Nicolas Saverys—CEO of EXMAR

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

Washington, 30th of October 2013
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• EXMAR Overview

• Global Energy Markets and the Impact of Shale Gas

• Identifying Opportunities: the Big Potential of Small Scale LNG

• Conclusion
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 m³
  - Active in the offshore industry
  - 1 Floating liquefaction unit (under construction)
- Development of turnkey and tailor made solutions
EXMAR’s Origins in Shipbuilding

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

1960’s Internationally recognized shipyard with a diversified portfolio

1960's Internationally recognized shipyard

1970’s EXMAR LNG Activities

1978: Building, Owning Operating largest LNG Carrier “Methania”

1980’s EXMAR LPG Activities

1986 Start of midsize fleet

1980’s EXMAR LPG Activities

1989: Start of EXMAR Offshore Activities

1993: Merger with CMB

1993: Merger with CMB

2003: Demerger of Exmar and CMB. Exmar listed on Euronext
EXMAR’s Transition
From Pure Shipping to Infrastructure & Integrated Logistics

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

2005 – Delivery of the world’s first LNG Regasification Vessel EXCELSIOR.

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

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

2012: Start of Innovative LPG Midsize Newbuilding Program

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

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

<table>
<thead>
<tr>
<th>EXMAR Group</th>
<th>LNG</th>
<th>LPG / NH₃</th>
<th>Offshore</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipping</strong></td>
<td>Shipping</td>
<td>Shipping</td>
<td>Accommodation / Work Barge</td>
<td>Shipmanagement</td>
</tr>
<tr>
<td>Floating Storage, Liquefaction &amp; Regas</td>
<td>Floating Storage</td>
<td>Floating Production &amp; Storage</td>
<td>Design &amp; Engineering</td>
<td></td>
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<tr>
<td>Design &amp; Engineering</td>
<td>Design &amp; Engineering</td>
<td>Design &amp; Engineering</td>
<td>Belgibo Insurance</td>
<td></td>
</tr>
<tr>
<td>Shipmanagement</td>
<td>Shipmanagement</td>
<td>Operations &amp; Maintenance</td>
<td>Travel Plus</td>
<td></td>
</tr>
</tbody>
</table>
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

The Current Shale Gas Revolution in the U.S.

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**

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2015</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>148,143</td>
<td>197,999</td>
<td>360,335</td>
</tr>
<tr>
<td>Indirect</td>
<td>193,710</td>
<td>283,190</td>
<td>547,107</td>
</tr>
<tr>
<td>Induced</td>
<td>259,494</td>
<td>388,495</td>
<td>752,648</td>
</tr>
<tr>
<td>Total</td>
<td>601,348</td>
<td>869,684</td>
<td>1,660,090</td>
</tr>
</tbody>
</table>

Source: IHS Global Insight

**Shale Gas Value Added Contribution**

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2015</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>$29,182</td>
<td>$47,063</td>
<td>$93,043</td>
</tr>
<tr>
<td>Indirect</td>
<td>$22,416</td>
<td>$33,501</td>
<td>$65,234</td>
</tr>
<tr>
<td>Induced</td>
<td>$25,283</td>
<td>$37,650</td>
<td>$72,783</td>
</tr>
<tr>
<td>Total</td>
<td>$76,880</td>
<td>$118,214</td>
<td>$231,061</td>
</tr>
</tbody>
</table>

Source: IHS Global Insight

**Shale Gas Estimated Tax Payments**

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

Source: IHS Global Insight
The Enormous Resource Potential of Shale Gas

NA is the only current large-scale producer of shale gas

Exploration in China develops rapidly

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

### Hanging in the air

Estimated deaths and economic losses caused this year by PM2.5 pollution, based on pollution being the same as 2010 levels.

<table>
<thead>
<tr>
<th>City</th>
<th>Deaths</th>
<th>Economic losses (US$m)</th>
<th>PM2.5 concentration in 2010 (micrograms per cubic metre of air)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing</td>
<td>2,589</td>
<td>328</td>
<td>72.6</td>
</tr>
<tr>
<td>Shanghai</td>
<td>3,317</td>
<td>420</td>
<td>47.4</td>
</tr>
<tr>
<td>Guangzhou</td>
<td>1,926</td>
<td>244</td>
<td>42</td>
</tr>
<tr>
<td>Xian</td>
<td>739</td>
<td>94</td>
<td>78</td>
</tr>
</tbody>
</table>

Source: Greenpeace
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

<table>
<thead>
<tr>
<th>Different Environment</th>
<th>Different Economics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher population density in most regions</td>
<td>Higher drilling and fracturing costs (deeper wells, more complex geology)</td>
</tr>
<tr>
<td>Narrower equipment and experience base</td>
<td>Current European market prices attractive to import of US LNG</td>
</tr>
<tr>
<td>Higher environmental concerns (groundwater contamination; earthquakes; fauna disturbance; ...)</td>
<td>Market prices are linked to oil-indexed contracts and coal-switching price</td>
</tr>
<tr>
<td>More complex, land-specific permitting procedures</td>
<td>Large dependency on Russian pipeline gas</td>
</tr>
<tr>
<td>Less incentives for land owners (no access to royalties)</td>
<td></td>
</tr>
<tr>
<td>Green movement is very powerful in Europe</td>
<td></td>
</tr>
</tbody>
</table>
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
Thank you for your attention!
The Big Potential of Small Scale LNG

The Future
NEXT EXIT
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 m³ LNG
• Client: Pacific Rubiales Energy
  – Largest Independent oil & gas company in Colombia

IMPORT
• Caribbean islands are targeted
  – 75% dependency 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

<table>
<thead>
<tr>
<th>Key Milestones</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Award</td>
<td>20/04/2012</td>
</tr>
<tr>
<td>Detailed Engineering Start</td>
<td>18/07/2012</td>
</tr>
<tr>
<td>Production Engineering Start</td>
<td>05/10/2012</td>
</tr>
<tr>
<td>Steel Cutting</td>
<td>12/12/2012</td>
</tr>
<tr>
<td>Keel Laying</td>
<td>01/07/2013</td>
</tr>
<tr>
<td>On-site Colombia</td>
<td>December 2014</td>
</tr>
</tbody>
</table>
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!