

25th world gas conference  
“Gas: Sustaining Future Global Growth”

# Challenges along the Gas Chain

A view from an Energy Company

by Christophe de Margerie, TOTAL Chairman and CEO

Friday June 8<sup>th</sup>, 2012



Patron



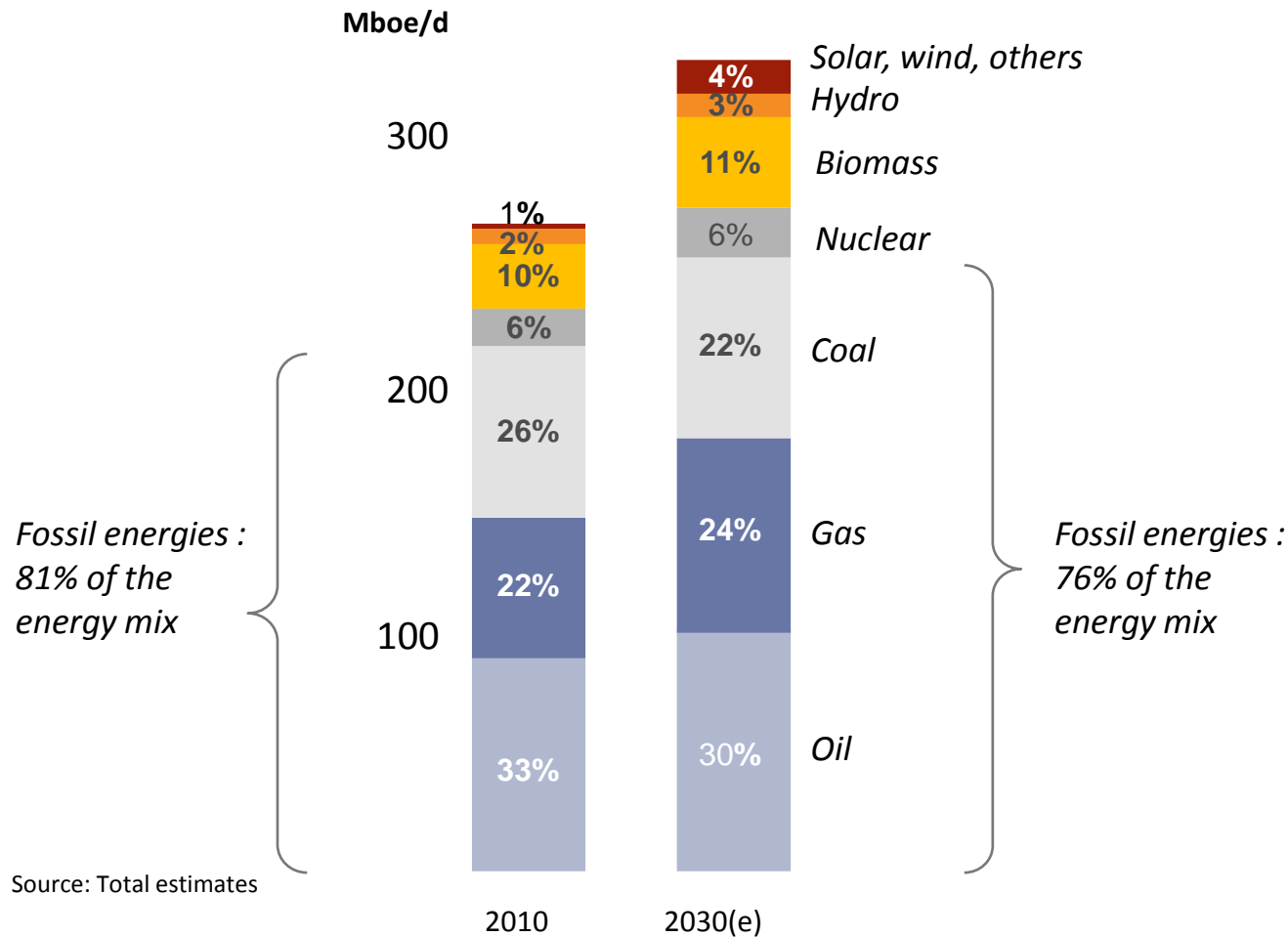
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# All energies are needed to meet global demand



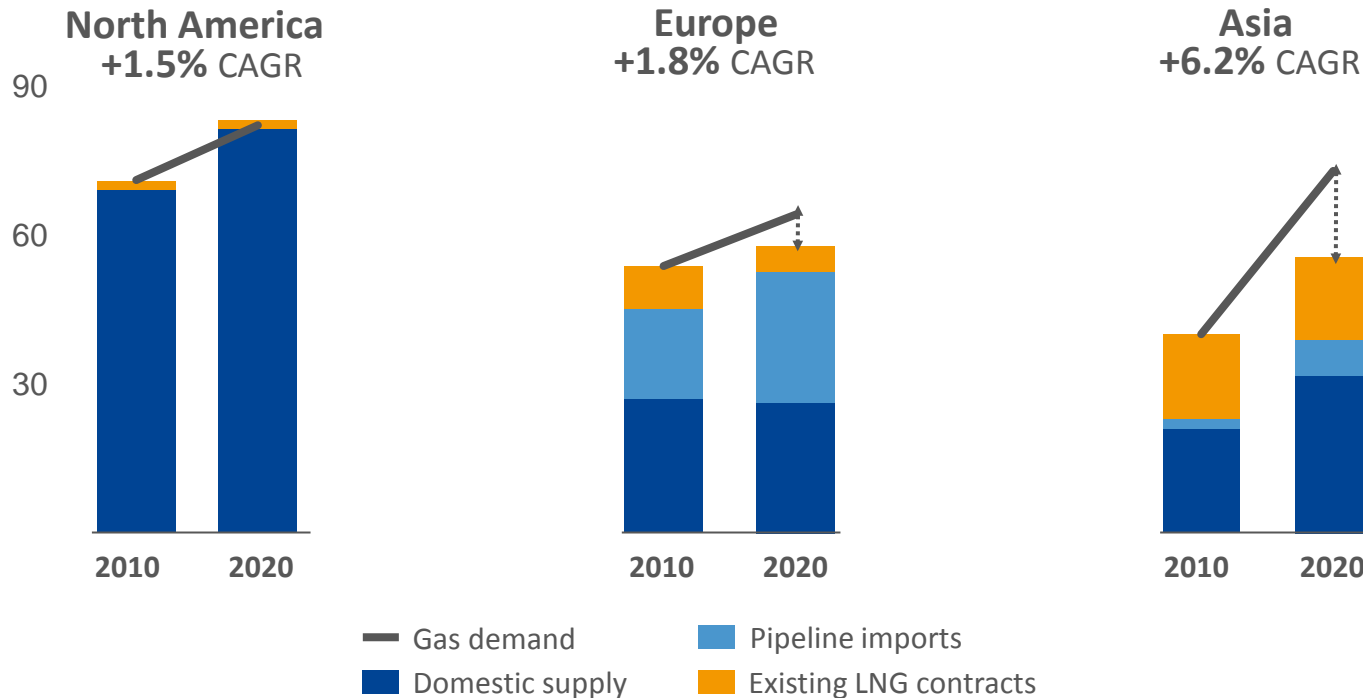
- Moderate growth of global energy demand (+25% in 20 years)
- Despite energy efficiency efforts, fossil energies to represent 76% of energy supply in 2030.
- Gas to become the second-largest energy source by 2030
- Strong growth but limited contribution of new energies

# Strong growth in global gas demand led by a booming Asian market

GAS  
DEMAND

+2.5% per year 2010-20

Gas supply / demand  
Bcf/d



On the demand side, natural gas will secure its position in the electricity mix by being the clean, safe, flexible and competitive fuel.

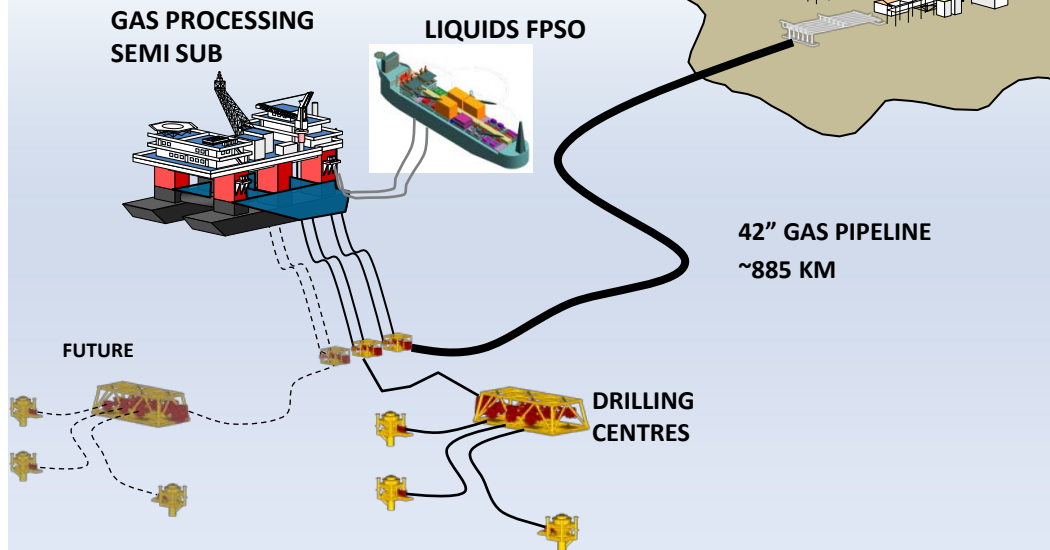
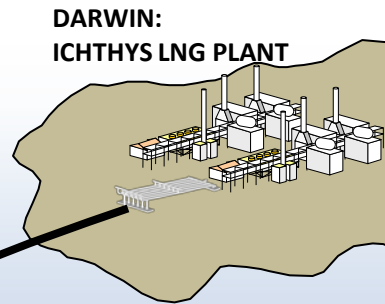
# The challenges ahead

- The unconventional revolution raises questions among the host communities, which must be answered through open communication and by establishing **industrial safety and environmental stewardship** as top priorities.
- Future gas production will come from projects which are **increasingly complex and costly** to develop.
- Financing those projects requires **visibility on the long-term value of LNG**. This is the core of the debate on price formulas.

# Ichthys : a major LNG project requiring innovation and a strong partnership



 Permits with Total participation



## Key data

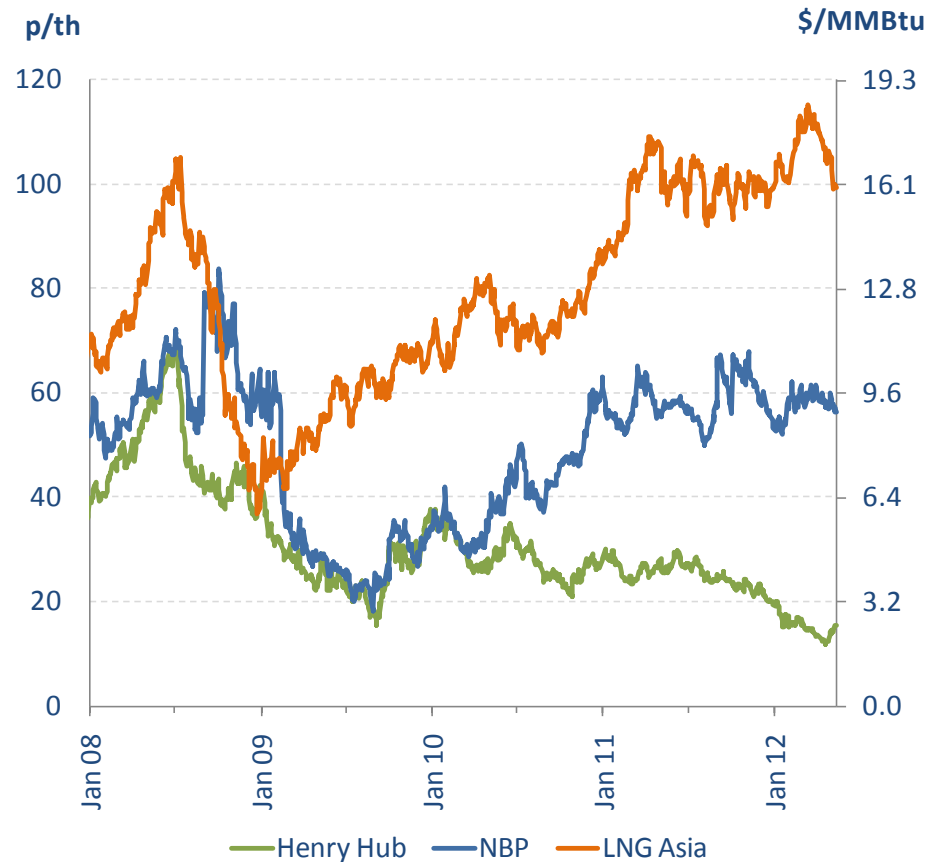
Capacity **8.4 Mt/y of LNG**, 1.6 Mt/y of LPG ~100 kb/d of condensates  
**34 B\$** investment including LNG plant (1,500 \$/t)  
 Ichthys reserves (2P) : **12.8 Tcf gas** & 530 Mbbbl condensate  
 Start-up **end-2016**

**First major** development in Browse Basin with world class offshore facilities  
 Remote area & Distance to LNG plant  
 CO2 management

## Strong & Reliable Partnership

Inpex (op.) – Total 24%  
 Global LNG marketing expertise  
 Strong economics supported by liquids contribution  
 LNG sold on long-term contracts indexed to oil price

# A 3-tier market with different gas prices

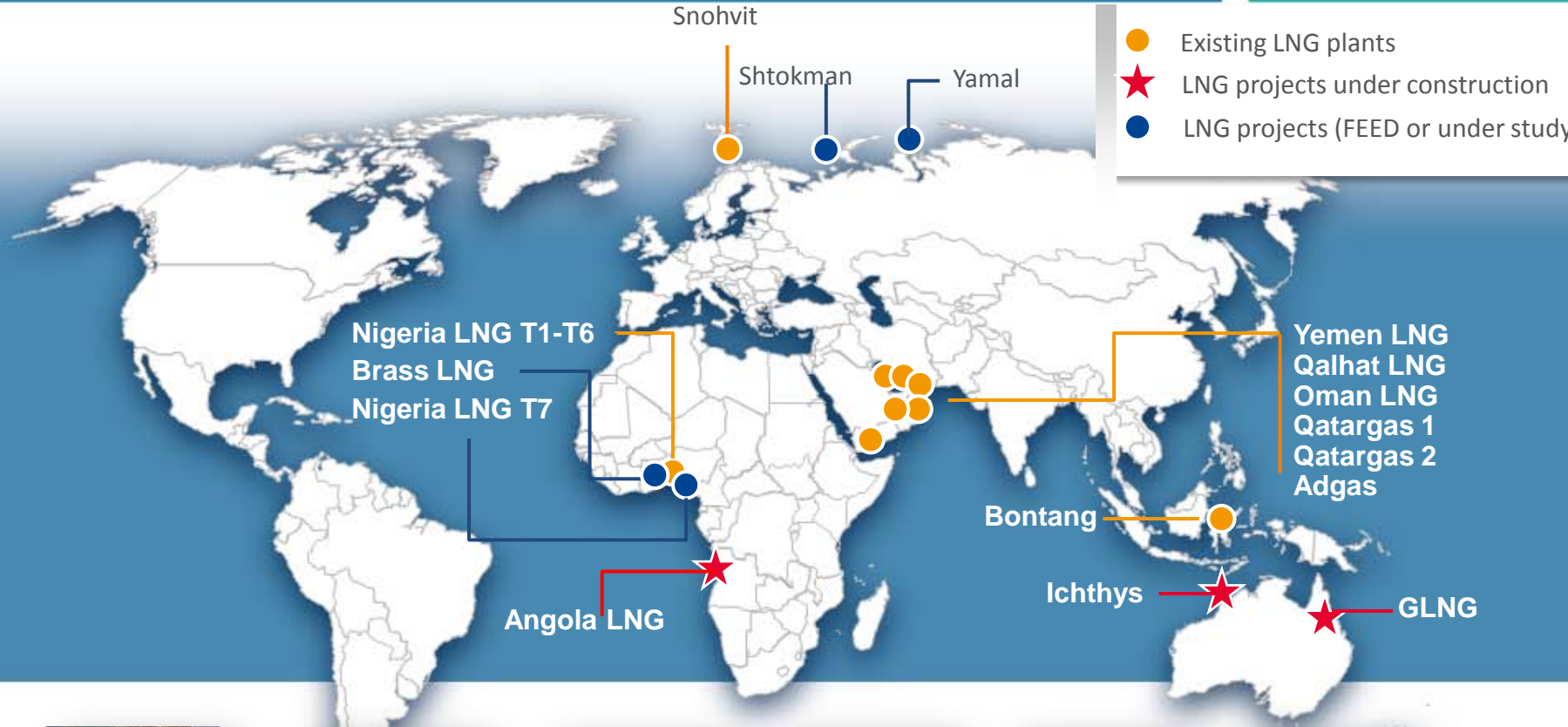


**Asian buyers** have renewed their choice for **securing long-term supply** through contracts with formulas covering the cost of new projects and transportation .

**Europe** domestic production is on the decline, driving up **imports needs**. Pipeline resources are not sufficient to meet demand. Spot prices need to get closer to Asian prices to attract LNG.

**North America** enjoys an **abundant supply** of natural gas and will develop new ways to take advantage of this cheap resource.

# TOTAL : a strong commitment in favor of gas and LNG



Angola LNG



GLNG



Ichthys



Shtokman

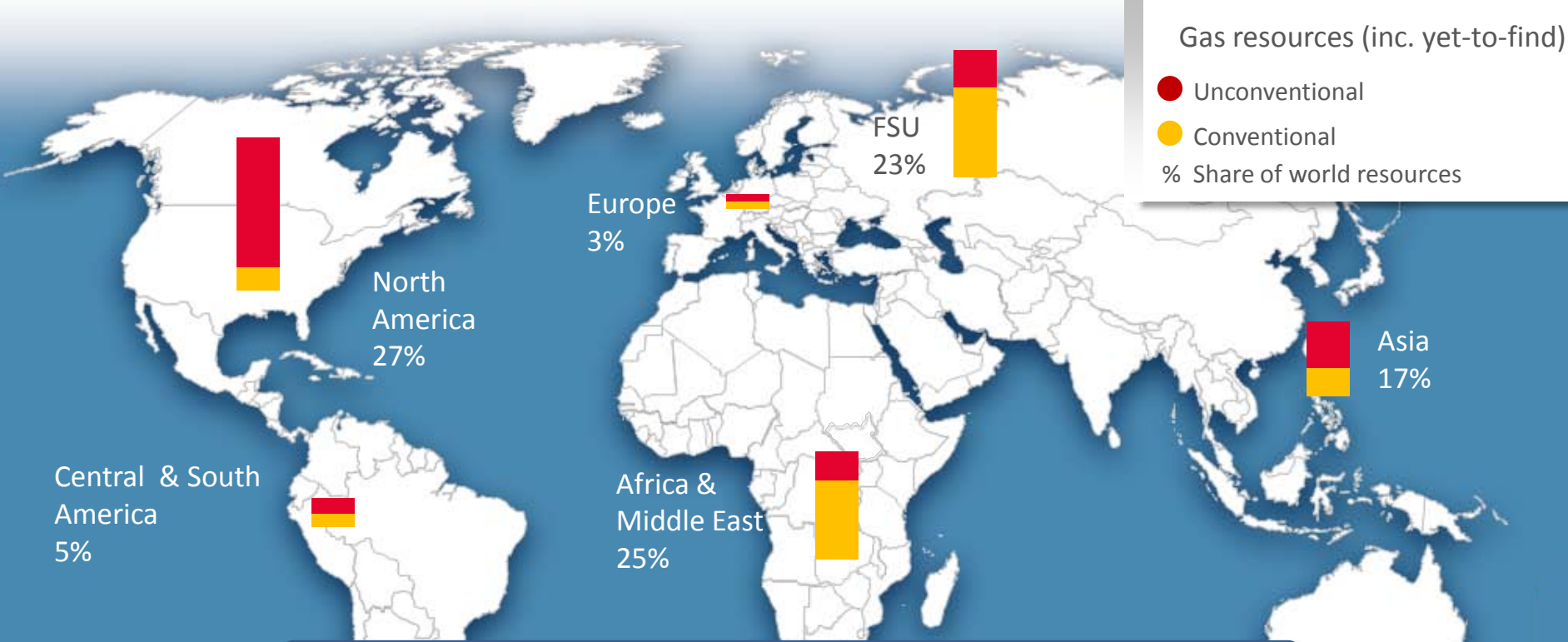


Brass LNG



Yamal LNG

# Unconventional gas resources are key to the industry's future



Gas resources (inc. yet-to-find)

- Unconventional
- Conventional

% Share of world resources

Legitimate questions require adequate answers and actions

**Aquifers**

Protection of aquifers during drilling, fracking & production

**Water**

Minimize water usage and Maximize water re-usage after adequate treatment

**Ground**

Minimize impact of industrial activities

**Local communities**

Take care of the impact of operations