	<ul style="list-style-type: none"> <li>National Oil Company</li> <li>Focus on development and monetisation of the portfolio</li> </ul>	
	PTTEP	8.5	<ul style="list-style-type: none"> <li>PTTEP step into Cove</li> <li>Price paid implied an important development scenario</li> </ul>	
Area 4 (ENI)	Eni	70.0	<ul style="list-style-type: none"> <li>Proven track record of E&amp;P experience</li> </ul>	
	ENH	10.0	<ul style="list-style-type: none"> <li>Idem Area 1</li> </ul>	
	KOGAS	10.0	<ul style="list-style-type: none"> <li>Public natural gas company of South Korea</li> </ul>	
	GALP	10.0	<ul style="list-style-type: none"> <li>State owned Portuguese company with strong record</li> </ul>	



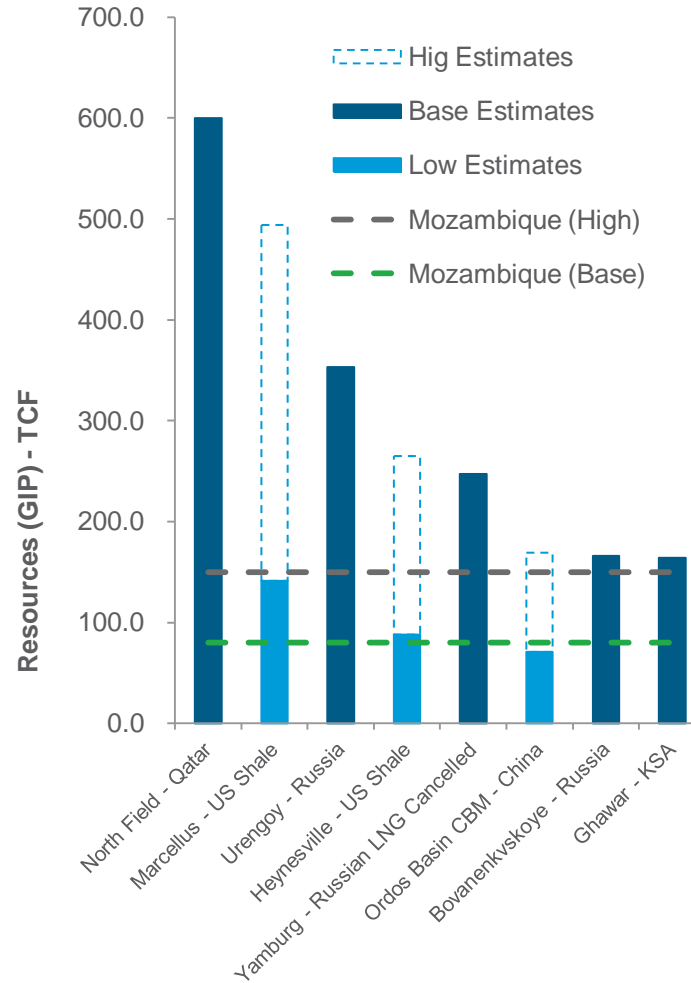
# Focus on East Africa

## Where does Mozambique stand?

- Mozambique offshore resources (base and high case) are in line with the largest gas field discoveries globally
- The field could sustain a large scale phased LNG development over 25+ years

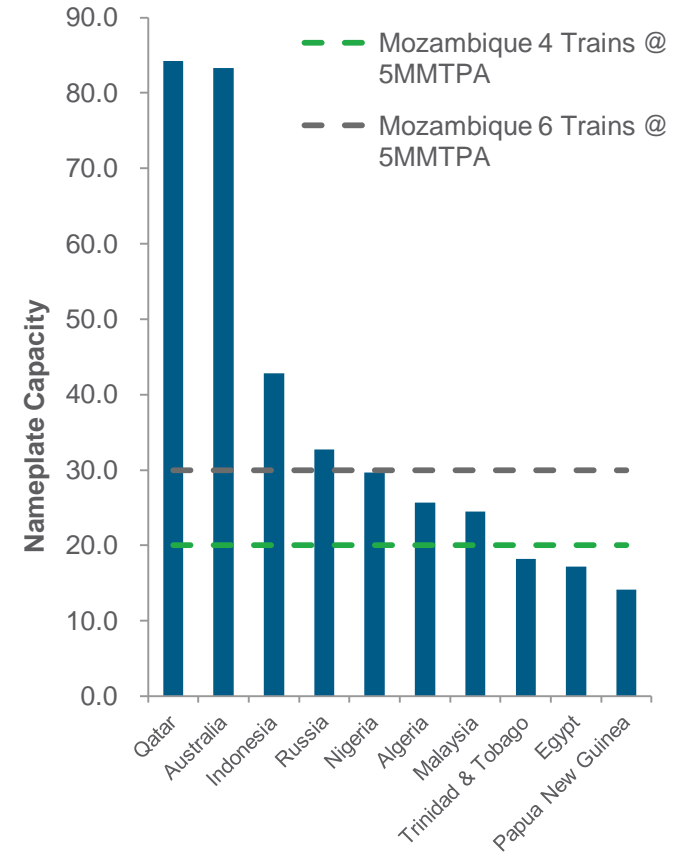
### Understanding the Resource Size<sup>(1)</sup>

Selected Top Gas Field by Resources



### Monetising Gas into LNG<sup>(2)</sup>

Nameplate Capacity around the World (MMTPA)



Notes:

(1) Source IEA, World Energy Outlook

(2) Source Woodmackenzie

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