

## Perspectives of Natural Gas in the Americas to 2020

By Patricia Roberts

Director LNG-Worldwide Ltd

For **Osinergmin**  
Congress Camisea 10 years

August 2014





## Disclaimer

The conclusions set forth herein are the results of the exercise of the author's best professional judgment, based in part upon independent research, publicly available materials, and information obtained from the author's analysis

The author accepts no liability of any kind whatsoever to any party, and no responsibility for damages, if any, suffered by any party as a result of decisions made, or not made, or actions taken, or not taken, based on this work.

LNG-Worldwide Ltd  
UK  
AUGUST 2014

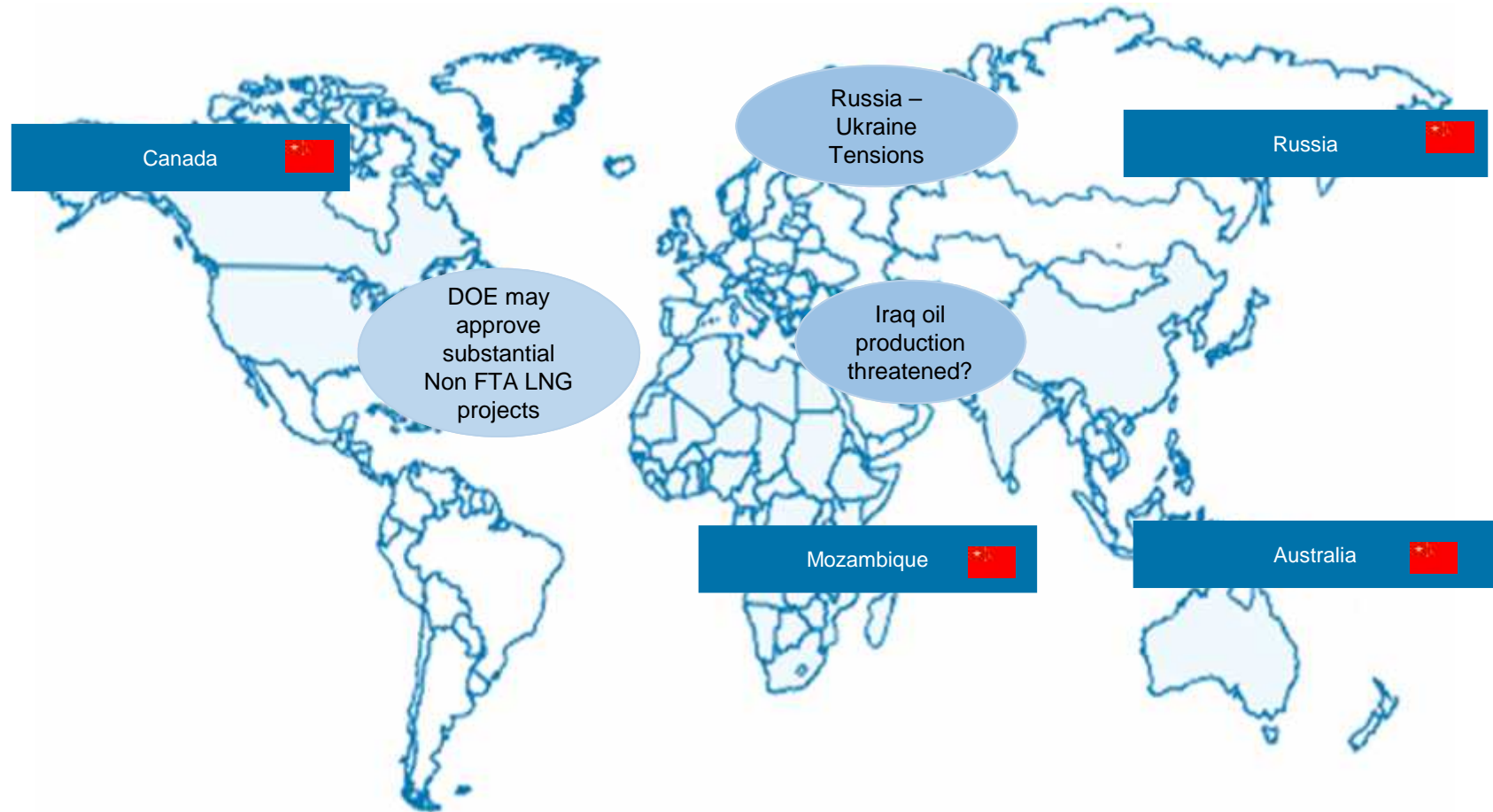


## Global LNG outlook

# 1 Geopolitics

Strong influence on the direction of the global gas/ LNG businesses

---

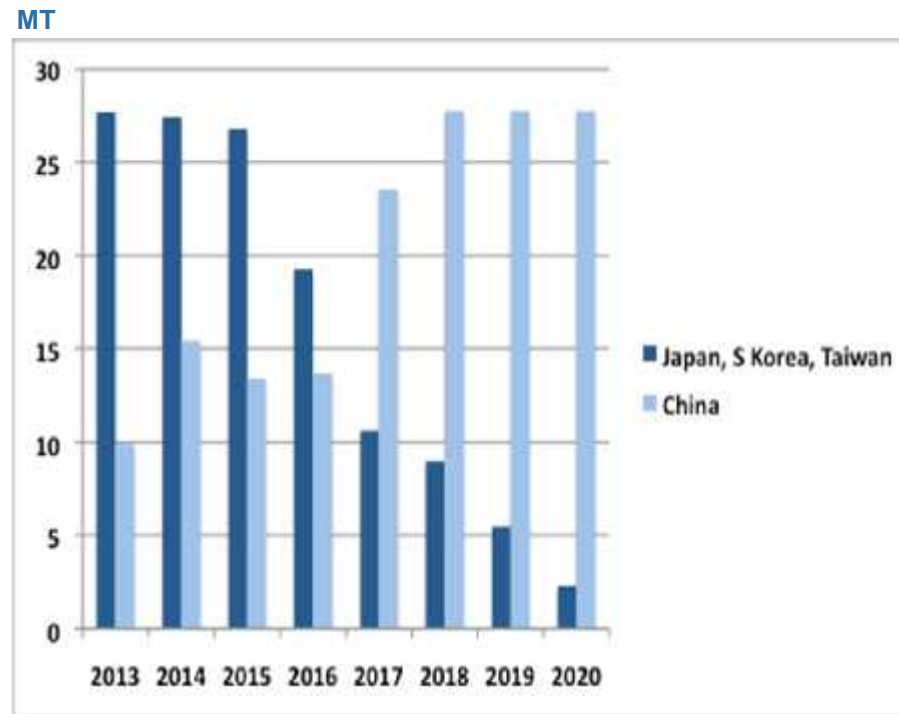


China's gas procurement directed by its geopolitical agenda

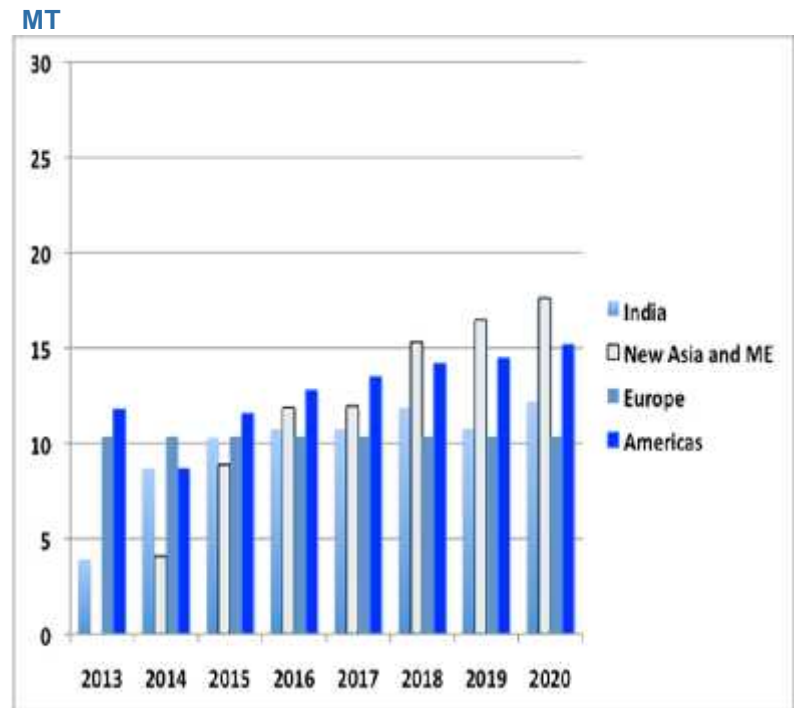
## 2 China

Needs to buy large new volumes of long term LNG, but cost competitively !

JKT demand gaps vs. Growing China demand gaps



Rest of the World: Growing LNG demand gaps



China has the biggest LNG demand growth by 2020

Big opportunity, big responsibility for the Chinese Government to-

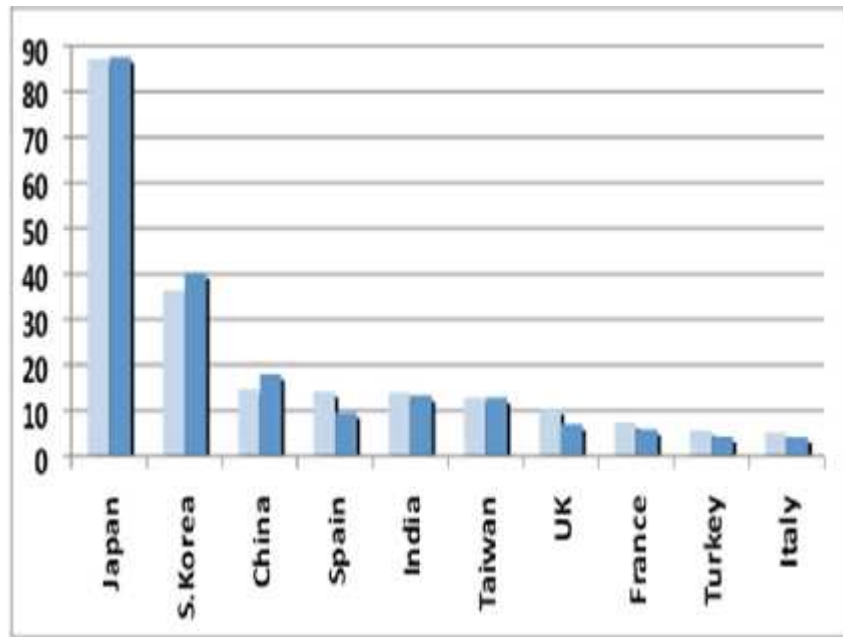
- Leverage large Government- Government energy deals
- Elect which countries/ companies to support to develop new LNG supply and when

What China does will impact the rest of the Global LNG business

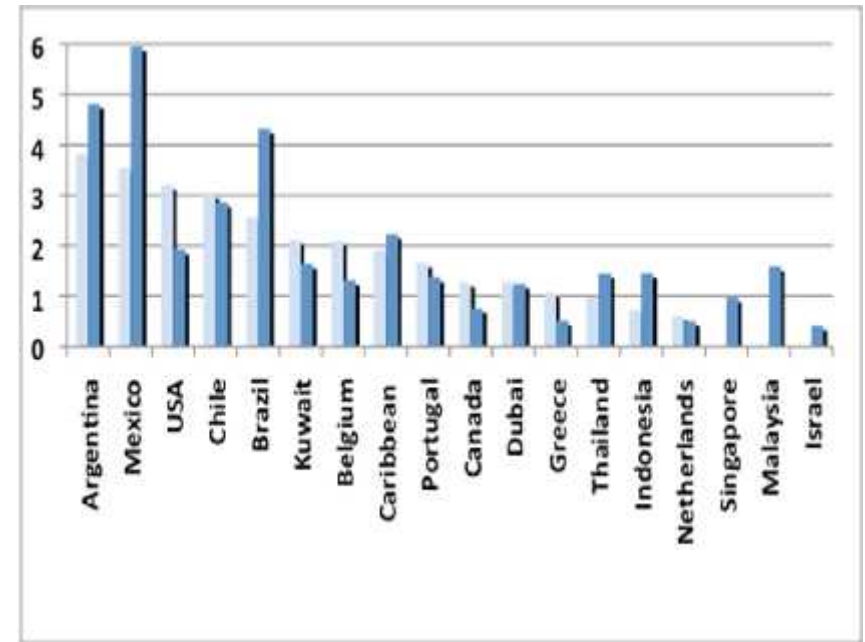
### 3 LNG importing markets 2012 ■ / 2013 ■ (Mt)

Top ten markets today account for 85% of global sales

Top 10 markets by size Mt



The Tail



#### Features

Top ten = 85% sales ( ~ 200Mt in 2013)

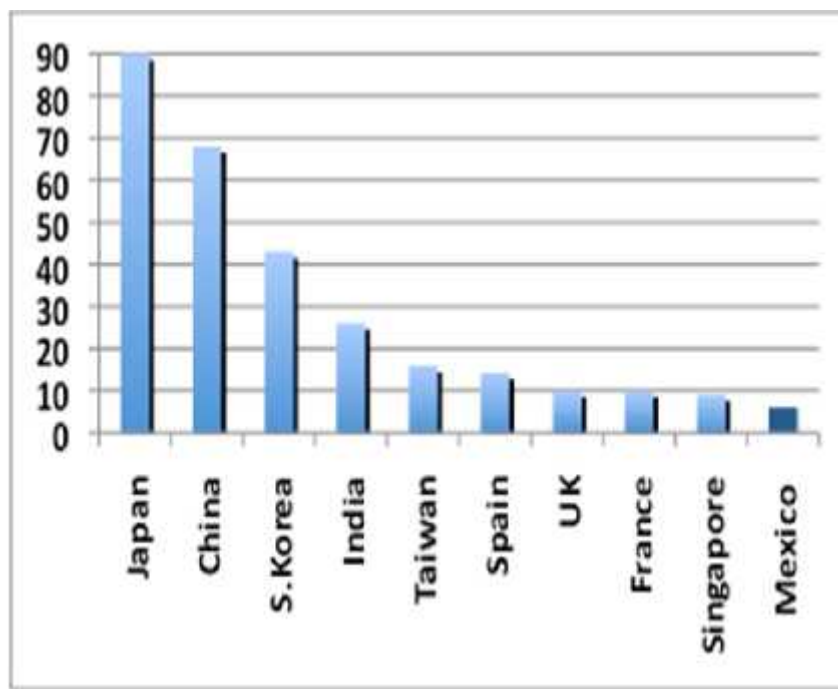
- 5/10 Asian Markets
- 5/10 mature European markets

The Tail ( ~ 40Mt in 2013)

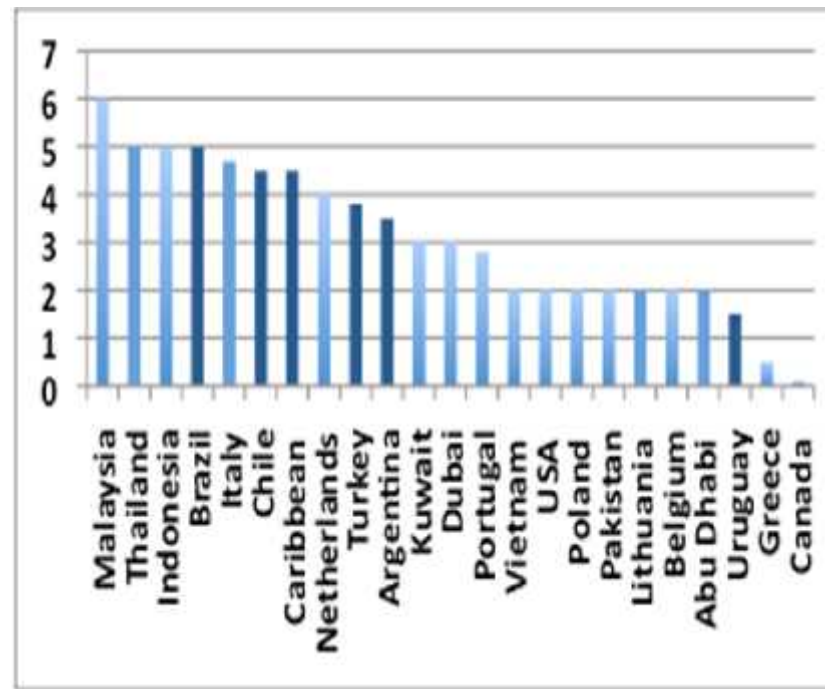
- 18 markets overall, several new start ups
- Central and South America (CASAM) account for 19Mtpa of sales ( 8% of global sales)

# 4 In 2020 we expect around 360Mt “firm” LNG sales and 70Mtpa of short term sales directed by market pricing

Firm LNG demand in Top 10 markets Mt



Firm demand in the balance of the market Mt



## Features

Top ten 82% sales ~ 295Mt

- 6/ 10 Asian Markets
- 3/10 mature European markets
- 1/10 Americas

The Tail ~65Mt

- Argentina, Brazil, Chile, Uruguay and Caribbean account for 19Mtpa of sales - expect to see more term sales when LNG base-load
- 23 markets overall, several new start ups



# 5 Changing characteristics of LNG buyers

Generally buyers will become more challenging

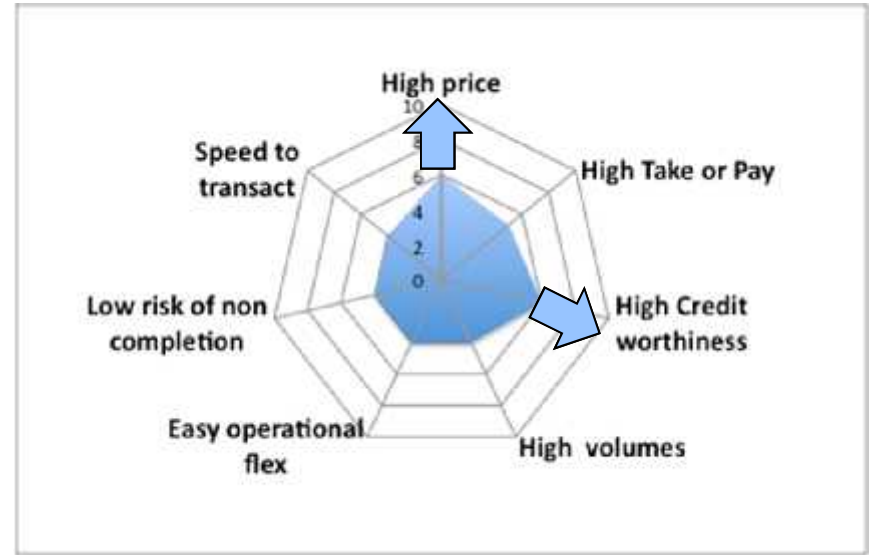
Mature Markets characteristics



Mature Buyers in Asia have helped the industry grow using a balanced risk reward investment model

But have committed most of their new demand to US and Canadian projects

New and emerging markets characteristics



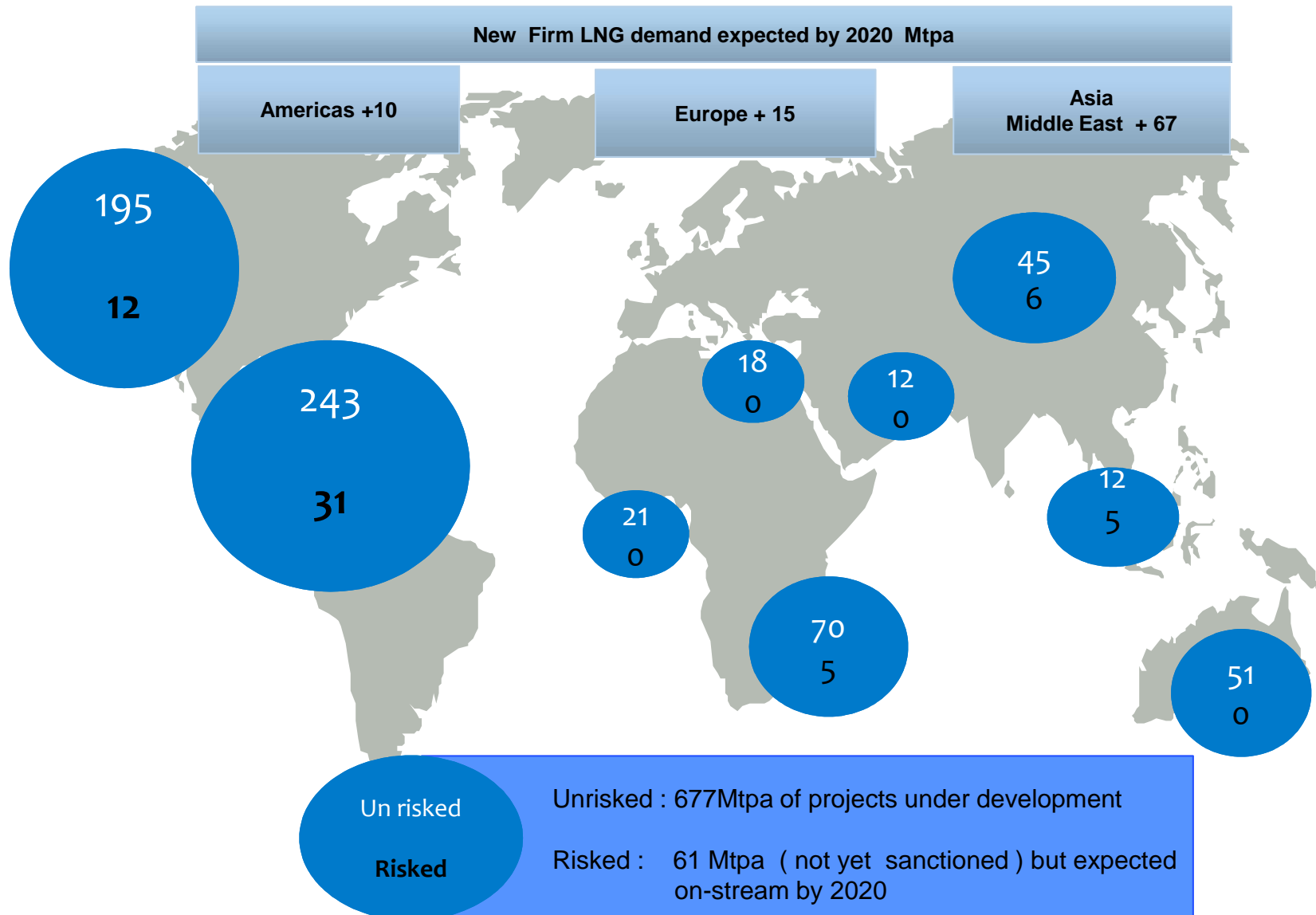
Markets displacing oil may pay higher prices  
Markets with State Owned co may be credit worthy

Innovative commercial contracts will be needed to supply these new buyers



## 6 677Mtpa of new LNG supply is under development competing to supply 92 Mtpa of new demand

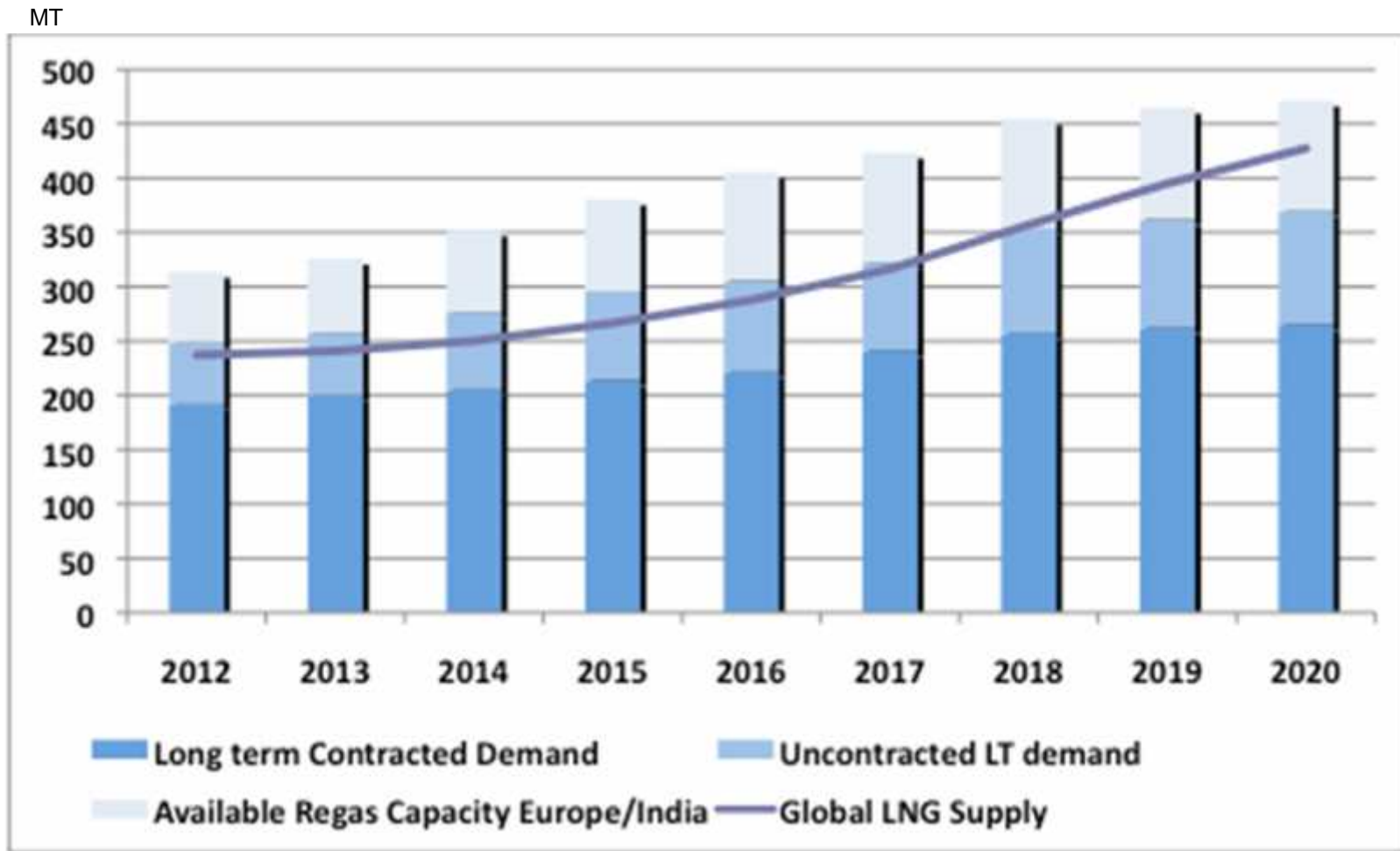
Several projects won't go ahead – but we expect the US to feature strongly by 2020



# 7

## Global LNG supply demand balance to 2020

The base case – strong market today – more balanced from 2017





## North America outlook

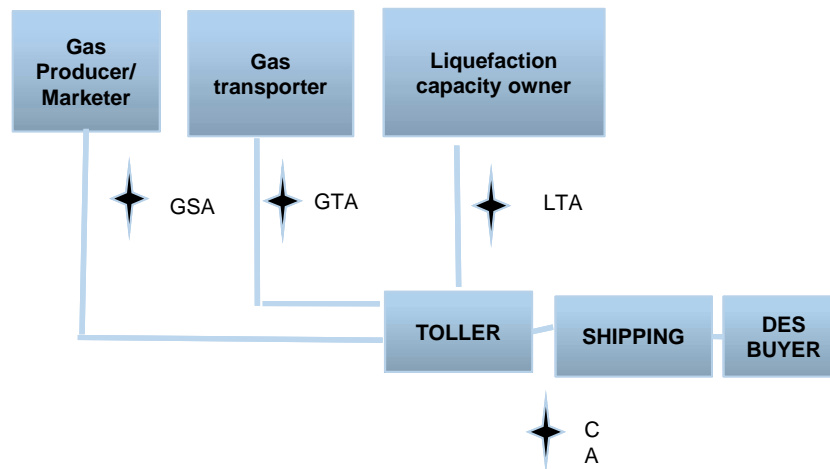
## 8 US and Canada are infrastructure led projects rather than stranded reserves led projects

### NA LNG models offer LNG “AT COST”

#### NA LNG Tolling model

Some Buyers / portfolio players are buying LNG using a tolling model

US LNG Needs careful risk management



Toller has to arrange gas supply to plant, coordinate contracts and manage all operational risks

Cheniere are taking these risks on board and selling FOB LNG – which is more attractive to buyers

#### NA LNG equity model

Some Buyers are buying into upstream and lifting their own equity LNG entitlement



Equity models require buyers to invest significant capital and manage upstream risks as part of a project consortium



## Central and South America outlook

# 9 Central and South America: Visions versus Realities

IEA 2003 "Vision"

2014 Reality

3 new LNG plants  
Pipeline integration  
LNG imports only to Suape Brazil

Peru LNG and Colombia (FLNG) +  
Limited Pipeline integration  
LNG imports to Brazil, Argentina, Chile  
Uruguay terminal under construction



© Patricia Roberts LNG-Worldwide Ltd 2014



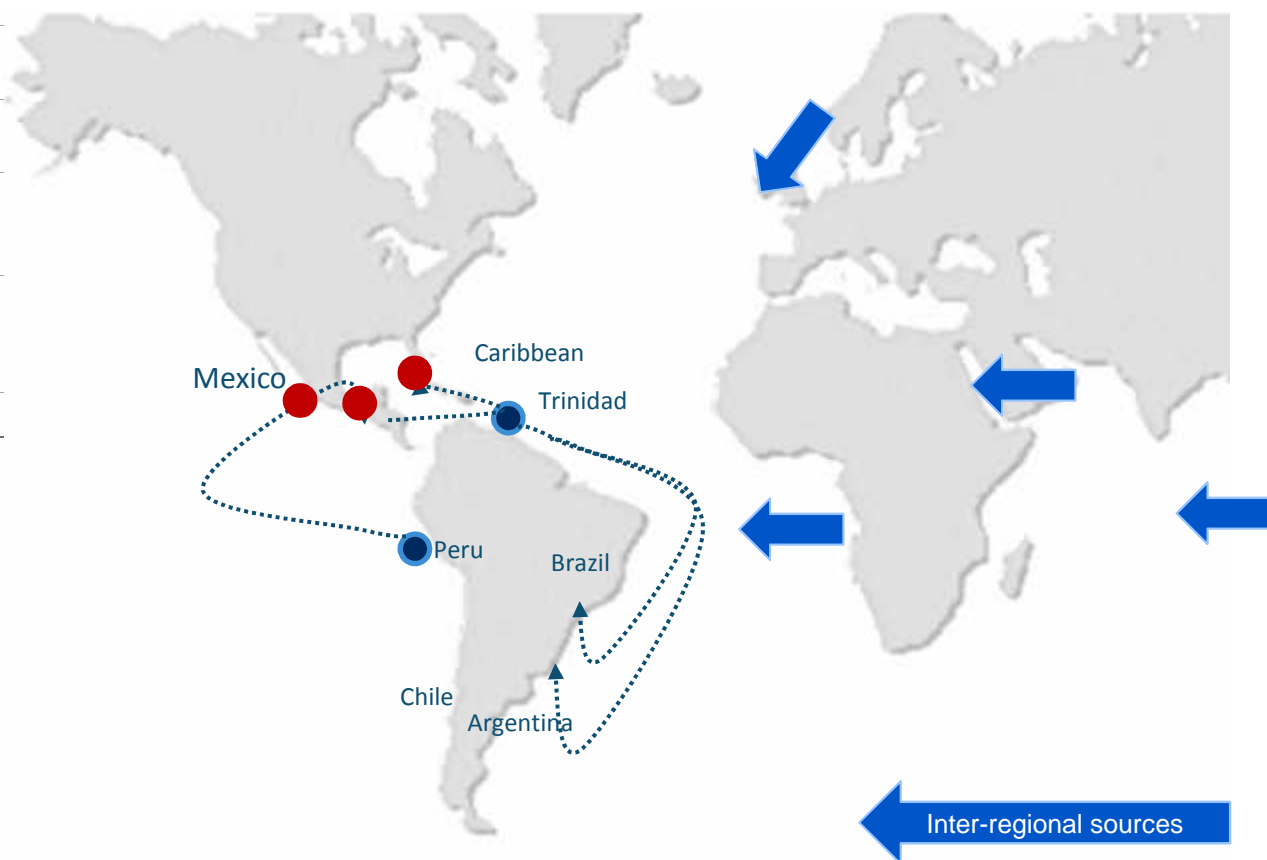
→ Current Gas Flows  
-----> Cancelled Gas Flows



# 10 LNG sources for Central and South America 2013

2013 Actual sources of LNG for CASAM markets

Country	Sales MT	% of CASAM sales
Trinidad	8.6	45
Peru	1.9	10
Re loads	2.5	13
Nigeria	2.4	12
Norway	0.7	4
Qatar	2.0	10
Yemen	0.6	3
Indonesia	0.3	2
Algeria/ Angola/ Egypt	0.2	1
<b>TOTAL <sup>1</sup></b>	<b>19.2</b>	



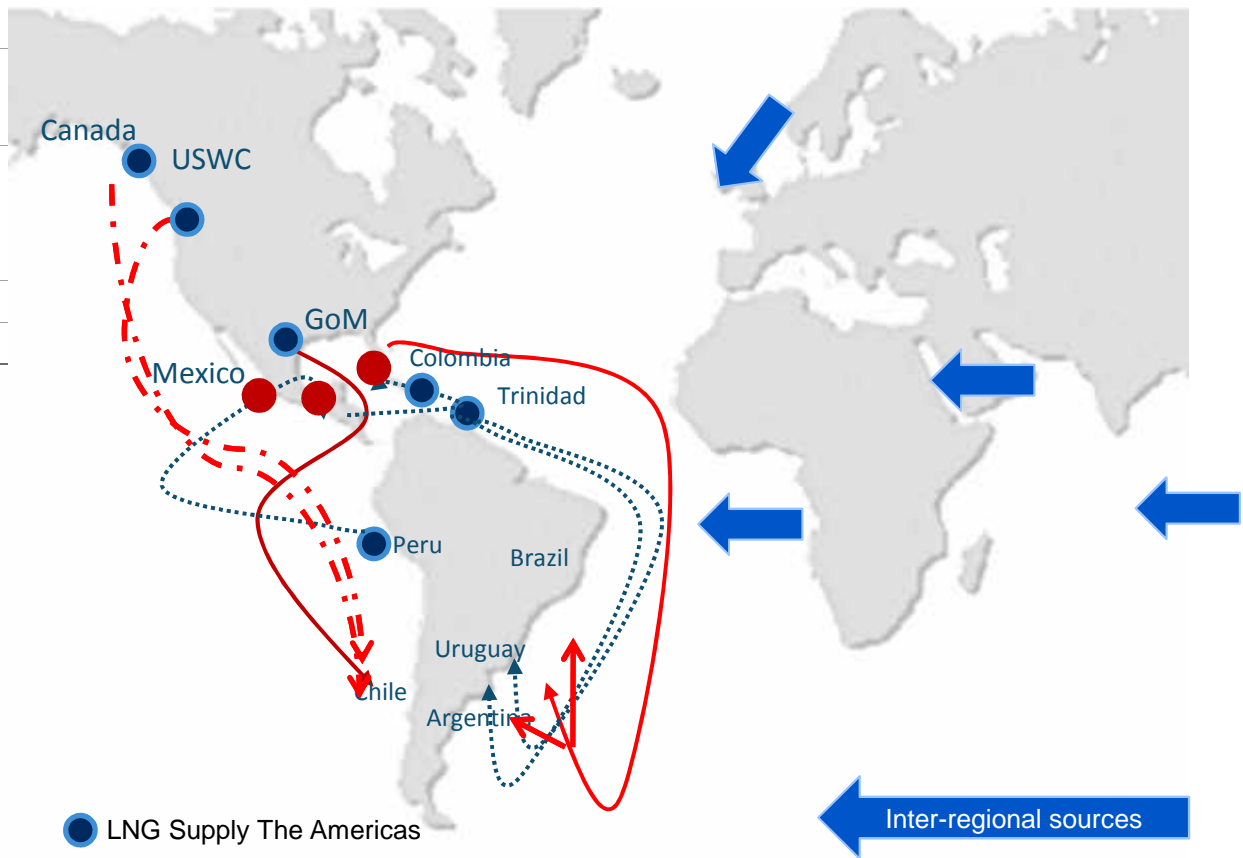
<sup>1</sup> Source GIIGNL



# 11 LNG sources for Central and South America 2020

N.America LNG will compete, along with inter-regional supplies

Country	Outlook
Trinidad Atlantic Basin M.East	Expect More competition
Re loads	Subject to market arbitrage
US (GC/WC)	Likely to compete
Colombia	
Canada	Spot ?
TOTAL sales	APPROX 25- 30 MT

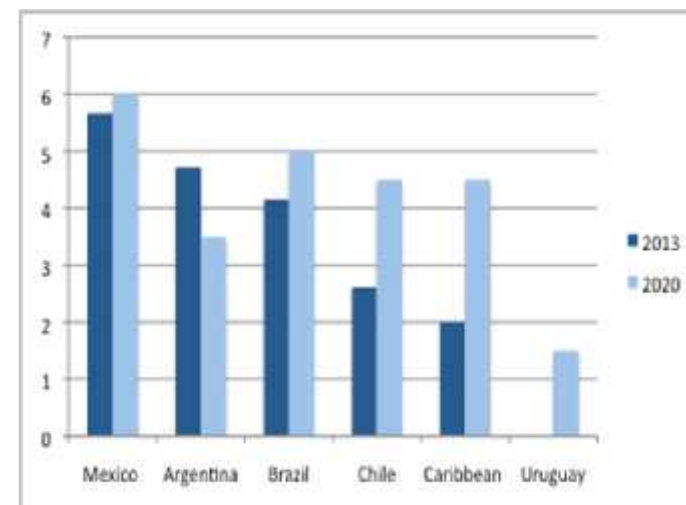


# 12 Outlook for LNG imports to Central and South America 2020

Markets	Developments by 2020
Mexico	<ul style="list-style-type: none"> <li>▪ Ongoing Firm gas requirement for power</li> <li>▪ Expect US pipeline imports to grow</li> </ul>
Argentina	<ul style="list-style-type: none"> <li>▪ Economy weak</li> <li>▪ Indigenous gas could displace need for LNG</li> </ul>
Brazil	<ul style="list-style-type: none"> <li>▪ Increasing gas demand</li> <li>▪ Gas currently a back up fuel to hydro</li> <li>▪ Long term Pre-salt developments may limit LNG</li> </ul>
Chile	<ul style="list-style-type: none"> <li>▪ Price sensitive market</li> <li>▪ Unclear level of Argentinian imports</li> </ul>
Uruguay	<ul style="list-style-type: none"> <li>▪ Expect to Import 1-1.5Mtpa</li> </ul>
Caribbean	<ul style="list-style-type: none"> <li>▪ Substituting oil for gas</li> <li>▪ Lots of small islands, small volumes</li> <li>▪ Needs creative LNG supply solutions</li> </ul>

## Base case Outlook 2020

Firm LNG demand Mt



2013	19.2Mt market	8% of global sales
2020	25-30Mt market	7-8% global sales

# Summary

GLOBAL LNG	TRENDS TOWARDS 2020
<p>Geopolitics will affect the Global business</p> <p>Firm Global LNG demand by 2020</p> <p>Additional Flexible LNG Global demand by 2020</p> <p>New LNG demand</p> <p>US and Canadian LNG supply projects will develop</p> <p>Around 677Mtpa of new LNG supply under development chasing new demand of around 92Mtpa</p>	<ul style="list-style-type: none"> <li>China's LNG procurement very important</li> <li>Around 360MTpa</li> <li>Around 70Mtpa (lots of short term trading)</li> <li>70% in Asia – more challenging to service</li> <li>Offering new business models such as tolling and buyer's equity/ FOB off-take</li> <li>Lots of new projects will be delayed/ cancelled</li> </ul>
THE AMERICAS	Growing regional market
LNG DEMAND	<ul style="list-style-type: none"> <li>Expect a market of 25-30Mtpa</li> <li>Buyers will generally be challenging to service</li> </ul>
LNG SUPPLIES TO THE AMERICAS	<ul style="list-style-type: none"> <li>Peru and Trinidad well established</li> <li>Colombia will start up 2015 (0.5Mtpa)</li> <li>Expect to see competition - particularly from the US</li> </ul>