



Douglas –
Westwood

Global Offshore Prospects

Society for Underwater Technology

Houston, Texas

13th January 2011

**Edited version –
forecasting slides omitted**

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Managing Director
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offshore



onshore



downstream

History and Office Locations

- Established 1990
- Aberdeen, New York & Canterbury

Activities & Service Lines

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

Industry Sector Coverage

- Oil & Gas
- Renewables
- Power

Large, Diversified Client Base

- 600 projects, 400 clients, 50 countries
- Leading global corporates
- Energy majors and their suppliers
- Investment banks & PE firms
- Government agencies

Our Business



power



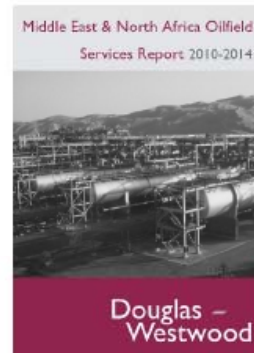
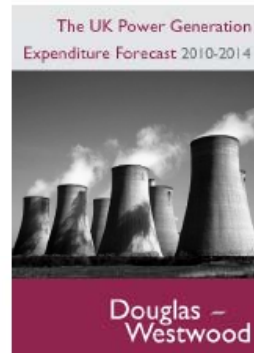
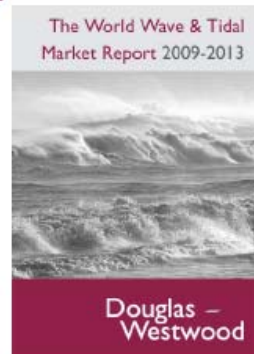
LNG



renewables

Energy Business Analysts

Published Reports

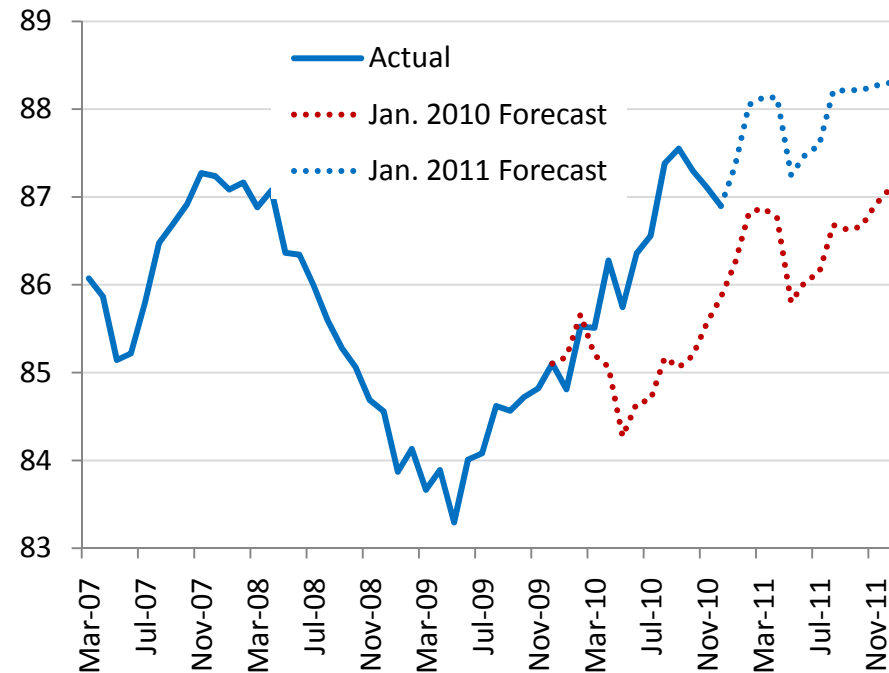




Gathering Steam

Macro Oil Outlook
Offshore Oil & Gas
Conclusions

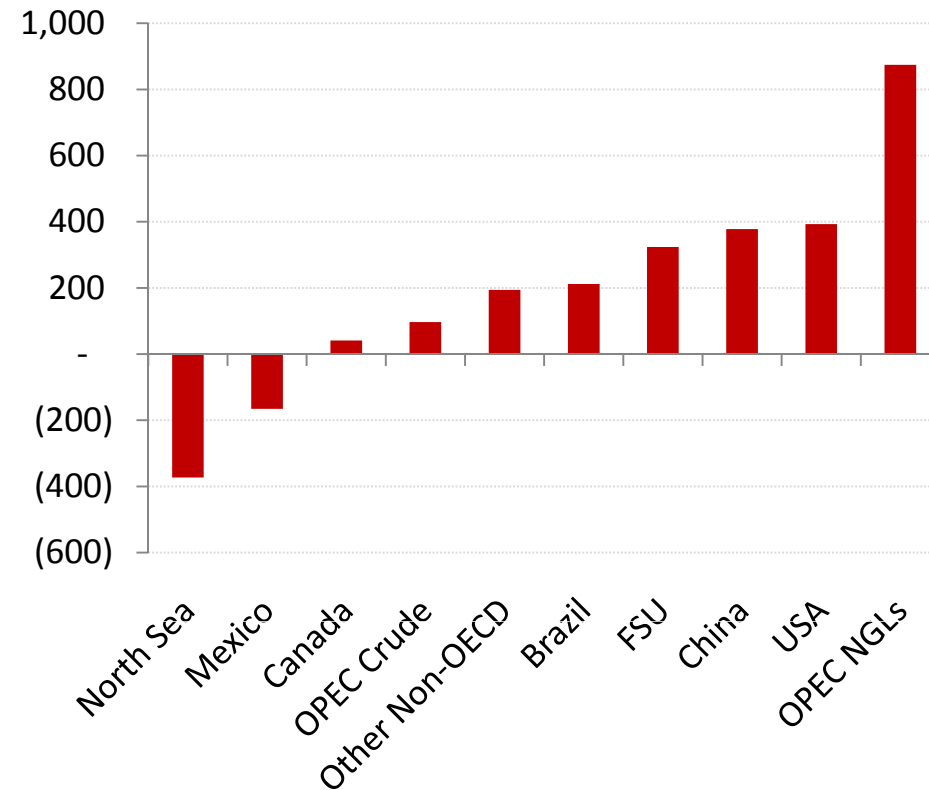
- Strengthening recovery, to new peaks in consumption: 87.6
- Forecast for 2011 up 1.2 mbpd compared to Jan. 2010 forecast
- OECD up modestly in 2010
 - US up 200k
 - EU up 200k
 - Japan down -150k
- China up 6%, +500k
- Other non-OECD: +900k
- Global consumption up 1.8 mbpd over last year



EIA World Oil Consumption, Actual and Forecast, million barrels per day (3 mma)

Source: EIA STEO Jan. 2010 and Jan 2011

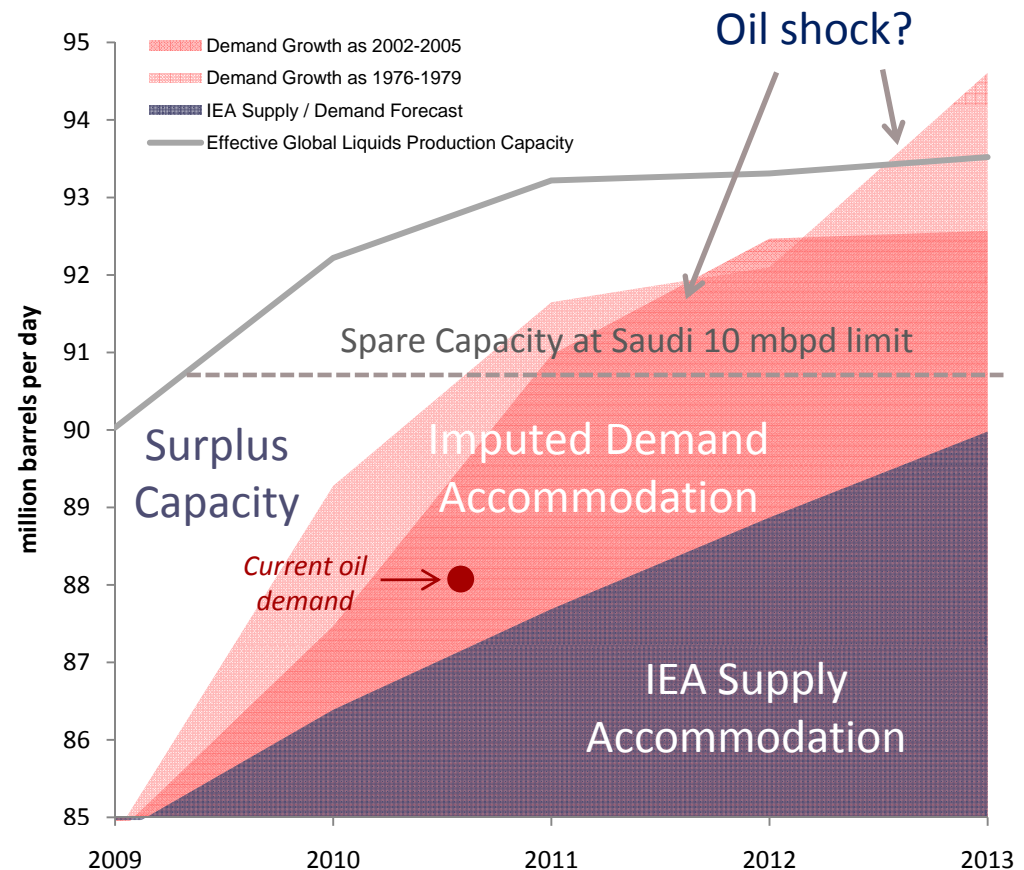
- North Sea and Mexico continue decline
- Canada flat
- Brazil underperforms
- FSU—mostly Azerbaijan—doing well
- Geezers China and USA at front of the pack
- OPEC NGLs are leading the way
- Total world supply up 2.0 mbpd, half is NGLs
- EIA expects 2011 largely flat



World Liquids Production Growth, 2010
million barrels per day

Source: EIA STEO Jan 2011

- Adequate spare capacity today—but $\frac{3}{4}$ of it is in Saudi Arabia alone
- IEA sees demand rising slowly, less than 1.3 mbpd / year in 2011, vs. up 2.5 mbpd in 2010
- Previous recoveries strong demand growth during first three years
 - After 2002: 7.7 mbpd
 - After 1976: 7.3 mbpd
- If previous patterns hold true, a possible supply crunch in 2012/2013
- What will Saudi do?

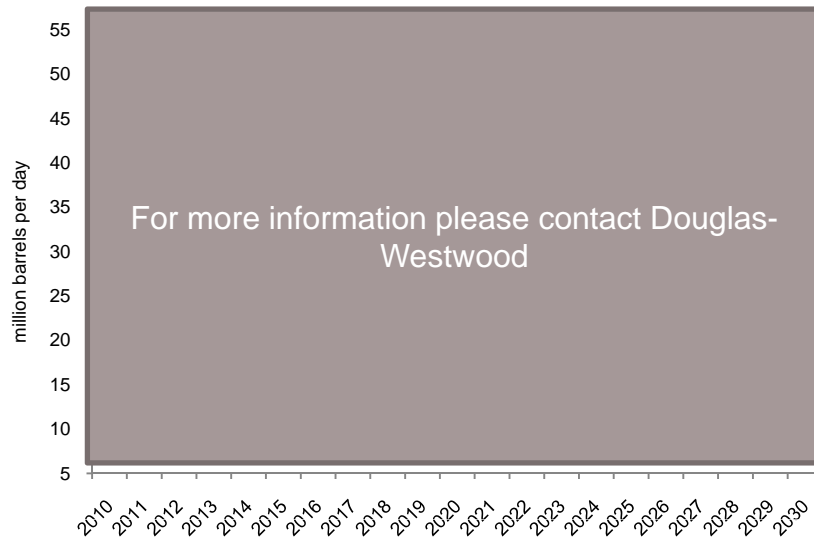


Oil Demand under Three Scenarios and Global Liquids Production Capacity

Source: IEA, Douglas-Westwood analysis

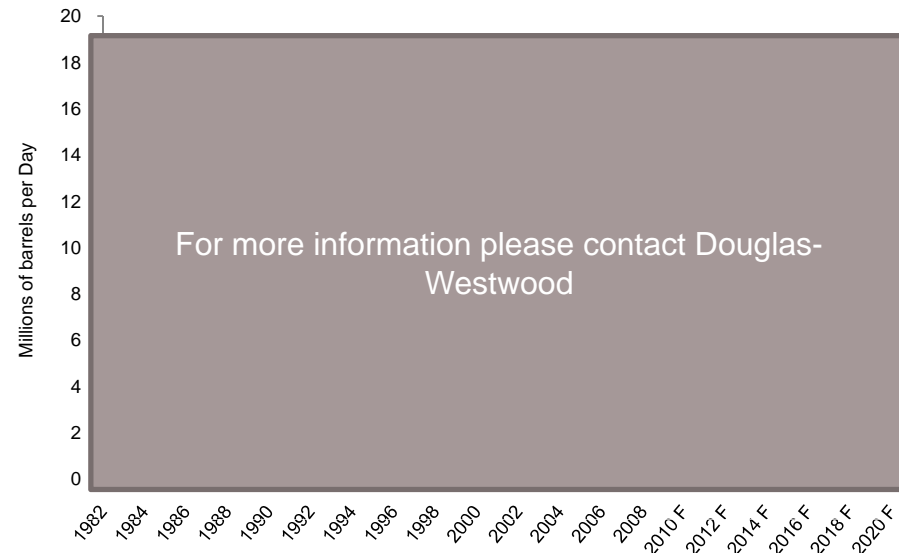


- Iraq
 - Output up 300 kbpd to 2.7 mbpd
 - Potential to increase by 0.5 mbpd per year to 6-7 mbpd
- Bakken
 - Output up 80 kbpd to 380,000 bpd
 - Potential to add 80 kbpd / year, potentially to greater than 1 mbpd or more
 - Like gas shales, production is front-loaded
 - More to come from other sources?



China Unconstrained Demand

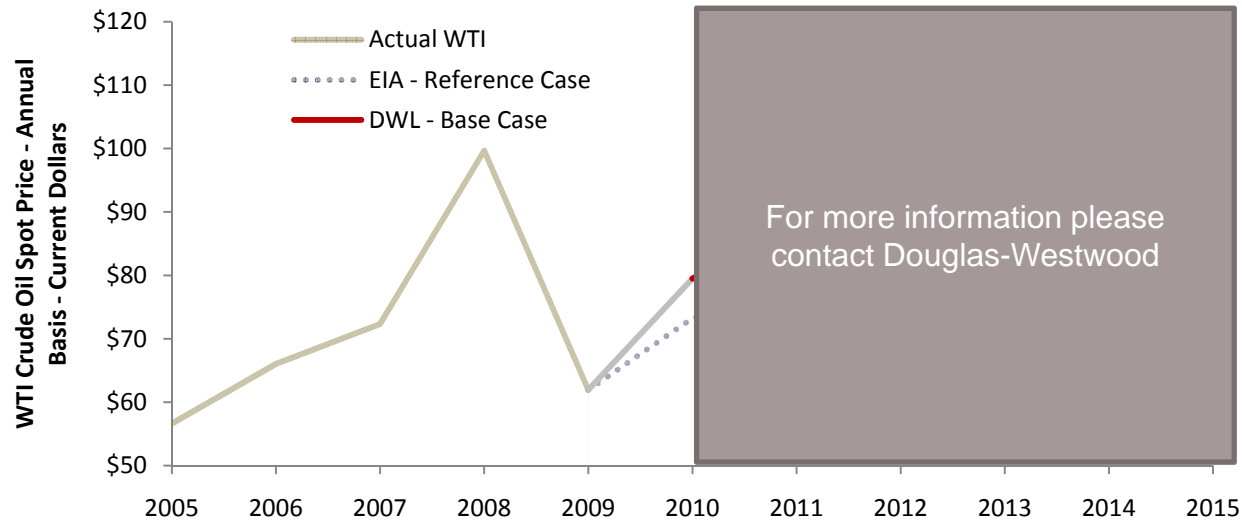
Source: EIA, Douglas-Westwood Analysis



China Crude Oil Production and Constrained Demand

Source: EIA, Douglas-Westwood Analysis

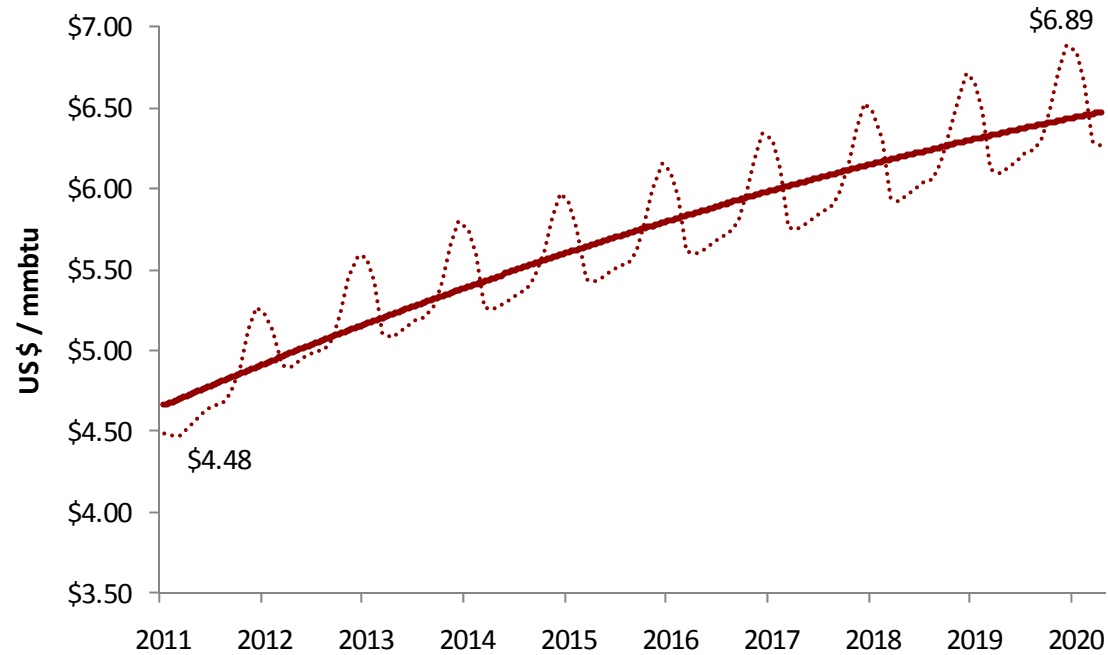
- World's second largest economy: 10% GDP growth
- “Astonishing” oil demand growth
- 18 million light vehicle sales vs. 13.6 million prior year (12.6 m for US in 2010)
- 120 million new cars by 2015 = *all passenger vehicles* UK + France + Germany
- In 2010, China was 1/3 of total global oil demand growth (less than other Asia and non-OECD)
- China's foreign oil dependence rises from 1 in 2 bbls to potentially 9 in 10 by 2030



Annual WTI Spot Oil Price Forecasts: EIA, Douglas-Westwood

Source: EIA AEO (* adjusted, RACC + \$1.50), Douglas-Westwood

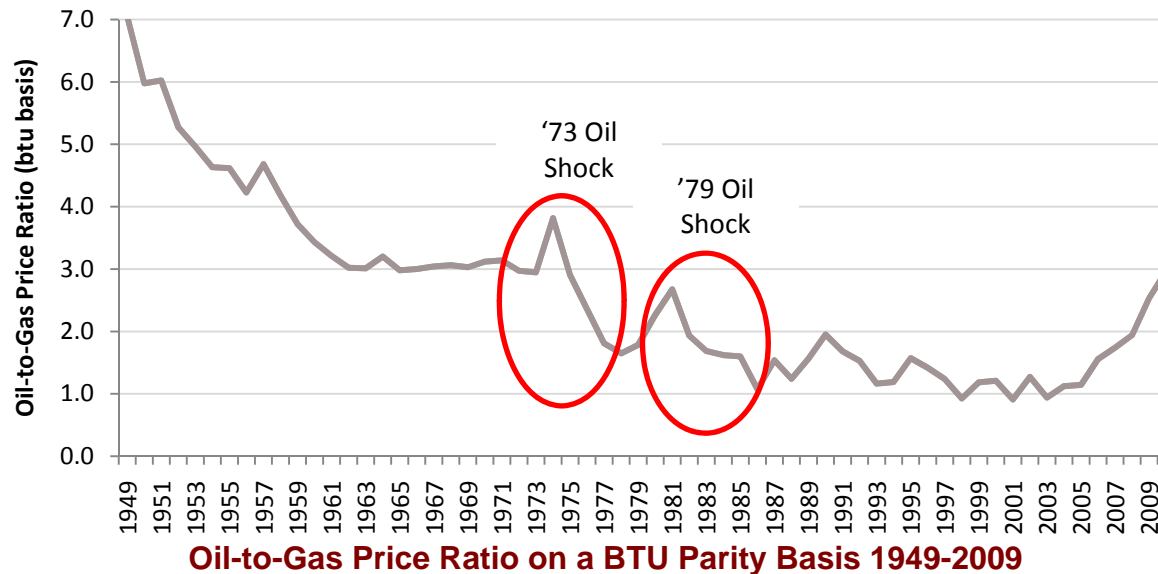
- We assume supply is flat to modestly increasing
- Historically, US could not add oil consumption at more than 4% of GDP—equals \$86
- In last three months of 2010, US up 230 kbpd at average \$85
- US up 700 kbpd in December at \$89
- WTI at \$92—above our expectation of mid-to-high \$80s for 2011
- If US can reset to a higher tolerance for oil prices, a substantial oil price rally could be in store



NYMEX Natural Gas Futures: 2011-2020

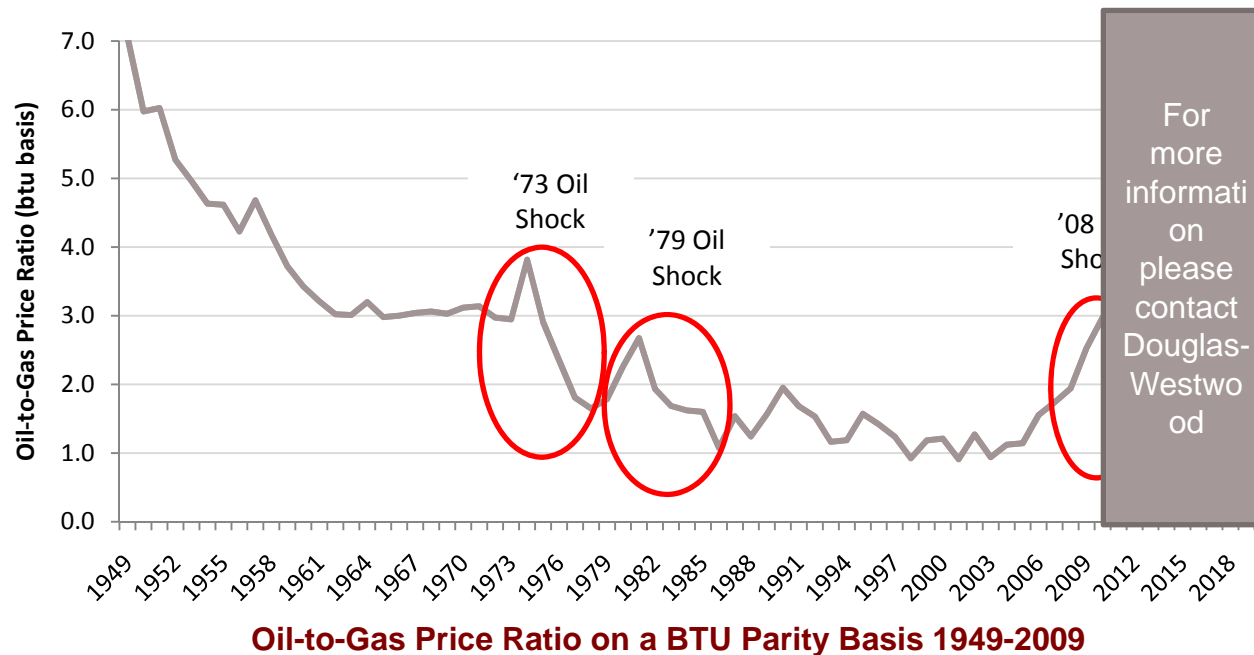
Source: NYMEX, as of 12 January 2011

Pretty miserable price deck.



Source: EIA, Douglas-Westwood Analysis

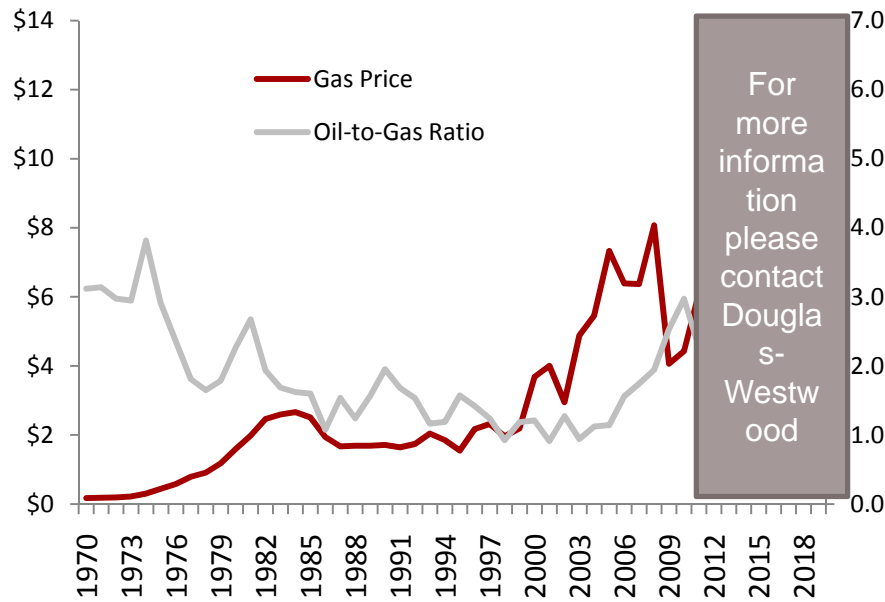
- Oil is three times as valuable as nat gas on a btu parity basis!
- Reversion to historical relationship: natural gas as 'junk fuel' compared to oil?
- We've seen this pattern before: '70's oil shocks
- At first, the relative price of oil rose with OPEC actions
- But over the next few years, natural gas re-valued as consumer economies switched over from oil.
- Natural gas—not oil—was the primary beneficiary of the oil shocks
- Natural gas will revalue against oil



Oil-to-Gas Price Ratio on a BTU Parity Basis 1949-2009

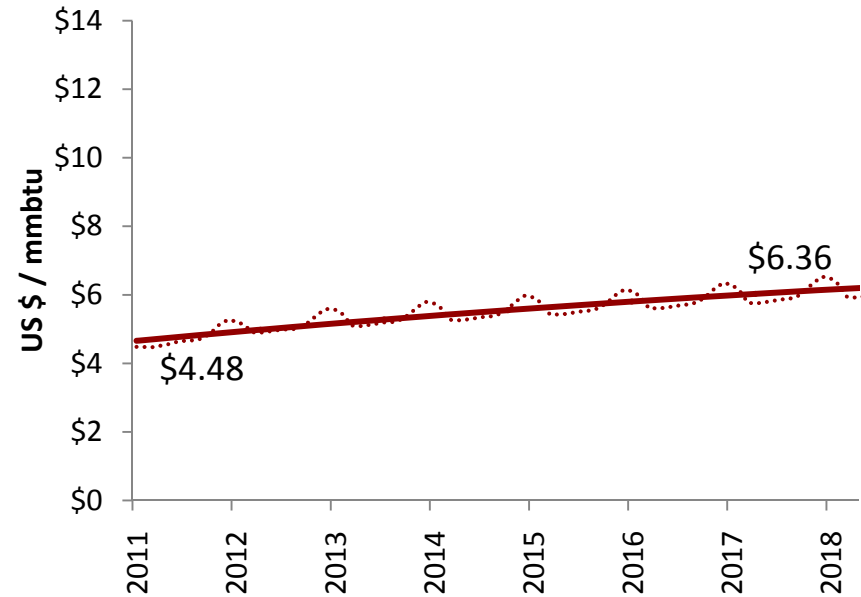
Source: EIA, Douglas-Westwood Analysis

- Price arbitrage encourages greater use of and switching to natural gas
- Pace of ratio decline similar to historical precedents
- Oil price spike in 2012-2014 drives ratio and prices back up
- Ensuing recession reduces energy prices
- Price arbitrage trend continues afterwards to 'convenience discount' threshold
- Modelled 1974-1983 period



Natural Gas Prices: Actual and Forecast

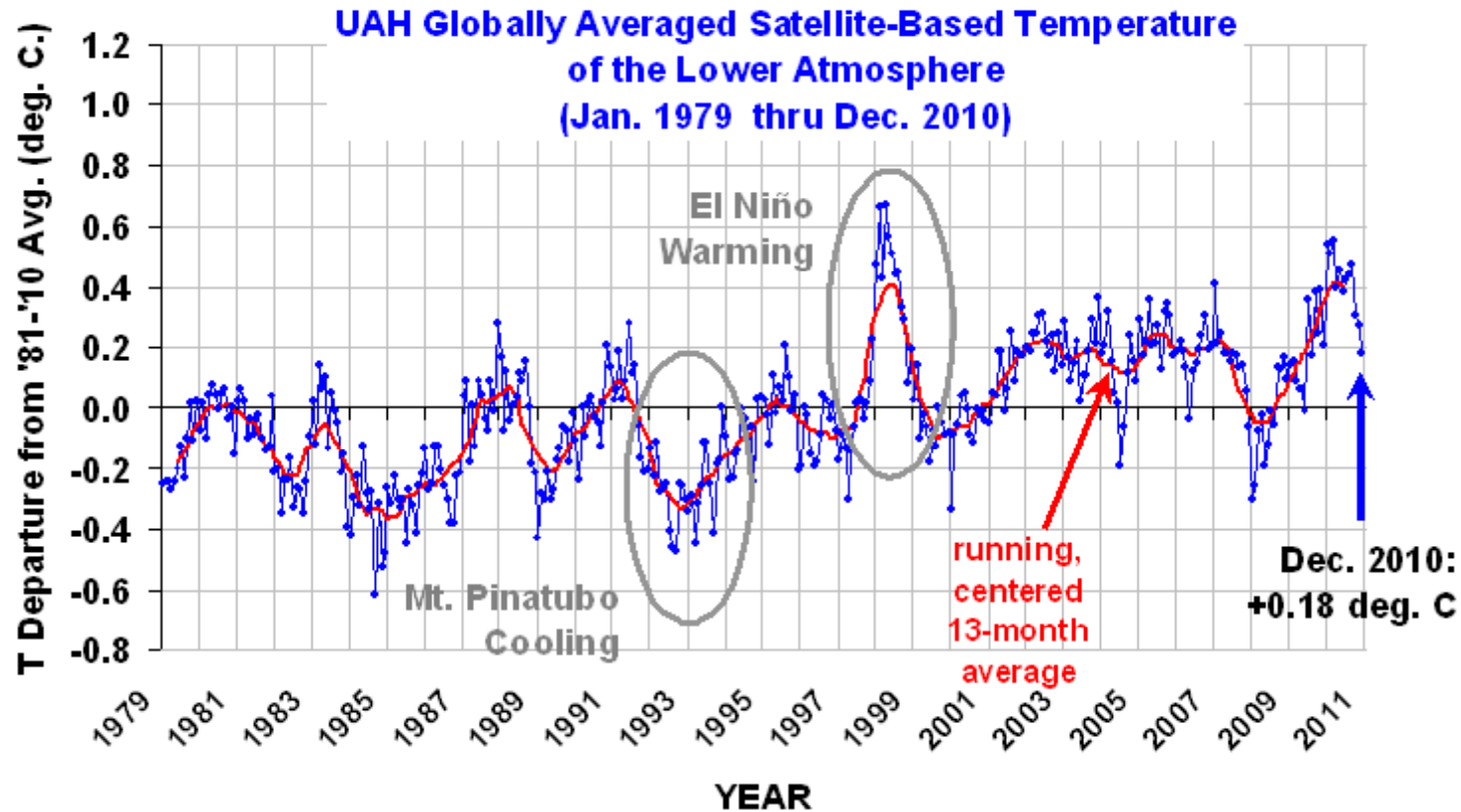
Source: NYMEX, Douglas-Westwood Forecast



NYMEX Natural Gas Futures

Source: NYMEX, Jan. 12, 2011

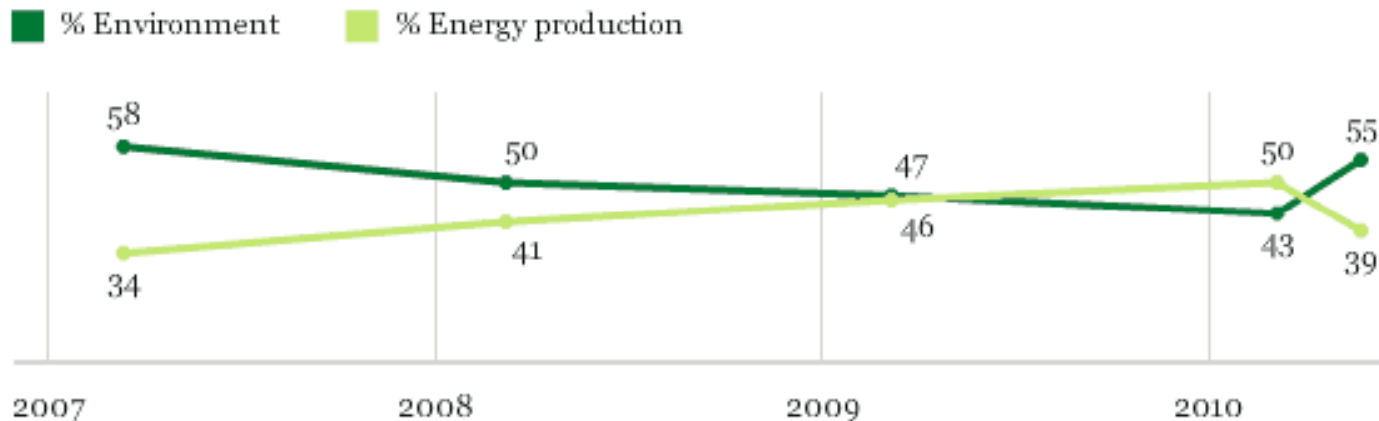
- Oil prices remain high
- Switching to gas continues
- Natural gas price rises over time to approach btu price parity with oil
- Second half of the decade sees high natural gas prices
- A very different view than the futures strip
- *“Rigs, Recessions and the Tyranny of the Futures Curve”*



- 2010 second warmest year in satellite record, probably modern record
- But temps dropping rapidly with fading of 2010 La Niña
- Cool through June

Recent Trend: Higher Priority for Energy Production or Environmental Protection

With which one of these statements about the environment and energy production do you most agree -- [ROTATED: protection of the environment should be given priority, even at the risk of limiting the amount of energy supplies -- such as oil, gas and coal -- which the United States produces (or) development of U.S. energy supplies -- such as oil, gas and coal -- should be given priority, even if the environment suffers to some extent]?



GALLUP®

Poll of US Public: Environment vs. Energy — 2007-2010

Source: Gallup

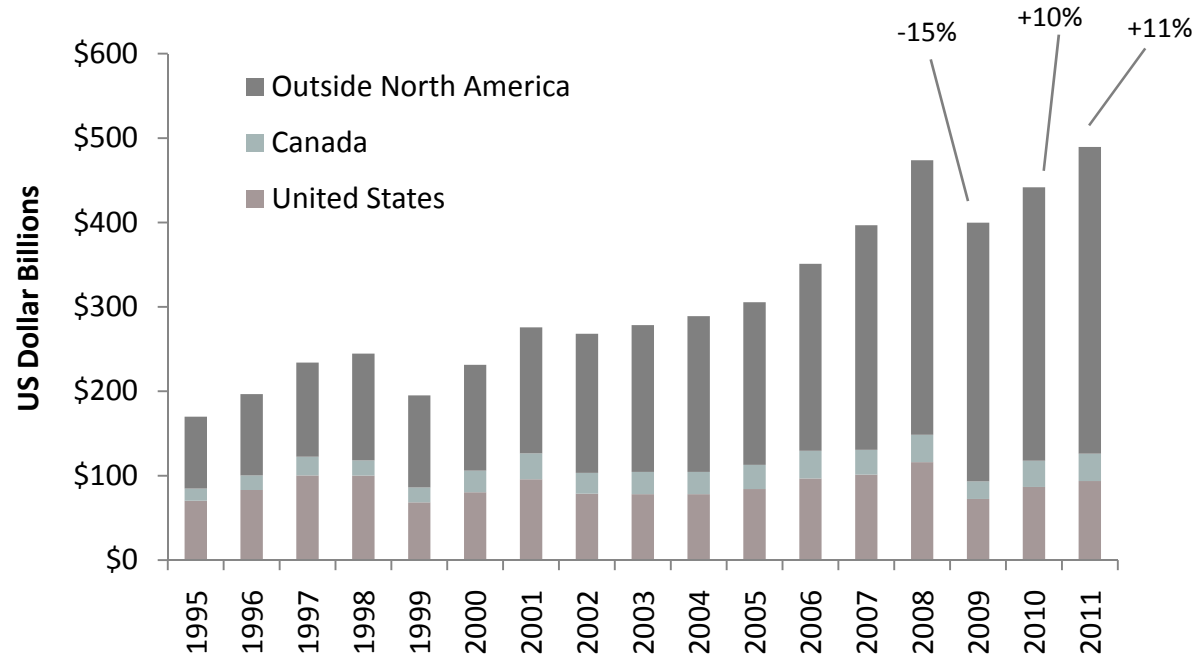
- Macondo reversed priority of energy over environment
- Swing of 23 percentage points within a month

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Macro Factors
Offshore Oil & Gas
Conclusions

The image is a 3D digital rendering of an offshore oil and gas field. On the left, a large supply vessel with a white superstructure and a blue and orange hull is shown. In the center and right, several offshore platforms are visible, including a large red and yellow structure and a smaller white one. The seabed is dark and textured, with numerous yellow and red cables and risers connecting the platforms to the seabed. The overall scene is set against a dark blue ocean background.

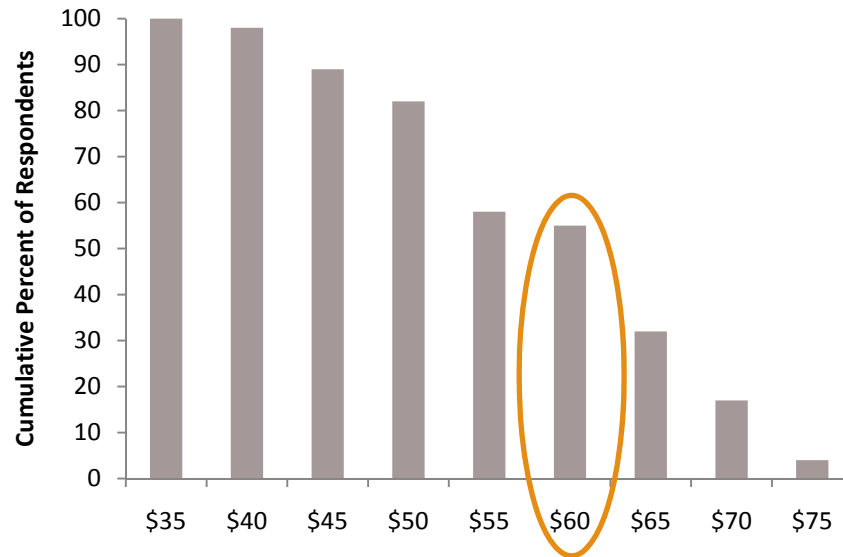


Global E&P Spend

Source: Jim Crandell, Barclay's E&P Spending Survey, December 2010

- Recovery in 2010, up 10.2% to \$442 bn
- Continued growth in 2011 to \$490 bn, up 10.8%—new peak
- US spend up 8%, Canada up 5%, international up 12%
- Spend up \$48 bn in 2011, of which 82% to international

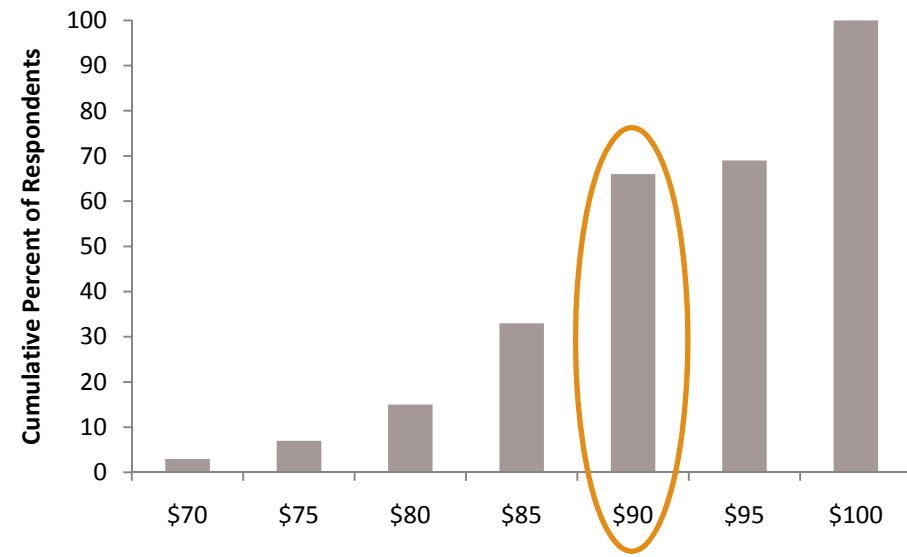
Percent of Respondents *Decreasing* Capex at a Given Oil Price



Oil Price Threshold for Reducing Capex

Source: Barclays Capital E&P Spending Survey, Dec.2010

Percent of Respondents *Increasing* Capex at a Given Oil Price

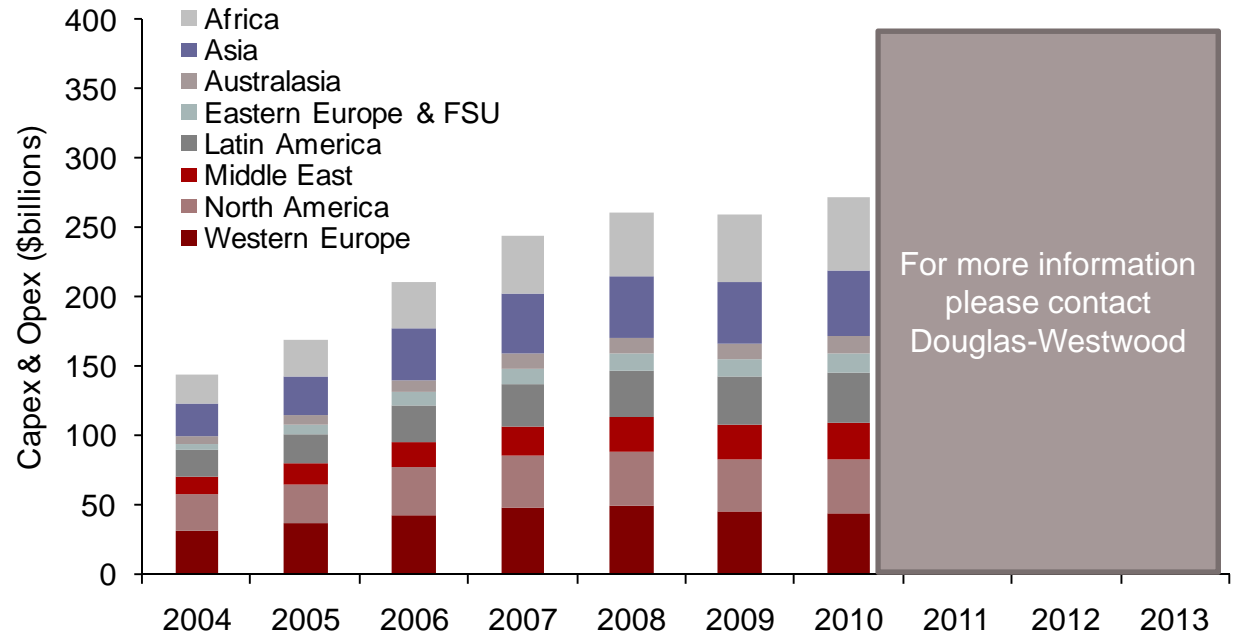


Oil Price Threshold for Increasing Capex

Source: Barclays Capital E&P Spending Survey, Dec.2010

- E&P companies prepared budgets assuming \$77 oil on average, up from \$70 last year
- Expect capex to materially decrease in the industry if oil prices fall much below \$60
- Expect capex to increase materially if oil prices sustain above \$90, up from \$85 last year

Offshore oil & gas production & spend to grow

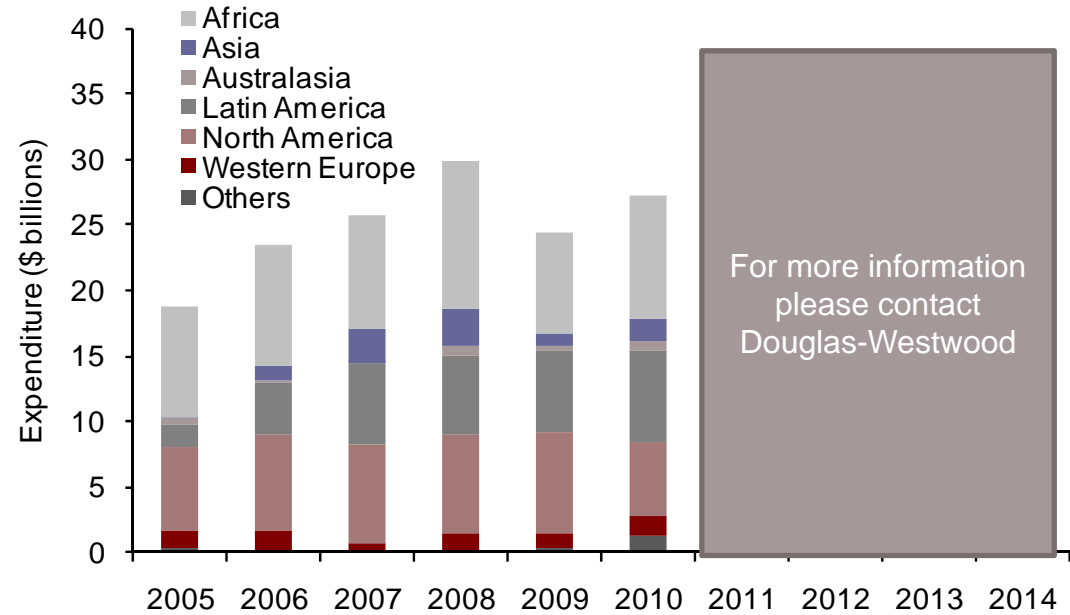


For more information
please contact
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Global Offshore Expenditure by Region 2004-2013

Source: Energyfiles / Douglas-Westwood

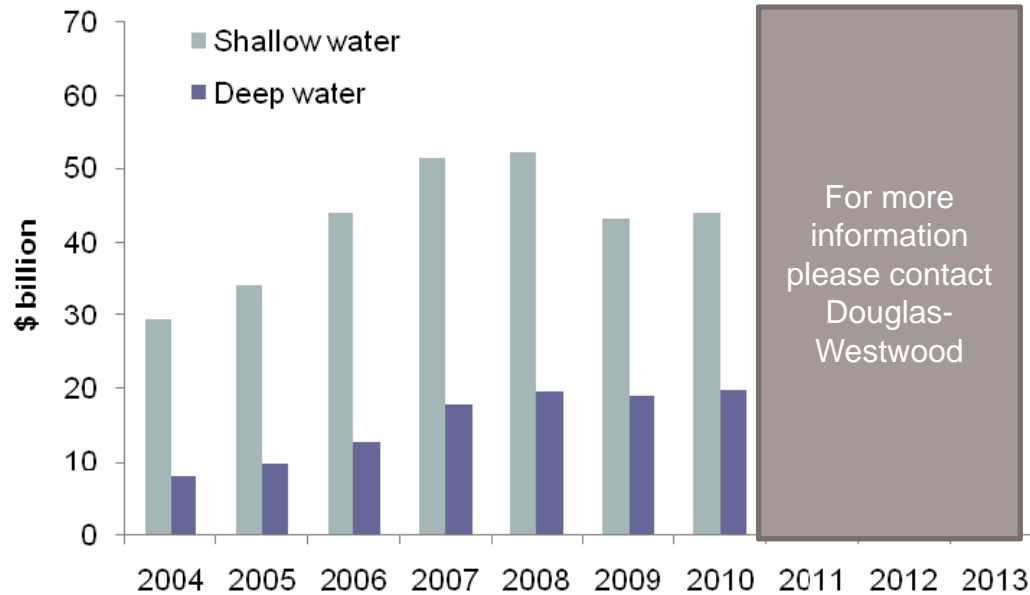
- Offshore capex to \$360 bn by 2013
- Gathering pace of recovery



- Deepwater production to double
- Shallow water growth 20%
- \$137 billion Capex over the next five years

Source: "The World Deepwater Market Report
2010-2014" Douglas-Westwood

Offshore drilling – Deepwater to show strongest growth



Source: "World Offshore Drilling Spend Forecast 2009-2013"
EnergyFiles & Douglas-Westwood

- Deepwater fundamentals look strong
- High oil prices, ample capacity in the system
- Spend to reach \$89 bn in 2013 (+57%)

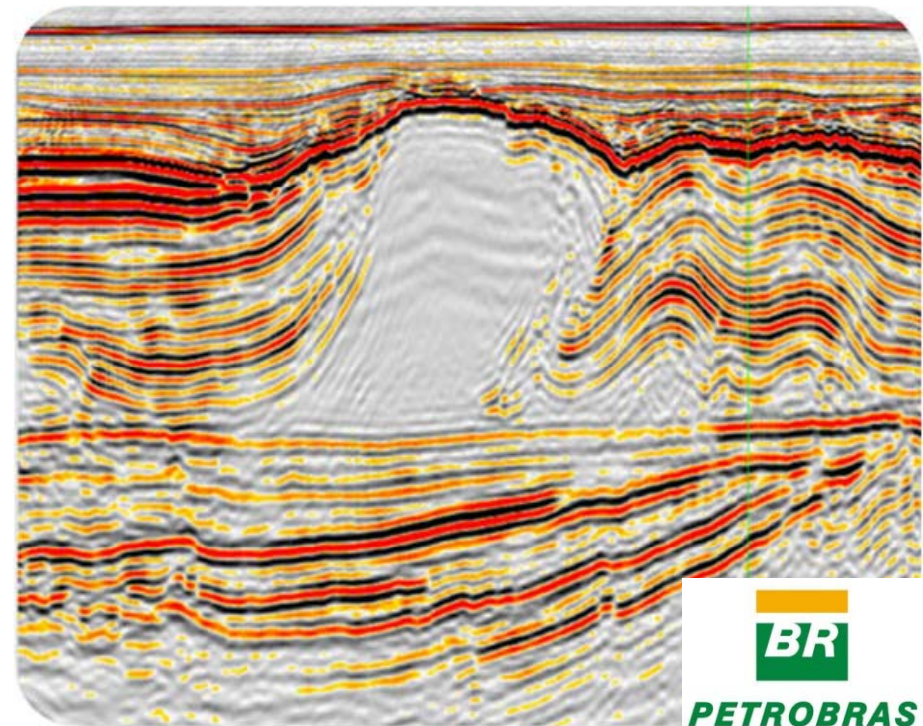
By 2018, 58 new drilling rigs

- 23 being delivered by 2011
- 9 in 2012
- 28 being built in Brazil 2013 to 2018

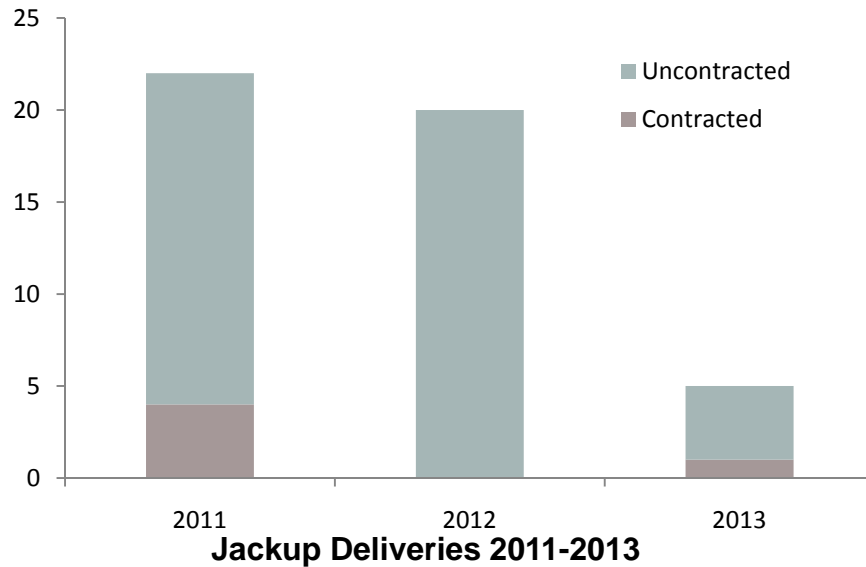
By 2020

- 49 VLCCs
- 135 supply & service vessels
- 45 production platforms
- 7 wellhead platforms
- 140 manifolds
- 629 compressors
- 229 subsea wellheads
- 417 subsea trees

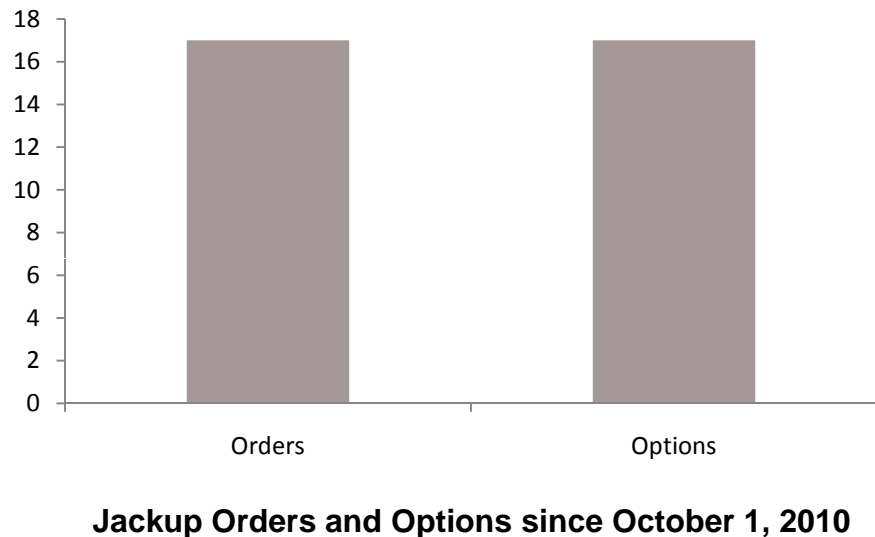
- Spend of \$224 bn to double output by 2014
- Capex & Opex to total \$1 trillion to 2020



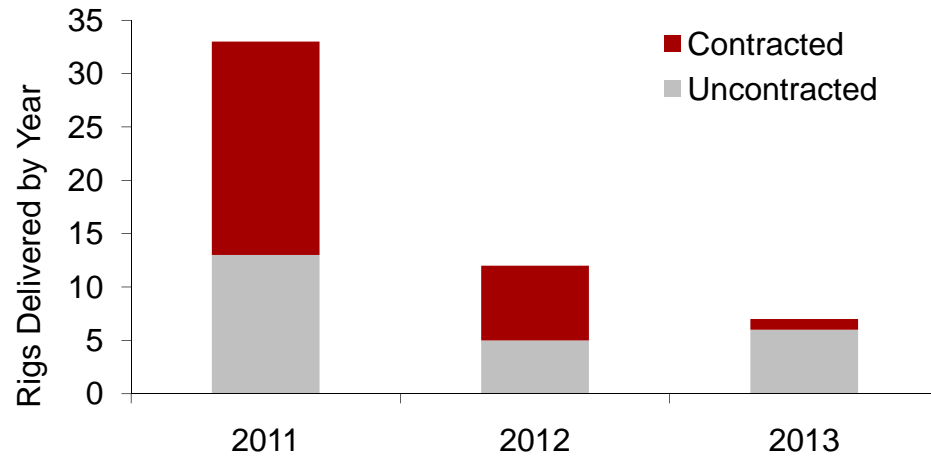
Tupi Discovery
Source: CGG Veritas



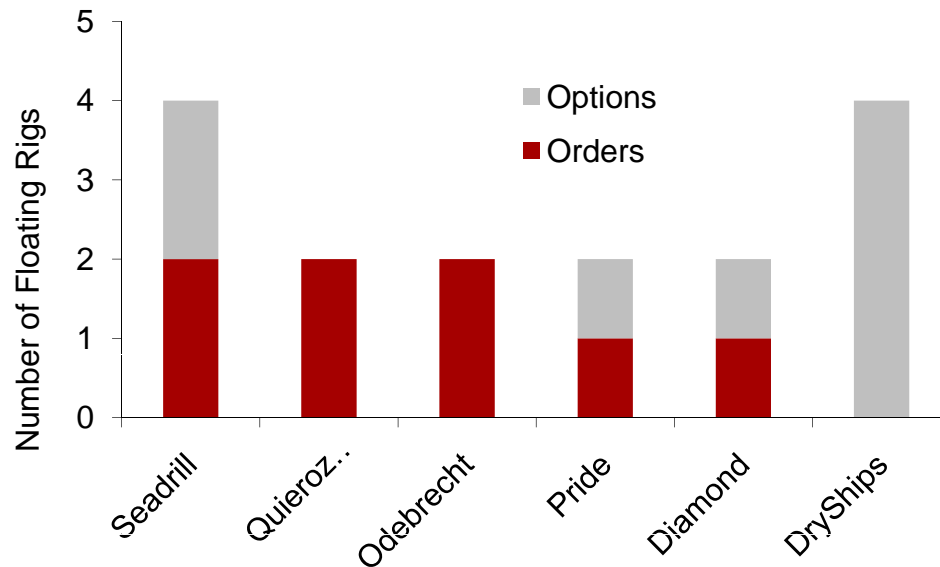
- 47 jackups to be delivered 2011-2013
- 42 have no contract
- Many low spec, older rigs stacked (60+); many may never re-enter service
- Demand for high spec rigs
- 17 orders, 17 options since October



Floater: Semisubmersibles and Drillships



Floater Deliveries 2011-2013



Floater Orders and Options since October 1, 2010

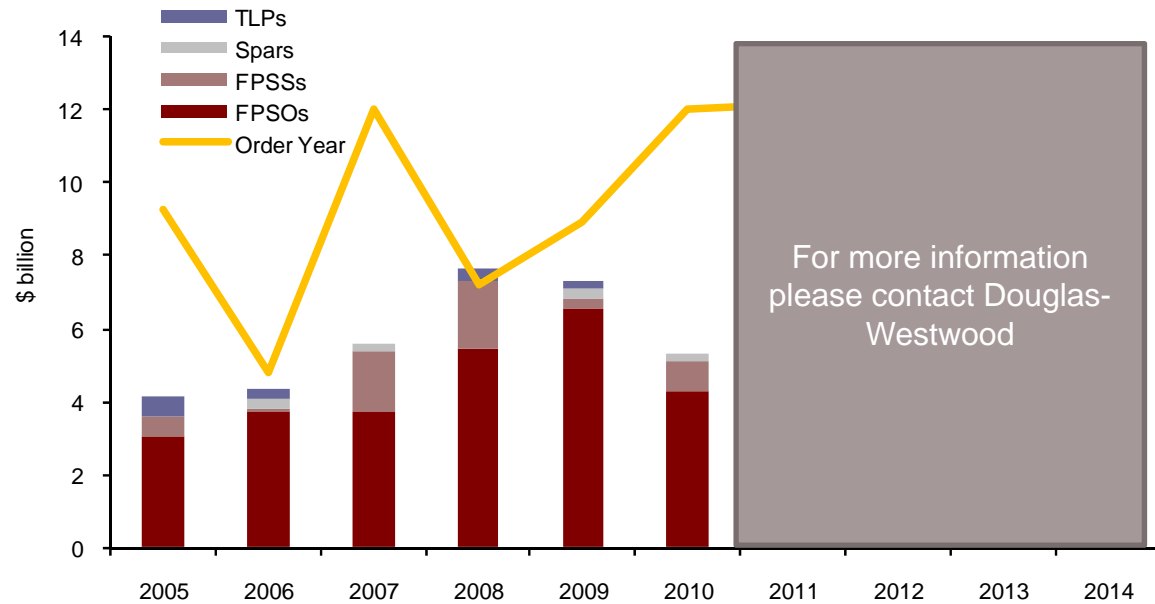
- 52 floaters to be delivered 2011-2013
- 24 have no contract
- Weakness in mid-water utilization and rates
- Modest strength in deepwater segment
- Healthy orderbook has not deterred new orders: +8 since early October
- Rig prices are favorable: \$550-\$600 million, down \$50-100 million



The Floating Production Sector: What happened in 2010?

Unit Name	Region	Operator	Deployment Type
For more information please contact Douglas-Westwood			

- 19 FPS orders placed in 2010, including 12 FPSOs
- Combined order value of \$6.9bn (FPSOs = \$6bn)
- Market is recovering....



Global Floating Production Expenditure 2005-2014
Source: Douglas-Westwood

- FPSOs account for 80% of forecast global FPS expenditure
- 87 FPSO deployments expected 2010-2014 – \$35 billion spend
- Long term >200 FPS opportunities tracked
- Global FPS market to be worth \$45 billion over 2010-2014 period



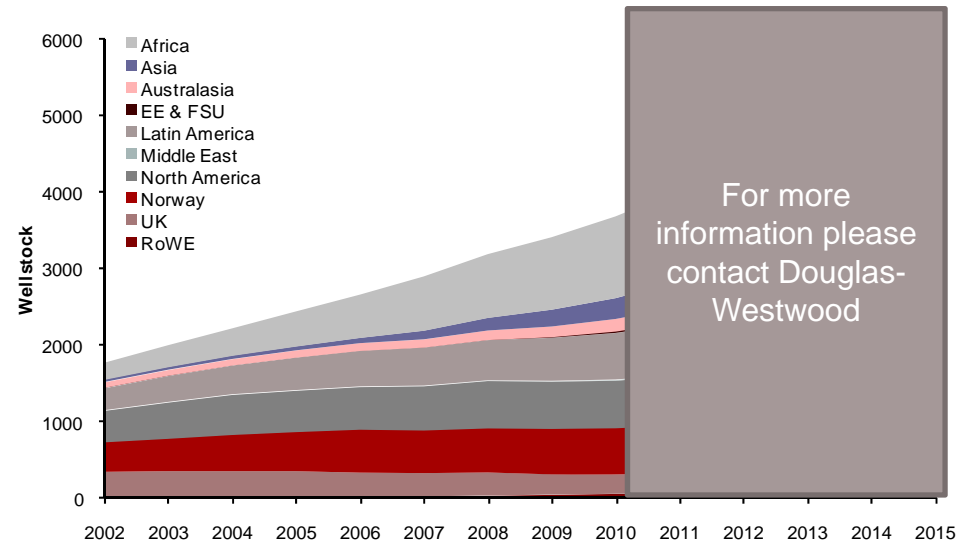
Image:Shell

For more information please
contact Douglas-Westwood

2012 2013 2014 2015 2016 2017

- Long talked about as a solution for stranded gas assets
- Liquefaction – finally becoming a reality? - \$20 bn spend forecast
- Shell Prelude project currently and design and engineering phase, more environmental requirements to be met
- Impex and Petrobras -- Australia, Indonesia, Timor, Brazil?
- Mentality is still utility-driven
- Capital costs and required natural gas price?
- Stranded fields or associated gas?

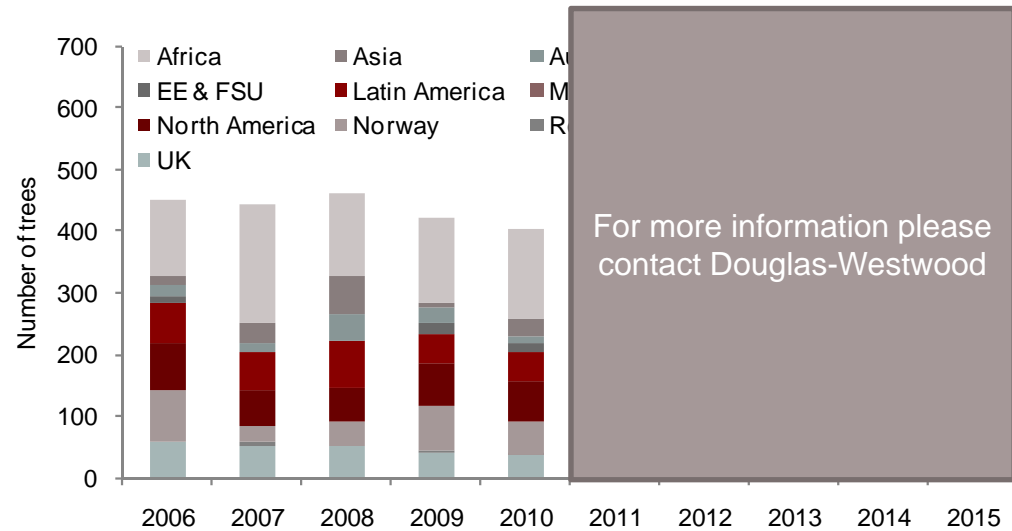
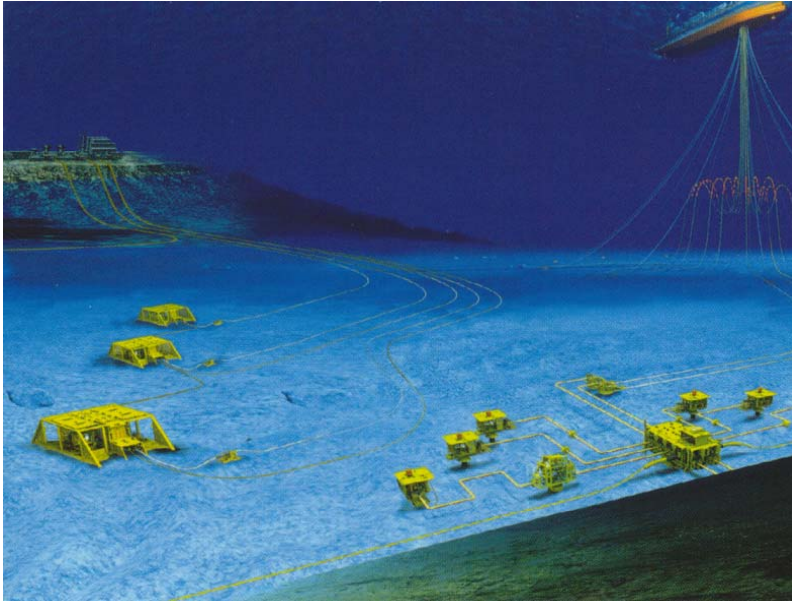
Subsea Completions and Wellstock Continue to Grow



Subsea Wellstock by Water Depth 2002 - 2014

Source: Datamonitor/ Douglas-Westwood

- In 2009 the subsea completed wellstock stood at approximately 3,400 wells.
- We anticipate 3-5x growth for deep and ultradeep segments by 2015 over 2002 levels
- Deepwater subsea completions primarily takes place in the deepwater golden triangle of West Africa, Gulf of Mexico and Latin America
- Large growth, in percentage terms, in Asia



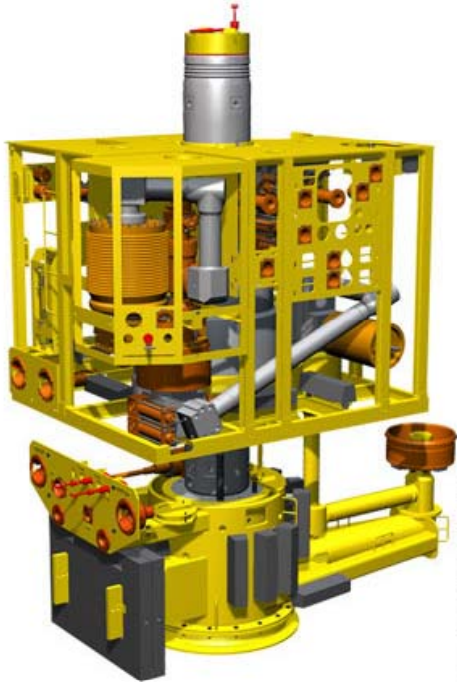
Subsea Tree Installations 2006-2015 by Region

Source: Douglas-Westwood

Subsea tree installations to increase from 2011 onwards:

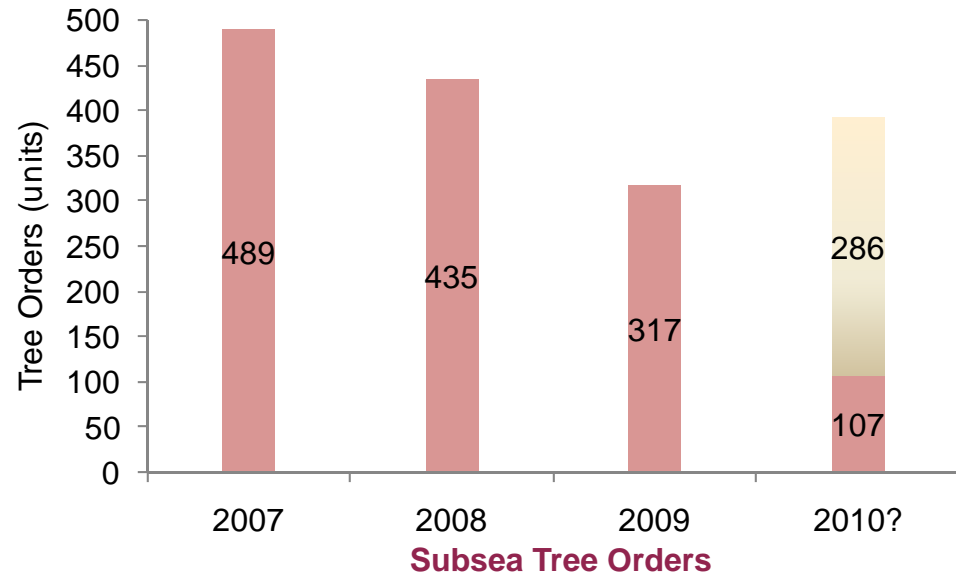
- The market remains strong despite a decline in activity during 2009-2010
- Installations forecast to pass 2008 levels by 2012
- Africa to remain the largest market for subsea trees in period up to 2015
- Brazilian market starting to ramp up installations from 2012

Subsea revenues have been buffered by backlog

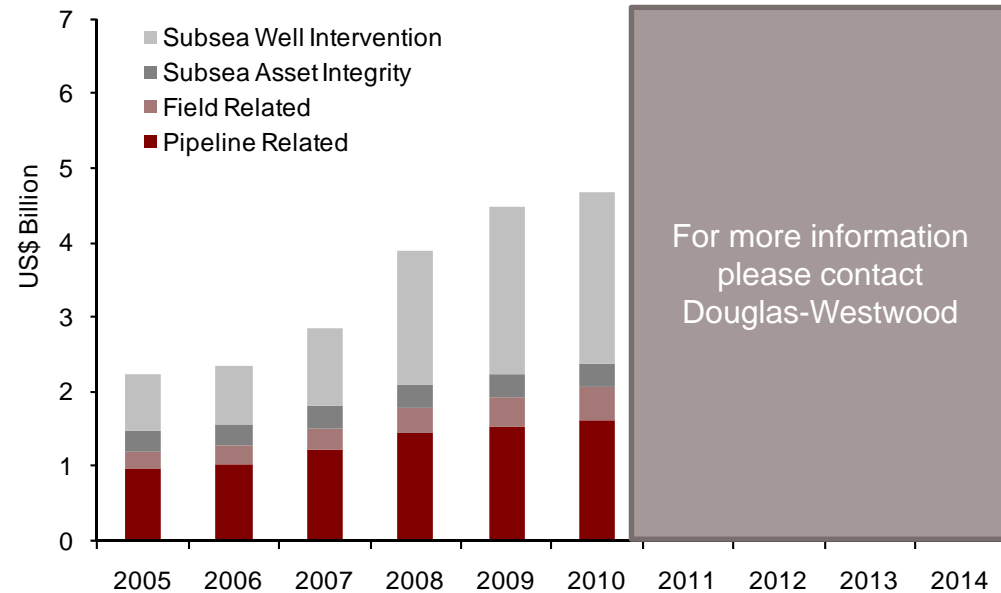
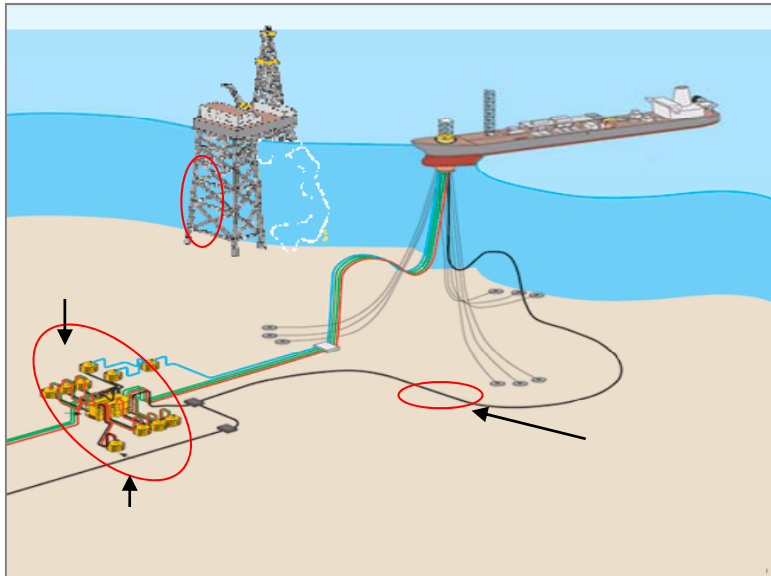


Source: FMC

- Tree orders are not the full measure
- 07-09 rising revenues from backlog
- FMC was market leader with 45-47% share over the period 2007- 2009



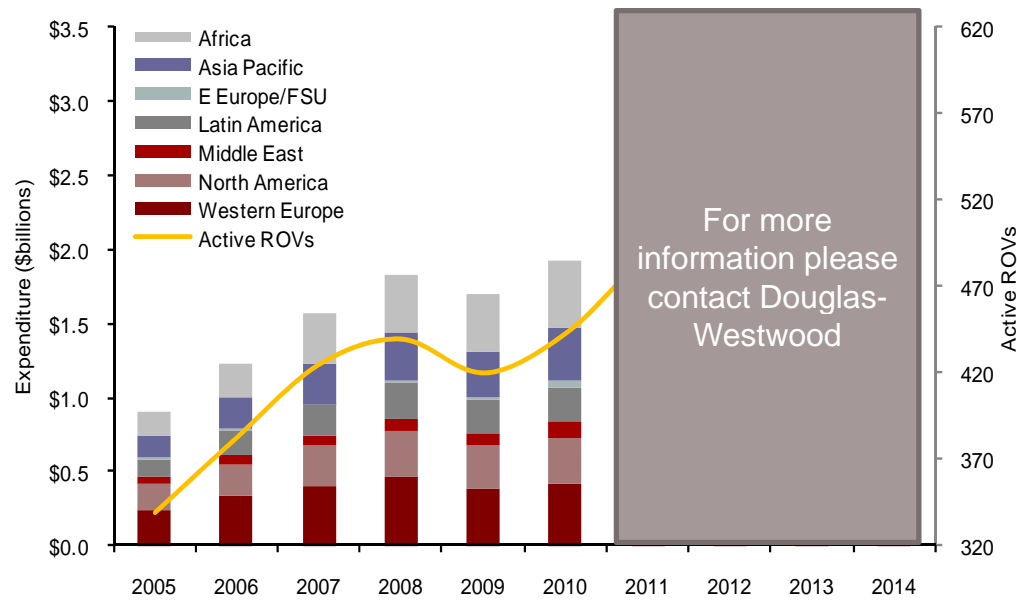
Source: Douglas-Westwood



IRM Spend by Activity 2005 - 2014

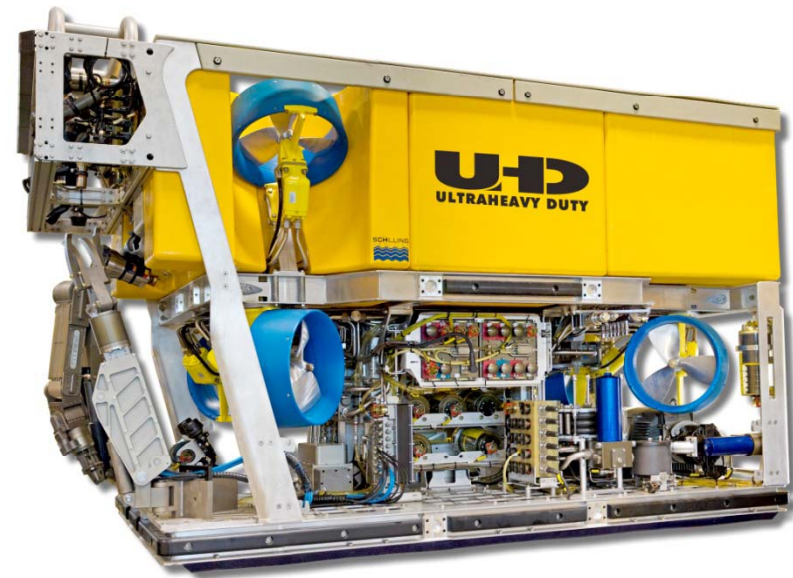
Source: Douglas-Westwood

- Market as a whole increases from \$4.5 bn in 2008 to \$7 bn in 2014
- 10% annual growth
- Driven by subsea well intervention
- Africa takes lead over from Gulf of Mexico and North Sea by 2014



The World Work Class ROV Operations Market 2005-2014 (Oil & Gas)

Source: "The World ROV Report 2010-2014" – Douglas-Westwood



Source: Schilling ROV

- 550 new work class ROV's to 2014
- Market reaching to \$3.2 billion by 2014



Hugin 1000 MR AUV
Courtesy: Kongsberg Marine

- Self-guided under water survey and inspection vessels
- From 1 to 5 meters long
- Priced from \$150,000 to \$7 million
- Very hot topic recently—military contractors looking for commercial applications
- Greater acceptance for not only deep, but shallow water, oil and gas survey
- But a small market...

- Arctic Circle: 6% of Earth's surface or 8.2 million sq. miles + north and east Canada + Greenland
- Today, over 400 fields discovered with approx. 240 BBOE
- Further 412 billion Boe yet undiscovered (USGS), technically recoverable resources for Arctic, comprising
 - 90 bn barrels of oil
 - 1,669 tcf of natural gas
 - 44 bn barrels of NGL
 - Approx 84% offshore
- 22% of global o&g reserves?
- But, USGS recently reduced Alaska oil resources by 90%



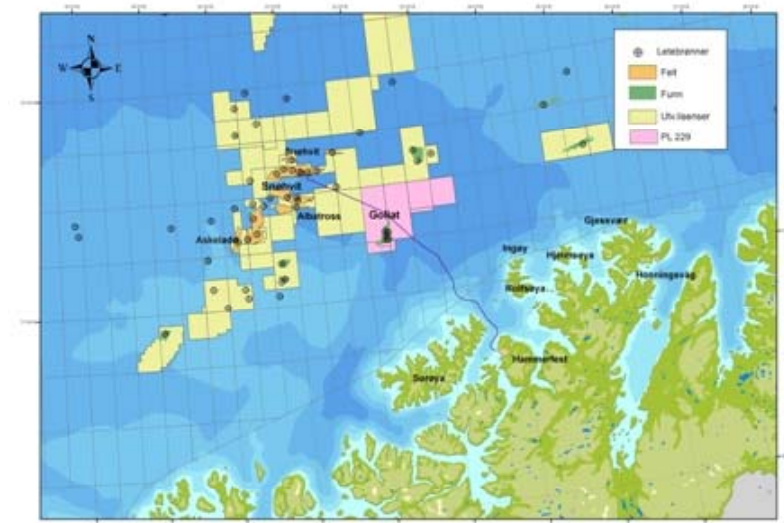
Credit : Hugo Ahlenius, UNEP/GRID-Arendal

- Norway - Goliat
 - Predominantly oil
 - Extended shutdown, now back on line

- Cairn
 - Two drilling rigs off coast of Greenland
 - Modestly promising results to date

- Hebron – ExxonMobil
 - East Canada
 - Fourth Newfoundland field
 - 400 – 700 m barrels, 92 meters
 - First oil 2017

- Shell
 - Chukchi and Beaufort seas
 - Air permits pulled
 - One year delay
 - Macondo will cast a long shadow



Goliat

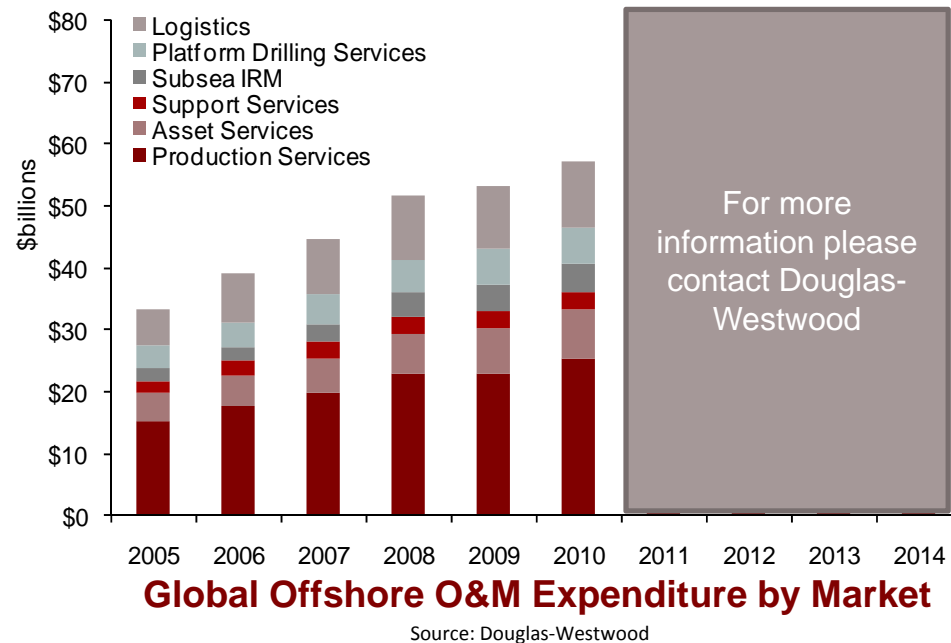
Source: Eni Norge



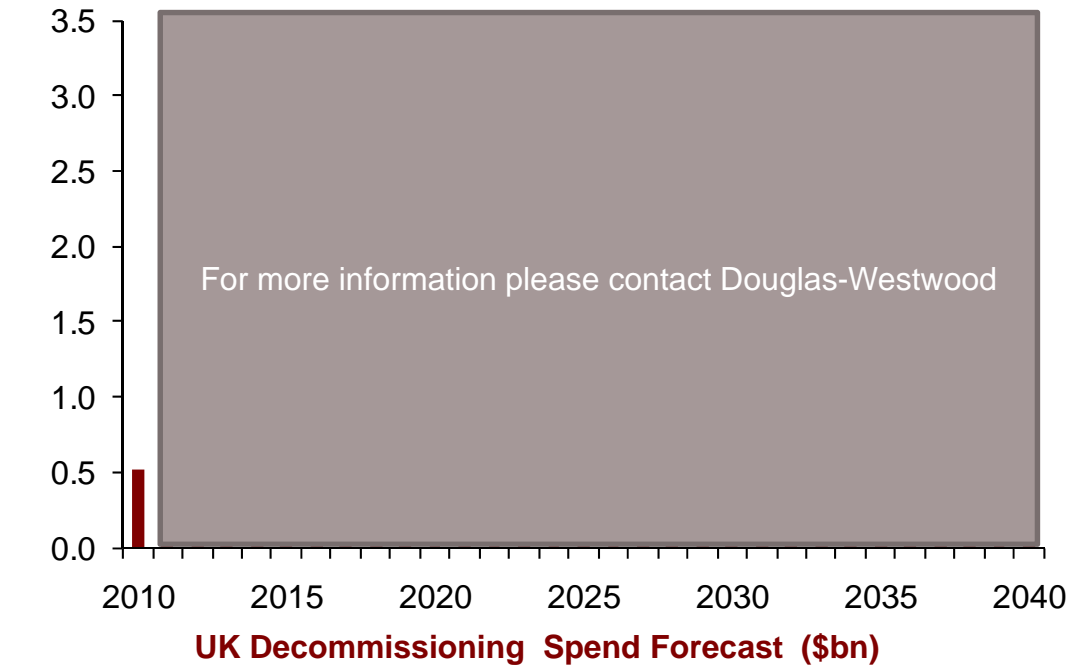
Sevan 1000

Source: Sevan

- >7,000 fixed platforms, >200 floating
- 185,000 km subsea pipelines
- 3,600 subsea wells operating
- 690 offshore drilling rigs
- Increasing costs and energy intensity per barrel
- Demand for major modification work increasing
- N. Sea decommissioning
- GoM P&A



- Offshore O&M - \$62 billion spend in 2010 and growing rapidly.
- Over \$330 billion worth of expenditure expected over the next five years.



Source: UK Offshore Decommissioning Report 2010-2040. Douglas-Westwood

- UK – 260 platforms, 2.4 million t. steel, 5,000 wells
- Total spend to exceed \$30 billion
- Super heavy lift vessels could reduce the platform decom. cost by \$2-3 billion
- Wider impact as timing coincides with N Sea offshore wind build
- GOM –3,500 disused wells to be plugged and 650 old platforms removed



- Macondo blowout: April 20, 2010
- Moratorium: nominally lifted in October
- But no new permits issued; industry remains at a standstill
- Result: GoM production down 13% from 2011, not up 6% as earlier expected— equals 220 kbpd difference
- Govt to expedite 13 companies, including Chevron and Shell, to resume work on a 16 projects that were already under way when the moratorium took effect.
- The 16 projects must still comply with new safety rules
- Safety rules are yet to be clarified
- Resume GoM activity H2 2011 – 2012?
- Oil prices will put administration under pressure

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The image features three oil pumpjacks in silhouette against a sunset sky. The sky is a mix of orange, yellow, and blue, with some clouds. The pumpjacks are arranged from left to right, with the first one being the largest and most prominent. The second and third are smaller and further back. The overall scene is dark, with the pumpjacks appearing as black shapes against the bright, colorful sky.

Macro Factors Offshore Oil & Gas Conclusions

- US and EU economies seems to be on firmer footing—enhanced appetite for oil
- Global economic growth continues strong—China firmly on path to motorization
- Oil supply outlook remains restrained
- Will OPEC answer the call for its nominal spare capacity?
- Oil prices are high—above our expectations—but few visible drivers to push them down materially in 2011
- OFS pricing competition should remain pronounced in 2011
- Spare capacity in offshore sector: rigs, equipment, services
- High oil prices and restrained cost pressures should encourage operators to bring projects forward—activity levels should pick up
- Market players appear to be anticipating the next cycle—gap in rig orders and building may not be as pronounced as earlier expected.
- Administration will be under pressure to re-open the Gulf.

A good year for the offshore business.

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Thank you.

