Our business: research and consulting

- Established 1990
- 50 professional staff
- Aberdeen, London, Houston, Singapore

Activity & Service Lines
- Business strategy & advisory
- Commercial due-diligence
- Market research & analysis
- Published market studies

Large, Diversified Client Base
- >1,020 projects, >450 clients
- >72 countries, >230 sectors
- Clients include the top-10:
  - Oil & Gas Companies
  - Oilfield Services
  - Investment Banks
  - Private Equity firms
- Government Agencies
The combination of increased energy efficiency throughout OECD states and growing economies in Asia is driving demand for power generation at the expense of transportation.

Natural gas is becoming an increasingly popular fuel for power generation offering a relatively safe (compared to nuclear); cheap (compared to oil); and clean (compared to coal) energy source.

Demand for natural gas to increase by 55% over the next 20 years...
Primary Energy Demand – Bullish Outlook

• +30% growth by 2035. From 86% to 81% use of fossil fuels. Liquids at 110 Mboe/d.

• Driven by Asian economies, power generation and industry.

• China + India = 60% of GDP growth, 50% of primary energy growth

• Natgas +40%, Oil +20%, Coal +20%, Nuclear +40%, Hydro +40%, Ren +240%

Source: BP Energy Outlook 2035, Feb 2015 issue
A more gaseous world

- Unconventionals (shale gas, tight oil) and renewables account for 50% of energy growth.
- Global gas production boosted by US shale revolution, unlikely to be exported.
  - 2035, USA: 60% tight oil and 30% shale gas exploited.
  - 2035, elsewhere: 5% tight oil and 5% shale gas exploited.
- More diverse gas supply. LNG supply is set to overtake gas pipes in 2035

Source: BP Energy Outlook 2035, Feb 2015 issue
• The whole American continent is expected to reach energy independence in 2020.
North America emerge as an established net energy exporter, +560 Mtoe in 2035.

• By 2035, the only net energy importers will be Europe and Asia.
While Europe remains flat (~900 Mtoe), Asia would have almost double its imbalance in 20 years (-2,200 Mtoe in 2035).

• Asian economies are highly dependent on oil and gas imports.
China’s oil imbalance is currently estimated at -60%.

Source: BP Energy Outlook 2035, Feb 2015 issue
Exploration Drilling and Production Wildcards

Supply Side

Demand Side
Rising Costs Are Also Not Sustainable

- Cyclicality = opportunity
- Since 2000, E&P costs risen faster than oil price (10.9% year)
- Prior to the oil price downturn, E&Ps were looking closely at capital costs, as the cost escalation simply was not sustainable.
- Cost re-alignment expedited. Already felt throughout supply chain.
Oil Majors in Trouble a Year Ago at $100/bbl!

Exhibit 4: Big Oils returns are falling towards 40-years low
CROCI of the global super-Majors (Exxon, Shell, BP) vs. the real oil price

CEO Shamsul Azhar Abbas
"We have suffered from lower oil prices. But if you look at the costs, they have increased further. If there is a need to defer some of projects, we will do that."

Source: Goldman Sachs
Oil Majors – End of Business as Usual?

- IOCs face major challenges
- NOCs control 80% of reserves
- IOCs forced to focus on high cost projects
- Too big for unconventionals?
- The days of ‘easy oil’ are over.

### Oil Discoveries & Production
Source: BP Energy Outlook 2035

<table>
<thead>
<tr>
<th>Year</th>
<th>Discoveries (bn b/d)</th>
<th>Oil Production (mboed/d)</th>
</tr>
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<tbody>
<tr>
<td>1900</td>
<td></td>
<td></td>
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<tr>
<td>1910</td>
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<td>2010</td>
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<td>2020</td>
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### Control of Oil Reserves
Source: ENI Review 2014

- NOCs control 79%
- IOCs 18%
- Others 3%

### Majors’ Oil Production
Source: Douglas-Westwood & Company Reports

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<td>Royal Dutch Shell</td>
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<td>2,379</td>
<td>2,253</td>
<td>2,093</td>
<td>2,030</td>
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<td>967</td>
<td>945</td>
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<td>Total</td>
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<td>2,350</td>
<td>2,428</td>
<td>2,504</td>
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</table>
Viability of oil developments ($/bbl)

Sources: Douglas-Westwood

“To grow oil production, the North American E&P industry needs $85-90 WTI” Simmons & Co,
• Low oil price, spiralling E&P costs, softening demand → activity slowdown
• Natural production decline rates (with well maintenance) average around 5% p.a.
• Unconventional wells decline much faster: 40-50% p.a. (Haynesville, Bakken)
• Important in the context of declining US activity with low oil prices – recent additions to production capacity will be eroded very quickly as activity slows – quick correction

Source: Douglas-Westwood D&P, Jan 2015
Where is the industry heading?

• Many offshore projects are long term and rarely cancelled post-FID.

• Momentum following several years of high oil prices 2011-mid 2014 will carry the industry through a flat period of spend to 2017.

• Recovery 2018 onwards.

2015-20 Spend by Region

- North America 17%
- Africa 13%
- Asia 25%
- Middle East 7%
- Latin America 16%
- Eastern Europe & FSU 2%
- Australasia 5%

Offshore Capex – Actual and Forecast

- 2008
- 2010
- 2012
- 2014
- 2016
- 2018
- 2020

Source: Douglas-Westwood, Jan 2015
• Evercore view - revised downward:
  • “Sharp recession in the oilfield”
  • “Middle East the only Bright Spot”
  • “Disappearance of new offshore rig orders”
  • “Rapid fall in US activity and bottoming of rig count in Q3 or Q4”
  • “Recovery in 2016”
Shallow:
- Shallow water production is set to grow 13% over the forecast period due to success in the gas drilling side of the market. This is despite a mature oil market that requires significant investment to stop production rapidly declining, particularly in the North Sea and US Gulf of Mexico.

Deepwater:
- Four countries dominate the deepwater drilling sector – Angola, Brazil, Nigeria and the USA.
- Despite the downturn in oil price, projects already sanctioned will see deepwater output increase in all of these countries over the forecast period.
Figure 6: Number of Projects to be Abandoned per Year
Thank you

www.douglaswestwood.com

See me for a copy of this presentation

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