Nicolas Saverys– CEO of EXMAR

The New Dash for Gas - the Big Potential of Small Scale LNG

Washington, 30th of October 2013

EXMAR

EPRINC Est. 1944

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- Global Energy Markets and the Impact of Shale Gas
- Identifying Opportunities: the Big Potential of Small Scale LNG
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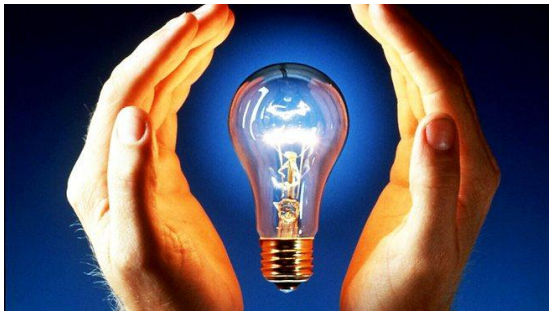
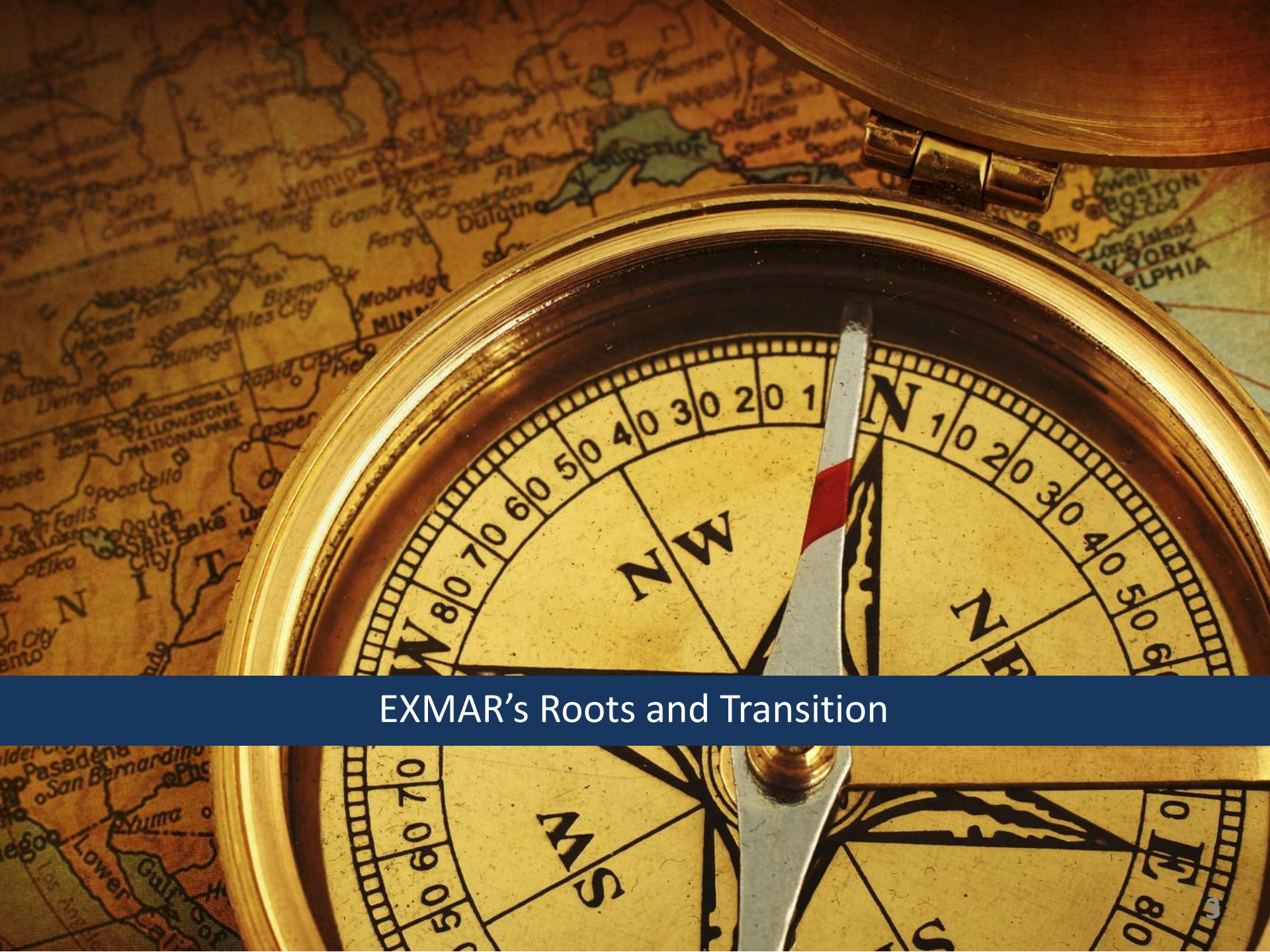




EXMAR's Roots and Transition

EXMAR
Pioneering Asset Owner and Operator

- Diversified and Independent Shipping Group
- Serving the international gas and oil industry
- Based in Antwerp, Belgium
- Shipyard roots – 1829
- Operates a fleet of about 40 gas carriers
  - 8 LNG regasification vessels and 5 LNG carriers
  - 30 LPG carriers, ranging from 3,500 – 85,000 m^3
  - Active in the offshore industry
  - 1 Floating liquefaction unit (under construction)
- Development of turnkey and tailor made solutions

EXMAR's Origins in Shipbuilding

1960's Internationally recognized shipyard with a diversified portfolio

1980's EXMAR LPG Activities

1986 Start of midsize fleet

1993: Merger with CMB

1829 – **Shipyard** was formed at river Scheldt, close to Antwerp (Belgium).

1970's EXMAR LNG Activities

1978: Building, Owning Operating largest LNG Carrier "Methania"

1989: Start of EXMAR Offshore Activities

2003: Demerger of Exmar and CMB. Exmar listed on Euronext

EXMAR's Transition

From Pure Shipping to Infrastructure & Integrated Logistics

2005 – Delivery of the worlds first LNG Regasification Vessel EXCELSIOR.

2011: Building and Delivery of the Ultra Deep Water Production Rig OPTI-EX®

2012: Start of Innovative LPG Midsize Newbuilding Program

Present: EXMAR owns and operates a highly diversified portfolio of LNG, LPG and Offshore Units

2002 – Delivery of the first worldwide trading LNGC carrier designed and build in Korea for export: EXCALIBUR.

2006 – Developed Ship-to-Ship (STS) transfer. World's First Commercial STS Transfer in 2006 in GoM.

2012 – FID for the World's first floating LNG liquefaction Unit.

Joint Venture with Teekay for LPG fleet

2014: Delivery of World's First LNG Liquefaction Unit on site in Colombia

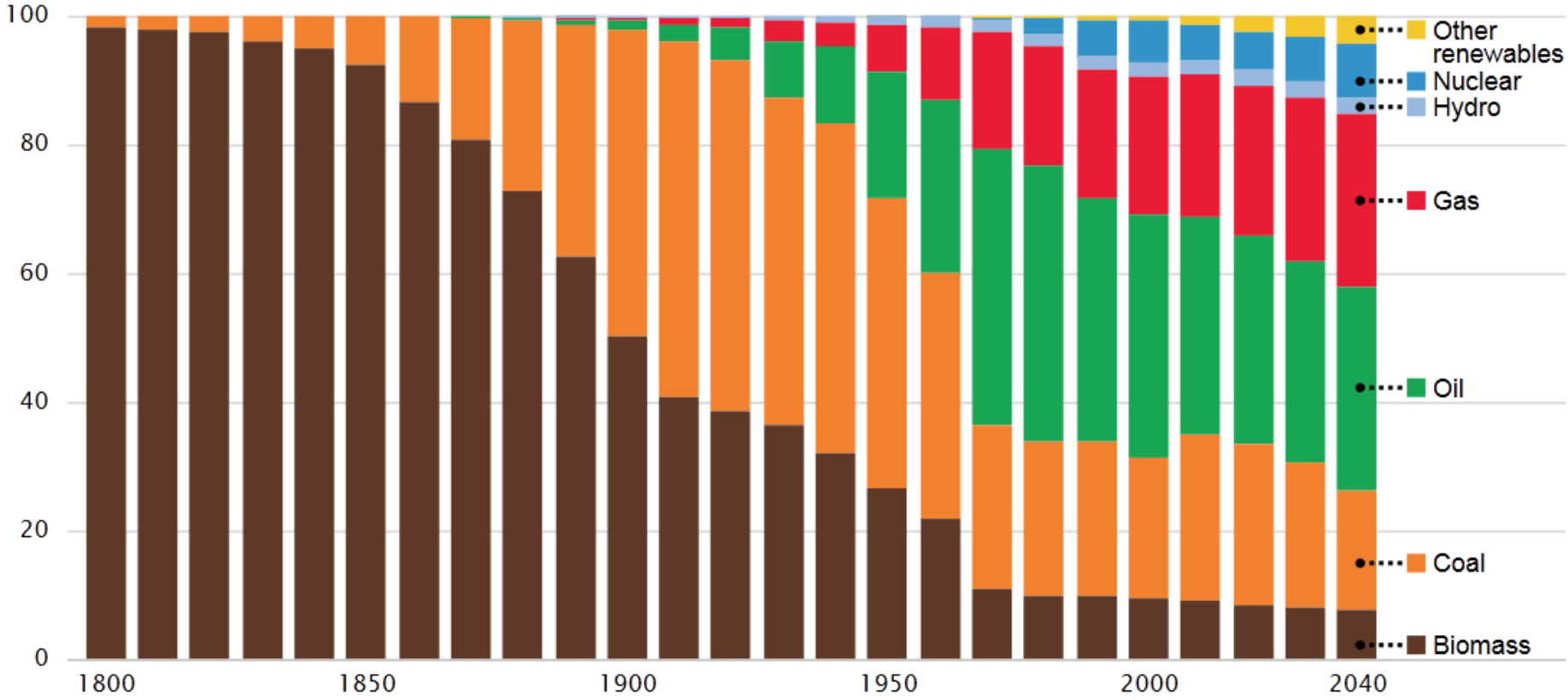
More deliveries of OPTI-series

The EXMAR Group Today

EXMAR Group			
LNG	LPG / NH_3	Offshore	Services
			
Shipping	Shipping	Accommodation / Work Barge	Shipmanagement
Floating Storage, Liquefaction & Regas	Floating Storage	Floating Production & Storage	Design & Engineering
Design & Engineering	Design & Engineering	Design & Engineering	Belgibo Insurance
Shipmanagement	Shipmanagement	Operations & Maintenance	Travel Plus

Global Energy Markets and the Impact of Shale Gas

The World's Continuously Changing Fuel Mix

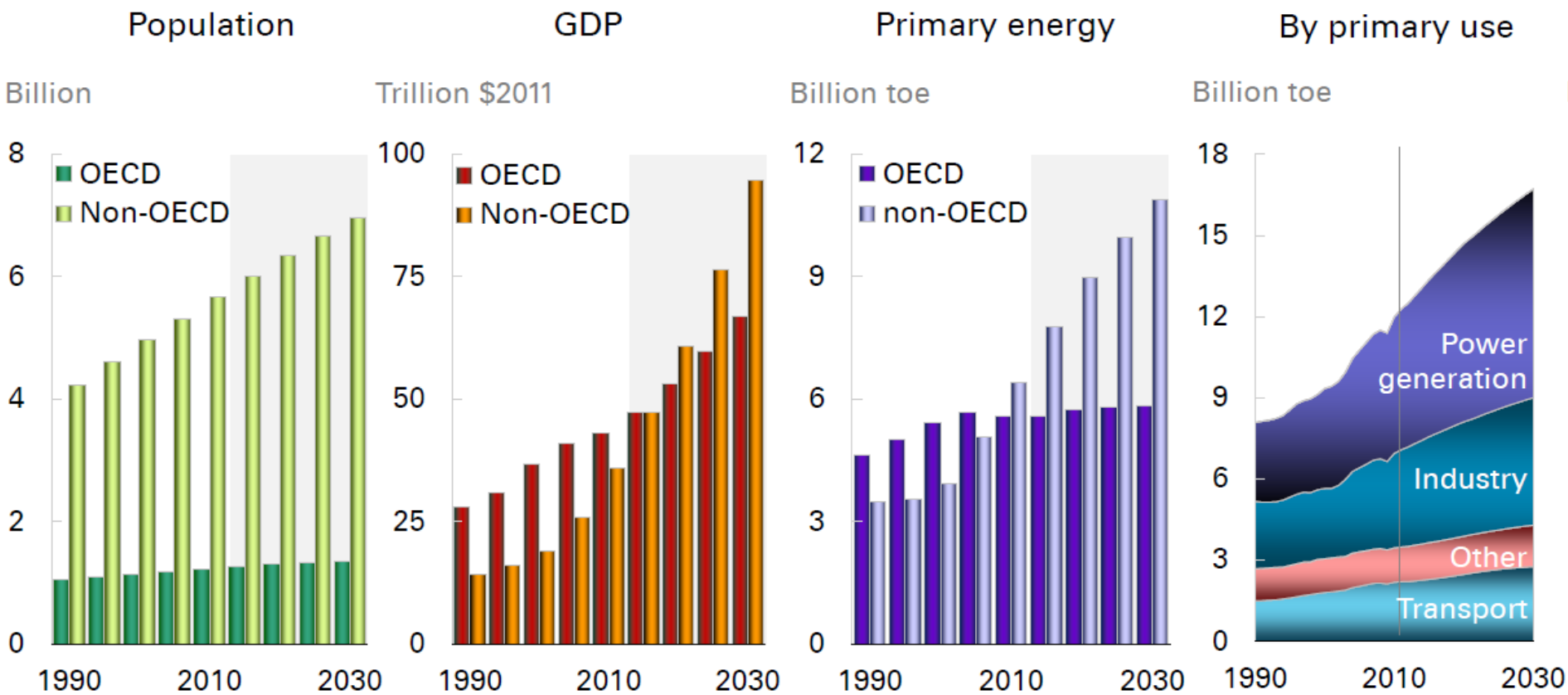


Primary Energy Consumption: Electricity Generation; Transport; Industry; Heating; (…)

Source: Exxon Mobil. Energy Outlook to 2040

Energy as the Backbone of the Worlds Economies

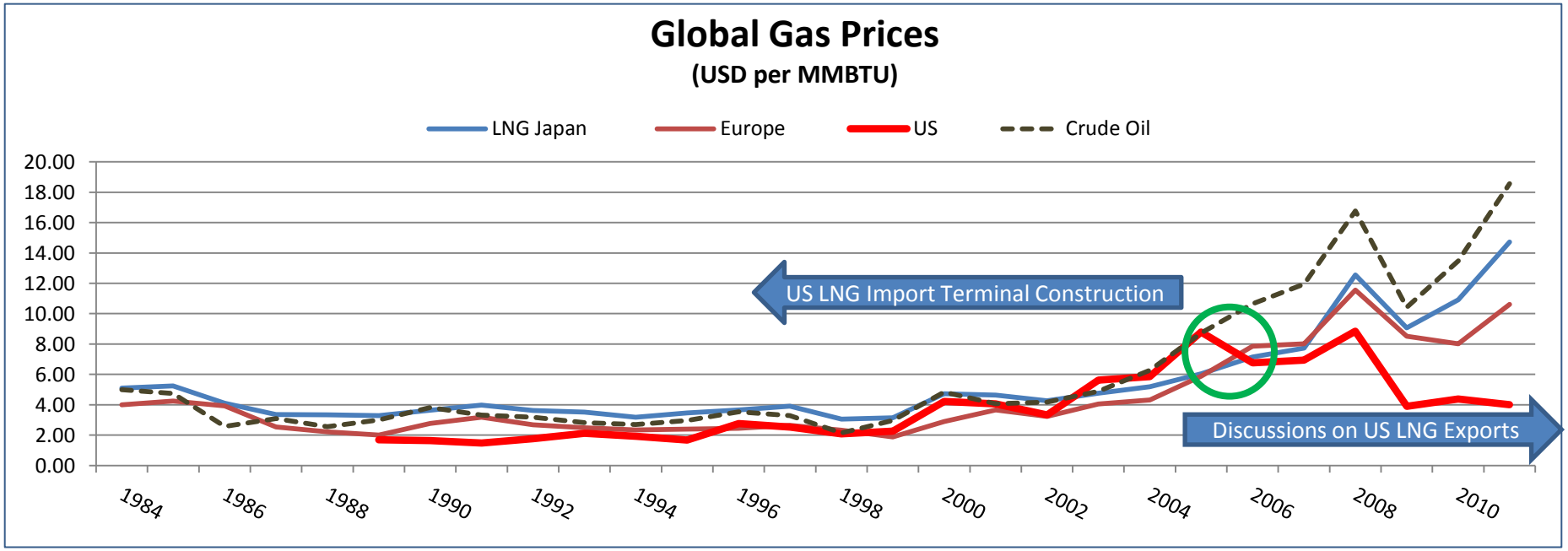
→ 93% of energy consumption growth is in non-OECD countries



Source: BP. Energy Outlook 2030

Trends in the USA
The Shale Gas Revolution

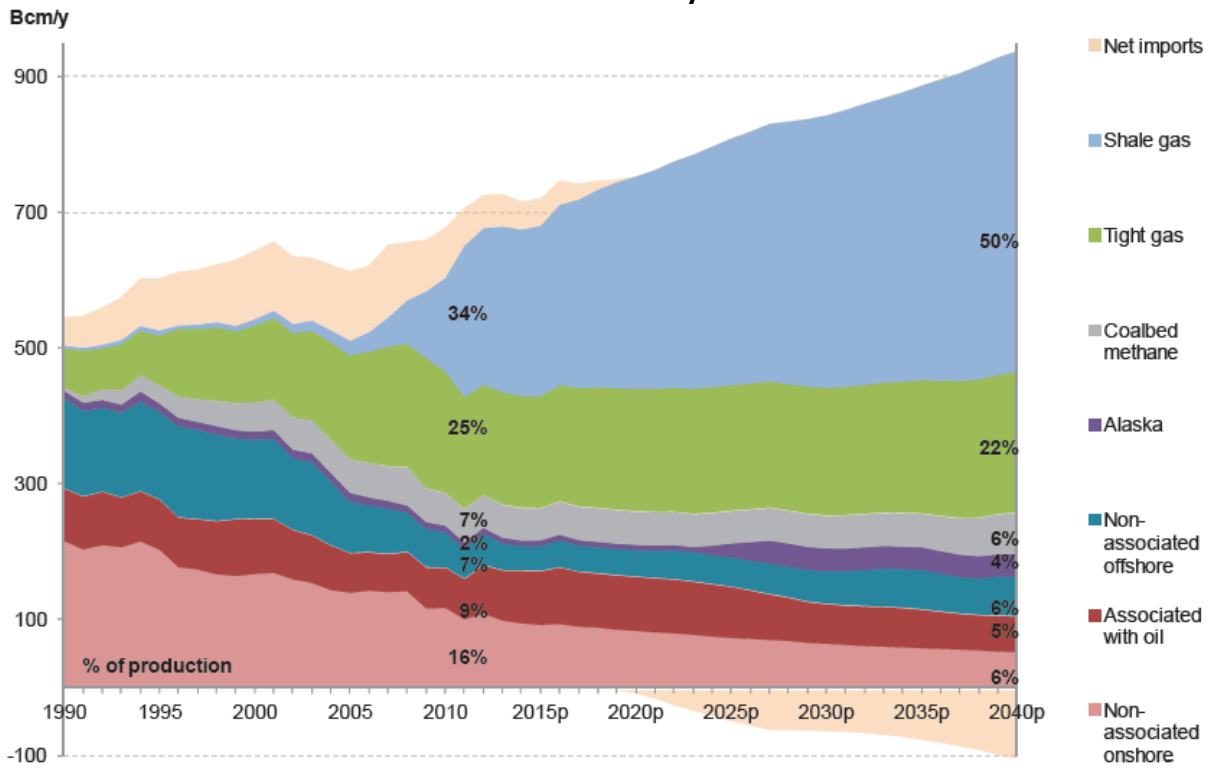
- Tremendous amounts of natural gas resources
- From importer to exporter of LNG
- Revival of industry: power, steel, chemical, …
- Competition for investments due to low energy prices
- First export license was granted in May 2011



Price Data Source: BP. Statistical Review of World Energy 2012.

The Current Shale Gas Revolution in the U.S.

US Natural Gas Production by Source



US transforms from importer to net exporter of gas!

Source: Marcia de Wachter. De actuele veranderingen in het Amerikaanse landschap van niet-conventionele koolwaterstoffen en hun implicaties voor Europa. Antwerpen, 13 juni 2013

The Associated Benefits of Shale Gas

- Yearly shale gas investments in the USA: ~25 bn $
- Significant associated advantages
  - Direct, Indirect & Induced
  - Employment
  - GDP
  - Tax payments
- Worldwide investments in shale gas are expected to increase significantly

Shale Gas Employment Contribution
(Number of workers)

	2010	2015	2035
Direct	148,143	197,999	360,335
Indirect	193,710	283,190	547,107
Induced	259,494	388,495	752,648
Total	601,348	869,684	1,660,090

Source: IHS Global Insight

Shale Gas Value Added Contribution
($M)

	2010	2015	2035
Direct	$29,182	$47,063	$93,043
Indirect	$22,416	$33,501	$65,234
Induced	$25,283	$37,650	$72,783
Total	$76,880	$118,214	$231,061

Source: IHS Global Insight

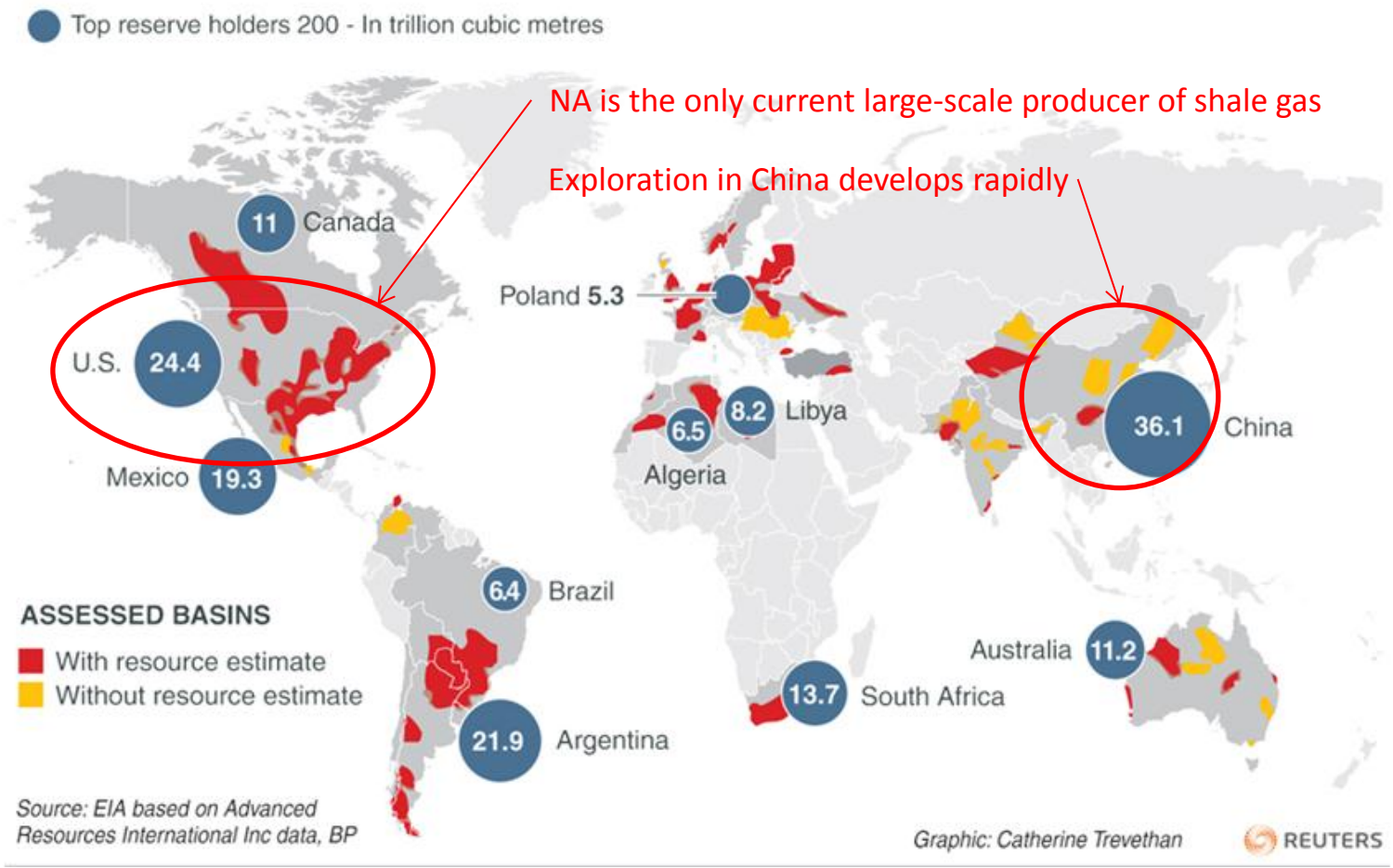
Shale Gas Estimated Tax Payments
($M)

	2010	2015	2035
Federal Taxes	$9,621	$14,498	$28,156
State and Local Taxes	$8,825	$13,827	$28,536
Federal Royalty Payments	$161	$239	$583
Total Government Revenue	$18,607	$28,565	$57,276
Lease Payments to Private Landowners	$179	$286	$841

Source: IHS Global Insight

Source: ANGA

The Enormous Resource Potential of Shale Gas

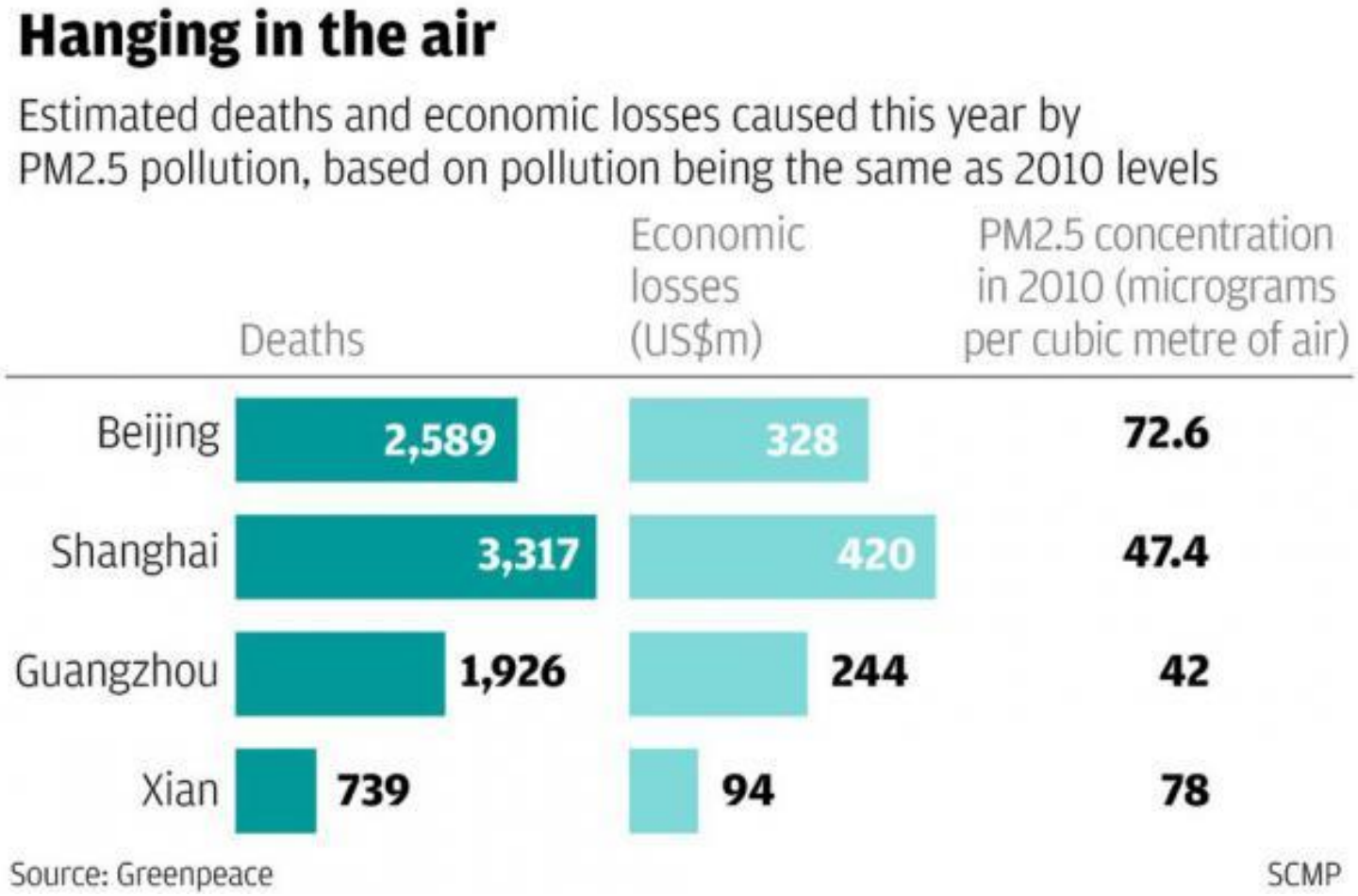


Source: http://blogs-images.forbes.com/kenrapoza/files/2012/02/Shale-gas2.jpg

Trends in Asia
"Green and/or Clean" Revolution?

- Japan
  - Post-Fukushima Age
  - No nuclear power vs economic reality
  - Significant increase in coal & gas imports
- China
  - Smog problems
  - Green revolution to move away from coal
  - Large amount of investments in gas infrastructure
  - Subsidies in solar pv
- India
  - Increasing role of gas in energy portfolio

China: The Necessity of Acting Quickly

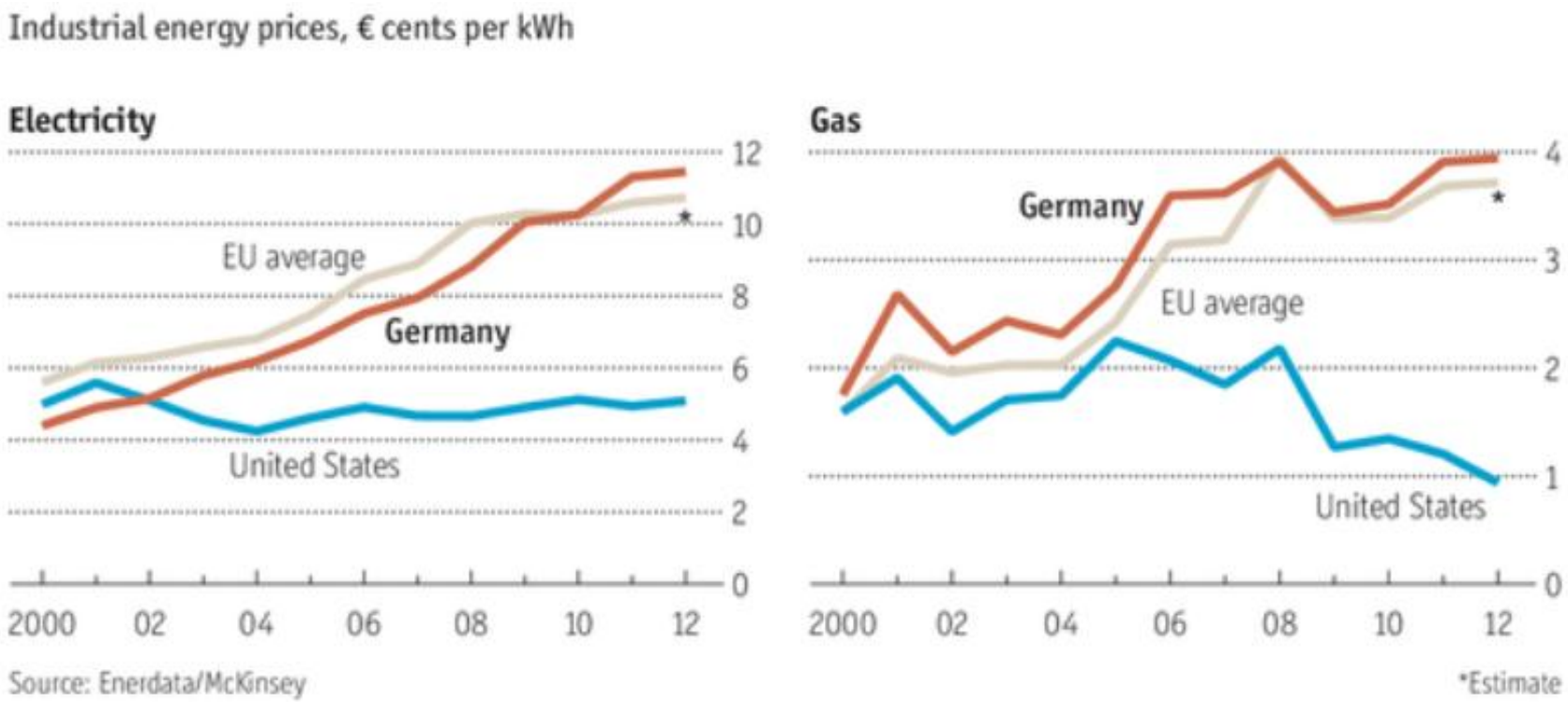


Current Trends in Europe

- Severe economic crisis that is ongoing
- Lower energy consumption due to that crisis
- The move towards green energy - Europe 2020 targets
  - 20% lower greenhouse gas emissions compared to 1990
  - 20% energy from renewable energy
  - 20% increase in energy efficiency
- The only region to have voluntarily submitted to such targets

- But: expensive green energy is being offset by cheaper (and dirtier) coal consumption!

Europe's Handicap: High Industrial Energy Prices



Source: The Economist. Tilting at Windmills. June 15th 2013

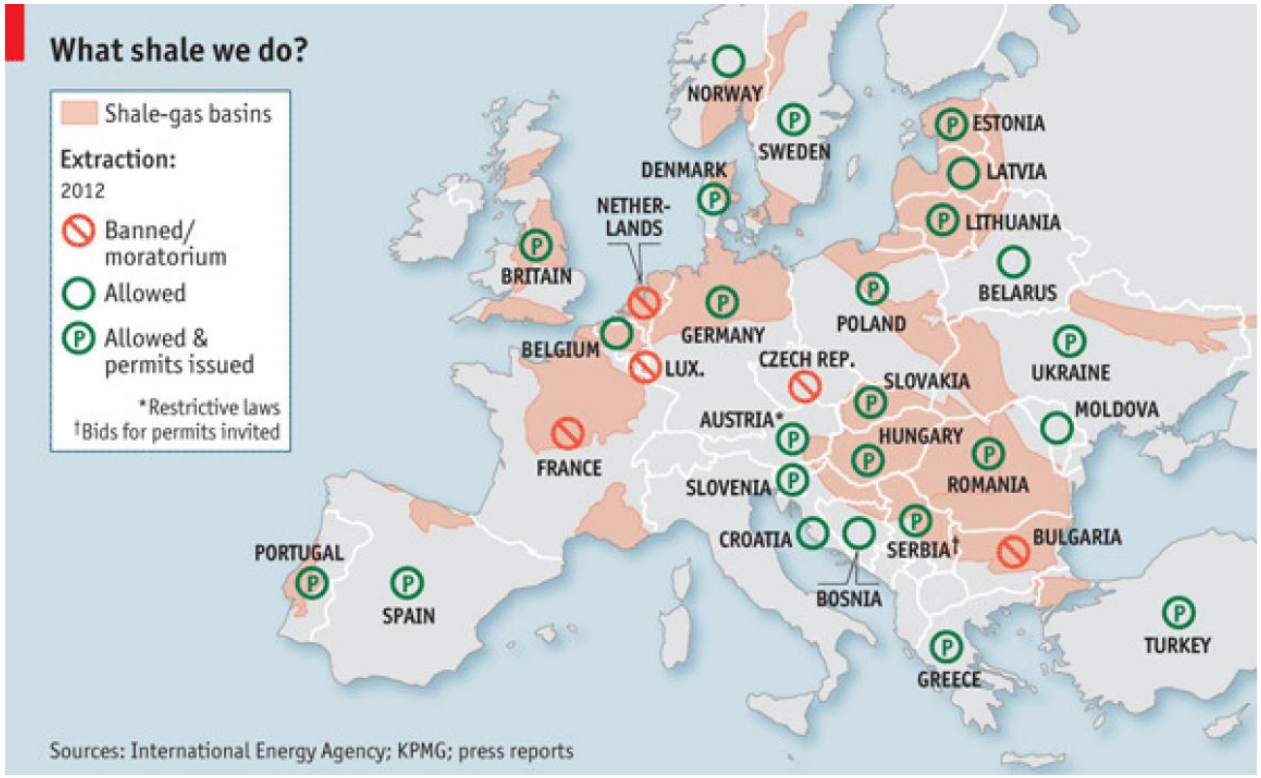
Shale Gas in Europe

Different Environment and Different Economics

- There is a significant shale gas resource potential
  - But these resources still need to be confirmed
  - Exploration/test drillings

Different Environment	Different Economics
Higher population density in most regions	Higher drilling and fracturing costs (deeper wells, more complex geology)
Narrower equipment and experience base	Current European market prices attractive to import of US LNG
Higher environmental concerns (groundwater contamination; earthquakes; fauna disturbance; …)	Market prices are linked to oil-indexed contracts and coal-switching price
More complex, land-specific permitting procedures	Large dependency on Russian pipeline gas
Less incentives for land owners (no access to royalties)	
Green movement is very powerful in Europe	

Shale Gas Developments in Europe?



1. No clear strategy towards shale gas
2. Different stance towards shale gas in the various countries

Figure source: The Economist. Unconventional Gas in Europe: Frack to the Future. Feb 2nd 2013

Crucial Items for the European Political Agenda

- One real interconnected grid is required for Europe
- Decision on the right energy mix is to be made on European level
- Policy should focus on lowering energy prices so that Europe can be competitive
- Re-evaluation of subsidy system for green power is required
  - Current system supports expensive power for long periods of time
  - The positive effects of green energy are offset by excessive burning of coal due to the higher costs of green energy
  - Significant amounts of money are wasted No jobs are created in Europe
- Natural gas provides a clean and affordable way forward

The Big Potential of Small Scale LNG

Another Revolution: Floating LNG

EXMAR's Floating Liquefaction Project in Colombia

EXPORT

- World's first floating liquefaction unit
- Operational Q1 2016
- Export Capacity: 500,000 ton/year
- Storage: 16,100 m^3 LNG
- Client: Pacific Rubiales Energy
  - Largest Independent oil & gas company in Colombia

IMPORT

- Caribbean islands are targeted
  - 75% dependancy on oil-based power generation
  - High and volatile oil prices
  - LNG provides tremendous cost and emission savings
- Opportunities for EXMAR
  - LNG Shipping
  - LNG Import Terminals

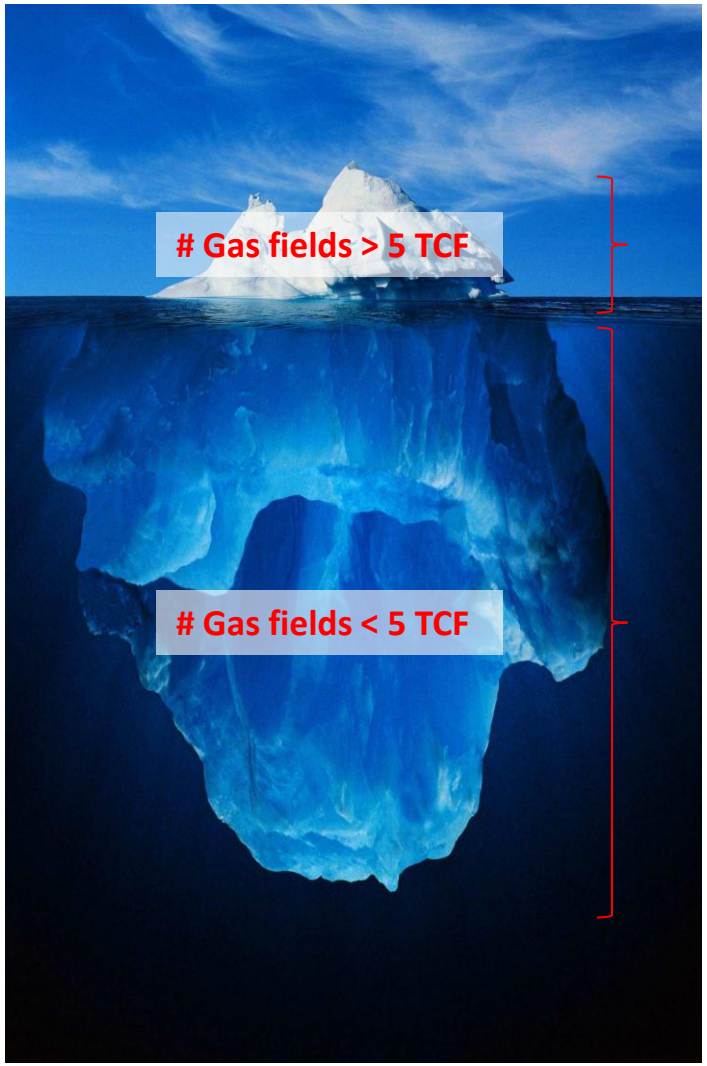
Project Status

Key Milestones	Dates
Contract Award	20/04/2012
Detailed Engineering Start	18/07/2012
Production Engineering Start	05/10/2012
Steel Cutting	12/12/2012
Keel Laying	01/07/2013
On-site Colombia	December 2014

Advantages of EXMAR's Nearshore, Barge-Based FLNG

- Fast track solution
  - Earlier monetization
  - More direct access to gas supply
- Significant cost reductions & efficiency
  - Benign weather conditions (offshore "light")
    - Mooring
    - Topsides
  - Shorter pipeline
  - Limited onboard gas treatment facilities are required (clean pipeline gas)
- (Re-)use onshore infrastructure
  - Timing and cost advantages
- Easily scalable
- Convenient accessibility

The Huge Potential Below the Surface



- Focus of most players is on large gas fields (shale & conventional)
- Smaller stranded gas fields have very large potential
- Flexible, turnkey solutions are required to unlock those reserves
- EXMAR has the required concept and experience
- Gas reserves can be monetized not only for exports but also domestic markets

Conclusion

Conclusion

- ✓ Shale gas is revolutionizing the world's energy markets
- ✓ EXMAR's similar revolution: the world of small scale LNG
- ✓ Monetization of small gas fields provides a huge potential
  - Export opportunity but also serving of domestic markets
  - Job creation
  - GDP growth
- ✓ (Shale) gas provides a clean bridge towards a greener future

Thank you for your Attention!