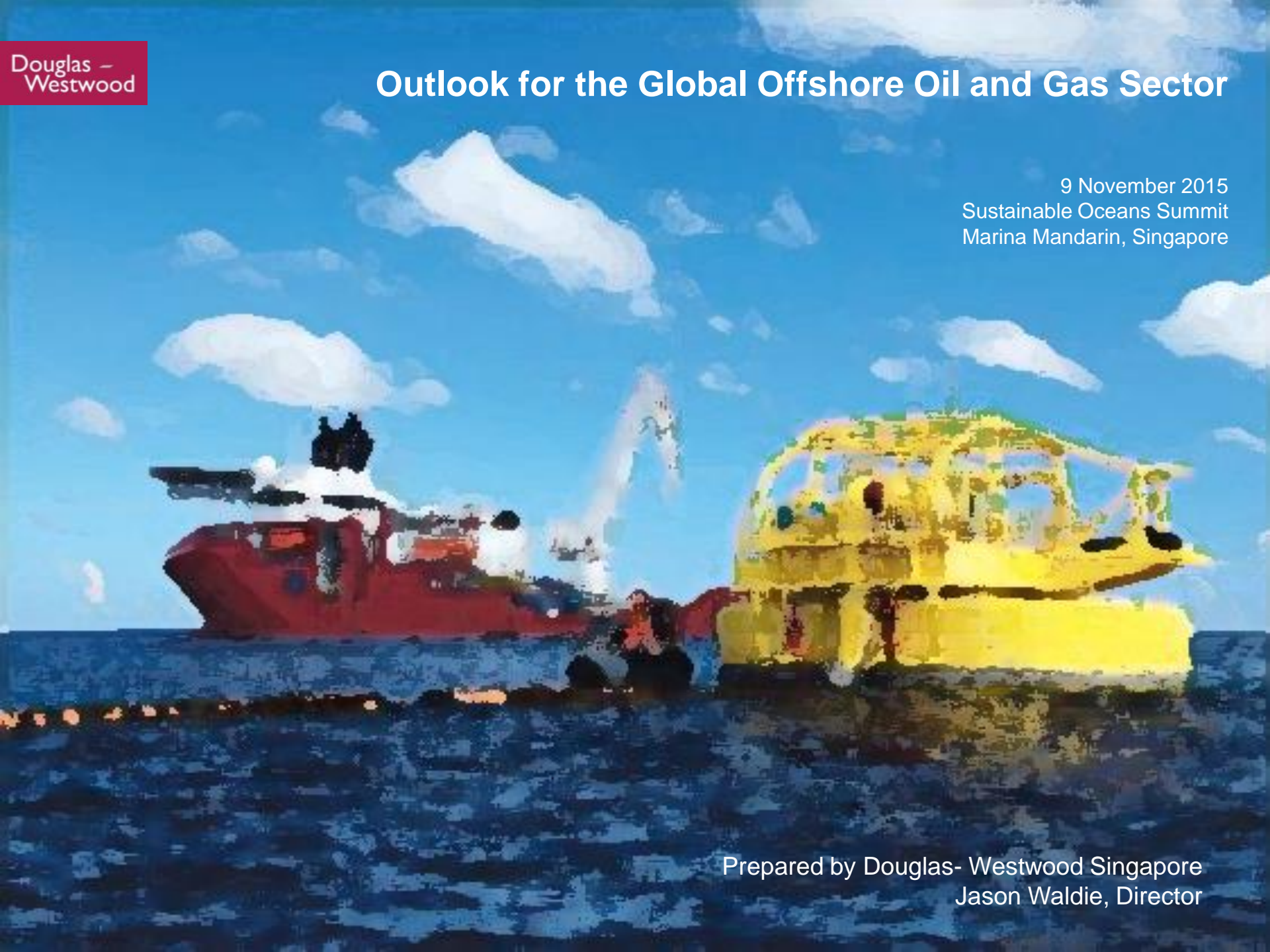


Outlook for the Global Offshore Oil and Gas Sector

9 November 2015
Sustainable Oceans Summit
Marina Mandarin, Singapore



Prepared by Douglas- Westwood Singapore
Jason Waldie, Director

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

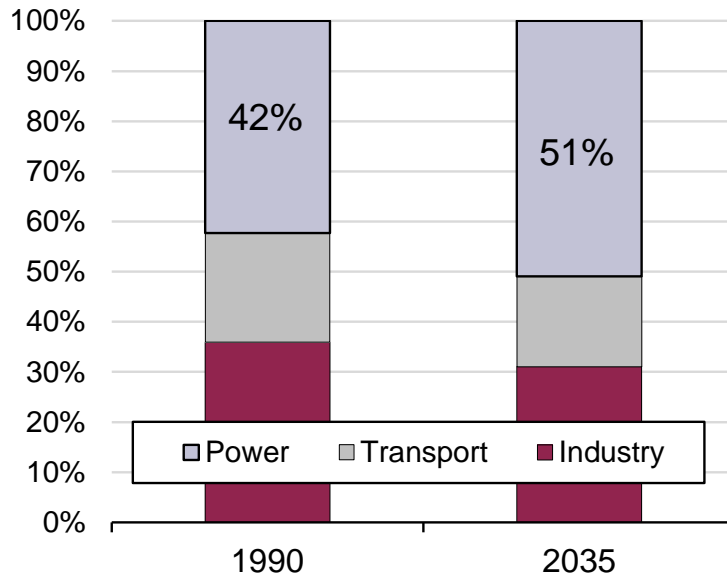
Large, Diversified Client Base

>1,020 projects, >450 clients
>72 countries, >230 sectors

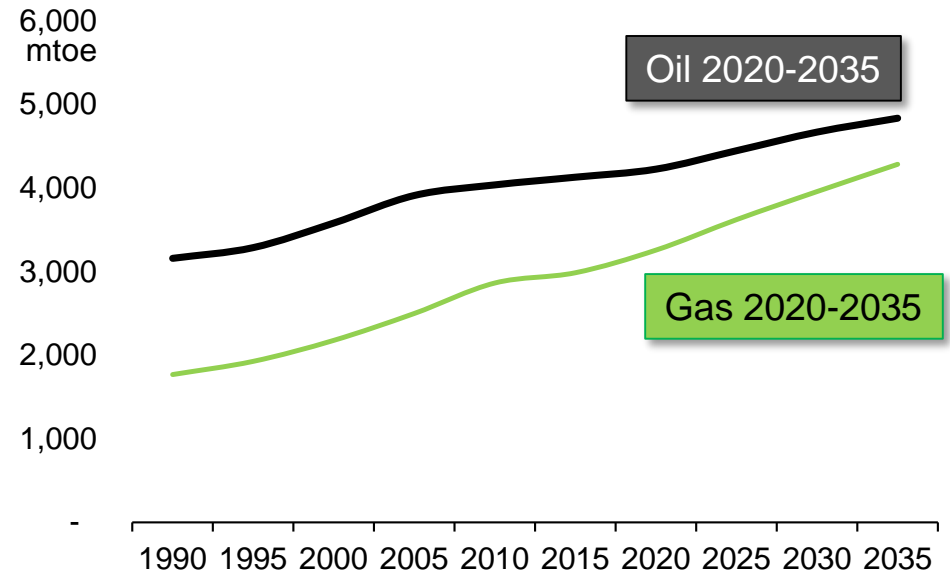
- Clients include the top-10:
 - Oil & Gas Companies
 - Oilfield Services
 - Investment Banks
 - Private Equity firms
- Government Agencies



Global Energy Demand Outlook Growing Importance of Gas



Global Energy Demand by Sector

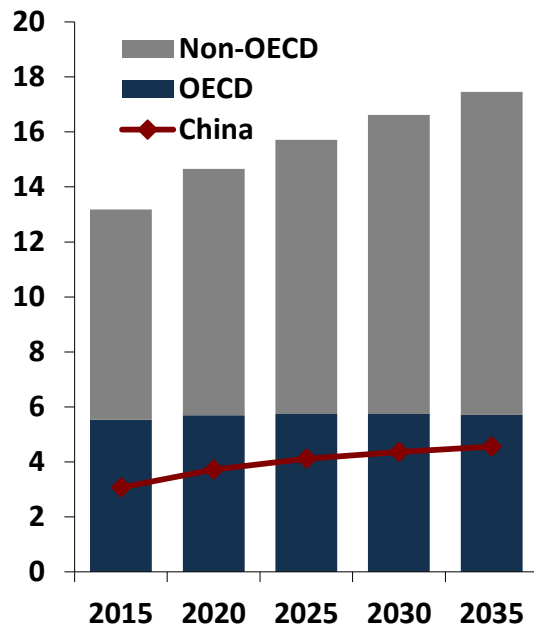


Global Energy Demand by Fuel

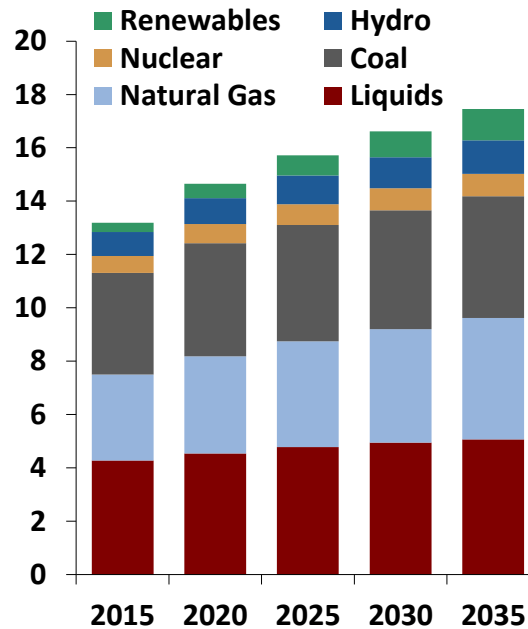
- The combination of increased energy efficiency throughout OECD states and growing economies in Asia is driving demand for power generation at the expense of transportation.
- Natural gas is becoming an increasingly popular fuel for power generation offering a relatively safe (compared to nuclear); 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

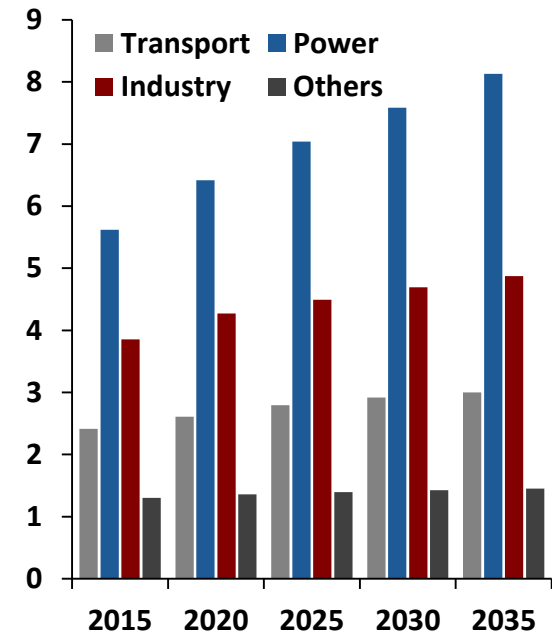
OECD / Non-OECD (Btoe)



Demand by fuel (Btoe)



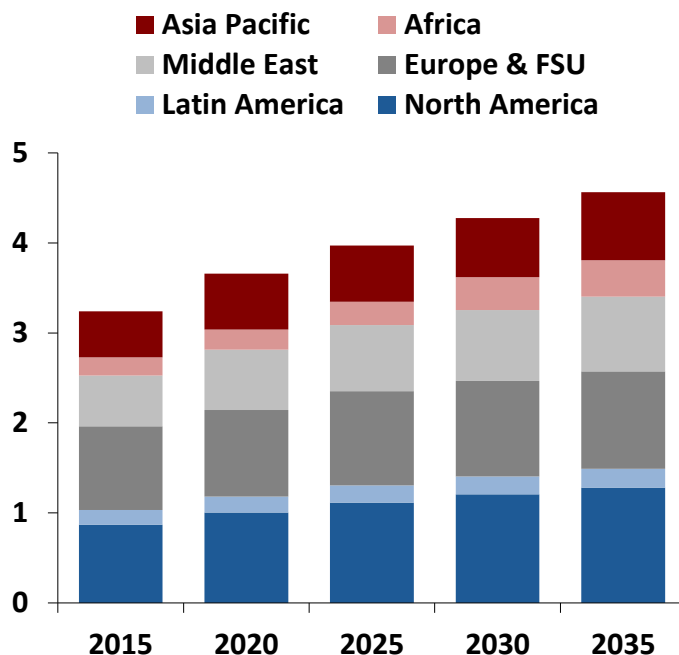
Demand by sector (Btoe)



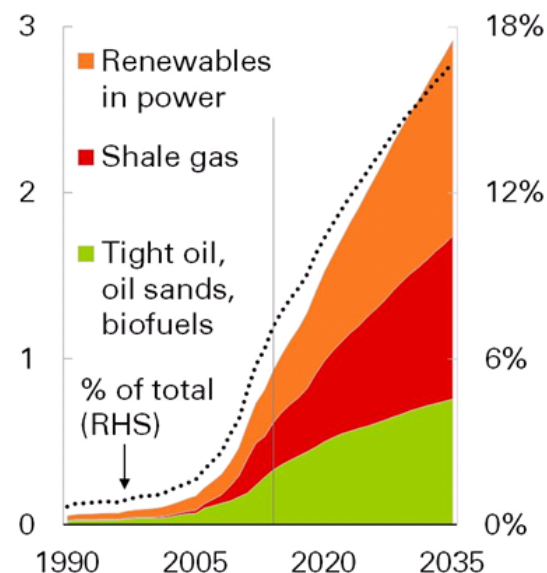
- +30% growth by 2035. From 86% to 81% use of fossil fuels. Liquids at 110 Mboe/d.
- Driven by Asian economies, power generation and industry.
- China + India = 60% of GDP growth, 50% of primary energy growth
- Natgas +40%, Oil +20%, Coal +20%, Nuclear +40%, Hydro +40%, Ren +240%

A more gaseous world

Natural Gas production (Btoe)



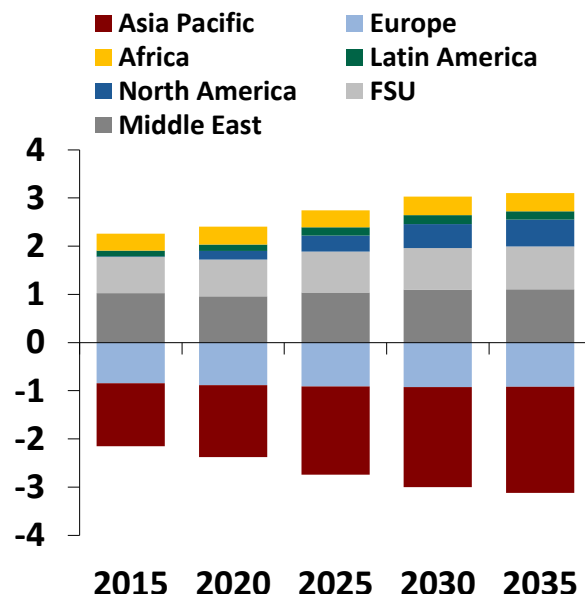
New energy supply (Btoe)



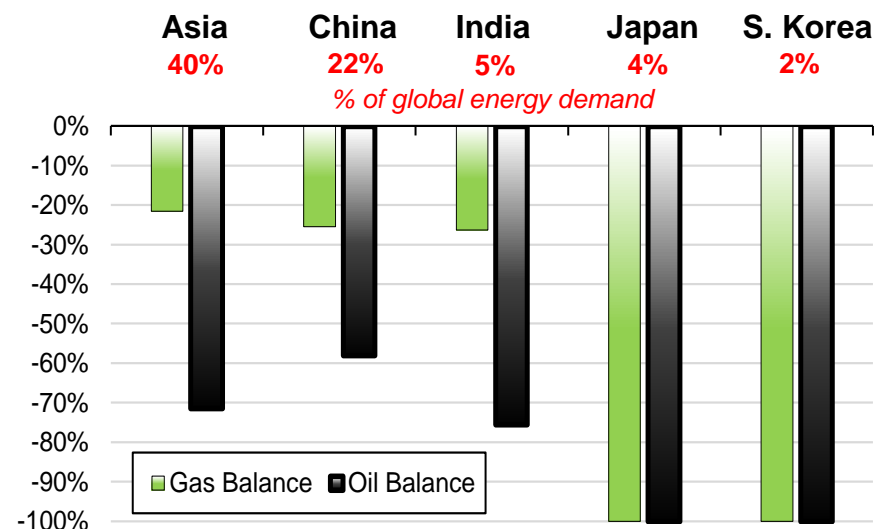
- Unconventionals (shale gas, tight oil) and renewables account for 50% of energy growth.
- Global gas production boosted by US shale revolution, unlikely to be exported.
 - 2035, USA: 60% tight oil and 30% shale gas exploited.
 - 2035, elsewhere: 5% tight oil and 5% shale gas exploited.
- More diverse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

Shifting Energy Trades

Net Primary Energy Balances (Btoe)



Asian Oil and Gas Import Dependency



- 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%.

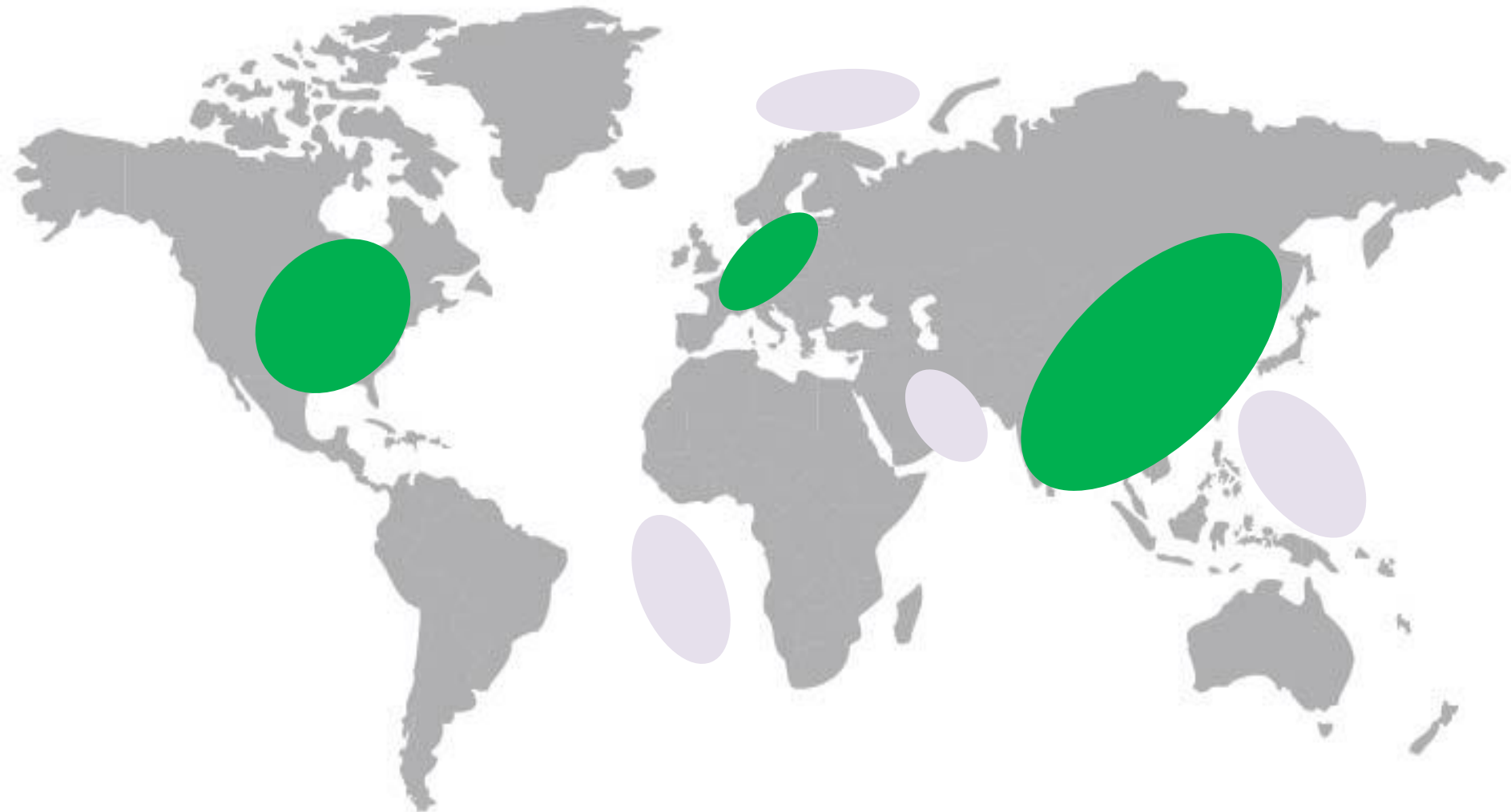
Exploration Drilling and Production Wildcards



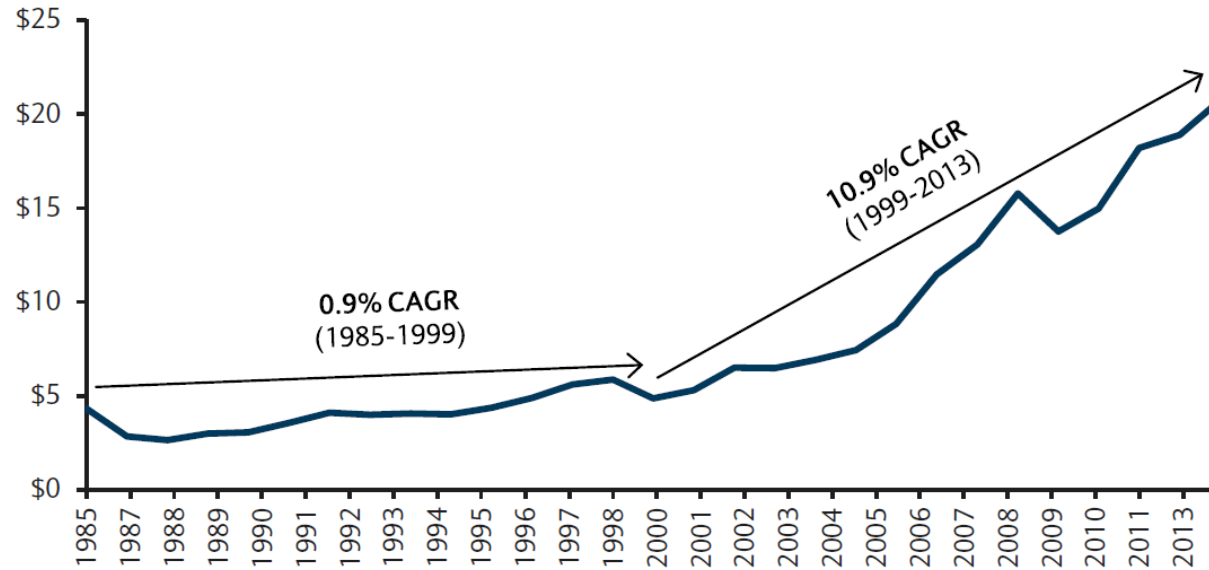
Supply Side



Demand Side



Rising Costs Are Also Not Sustainable



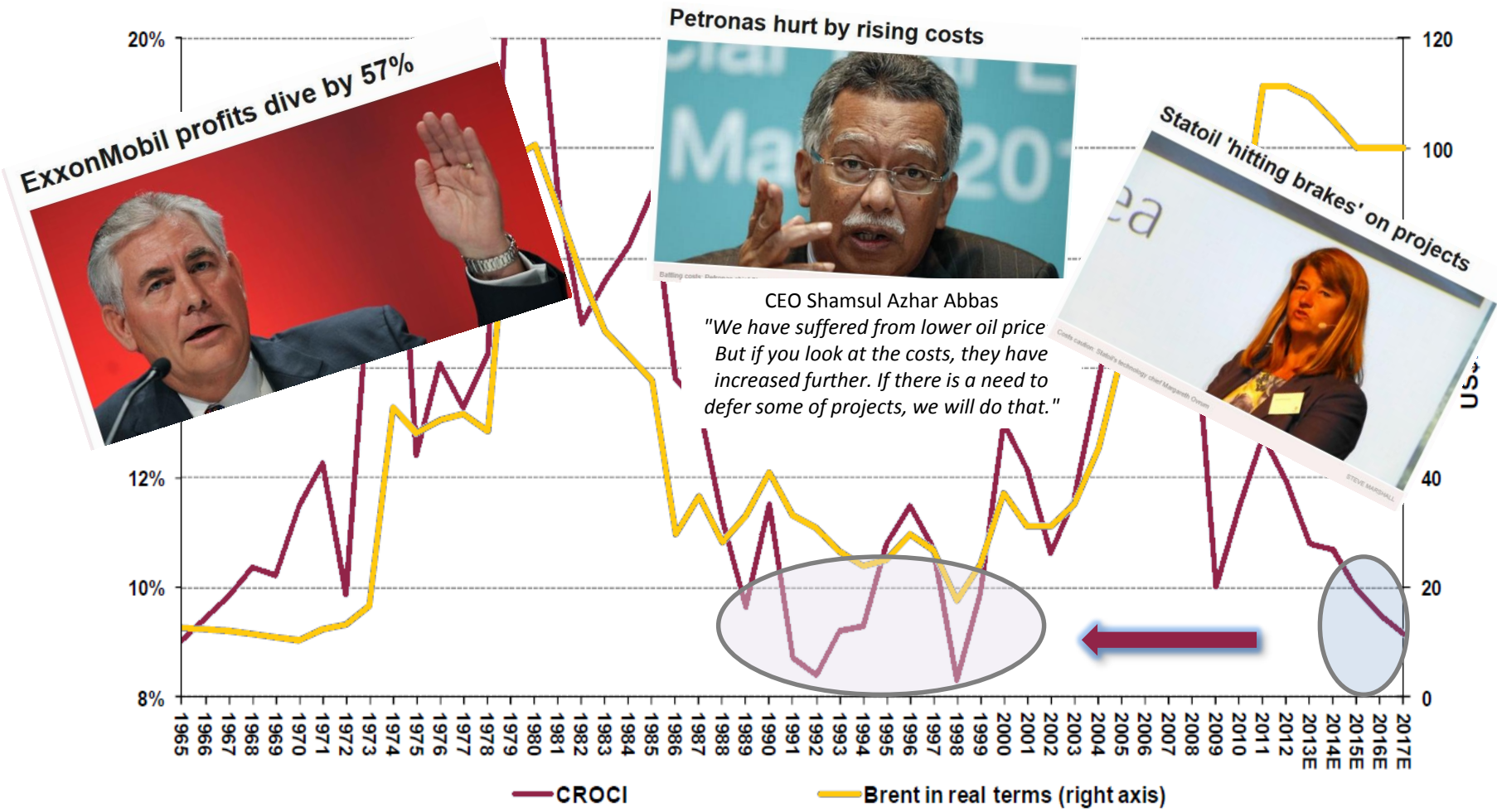
Source: IEA, Barclays Research

E&P Capex per Barrel

- Cyclicity = 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.

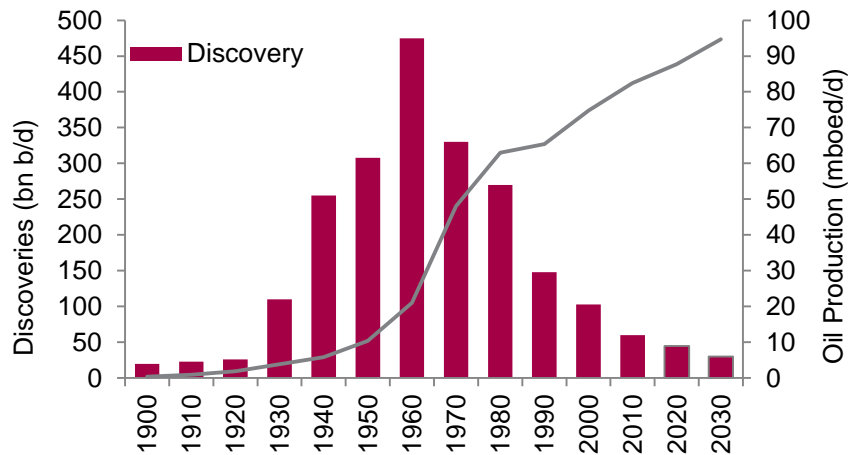
Oil Majors in Trouble a Year Ago at \$100/bbl!

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

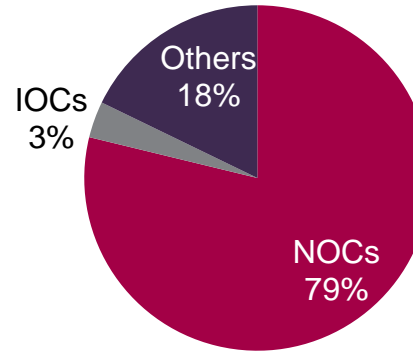


Cash Return On Cash Invested (CROCI) of The Global Supermajors vs. Real Oil Price

Oil Majors – End of Business as Usual?



Oil Discoveries & Production
Source: BP Energy Outlook 2035



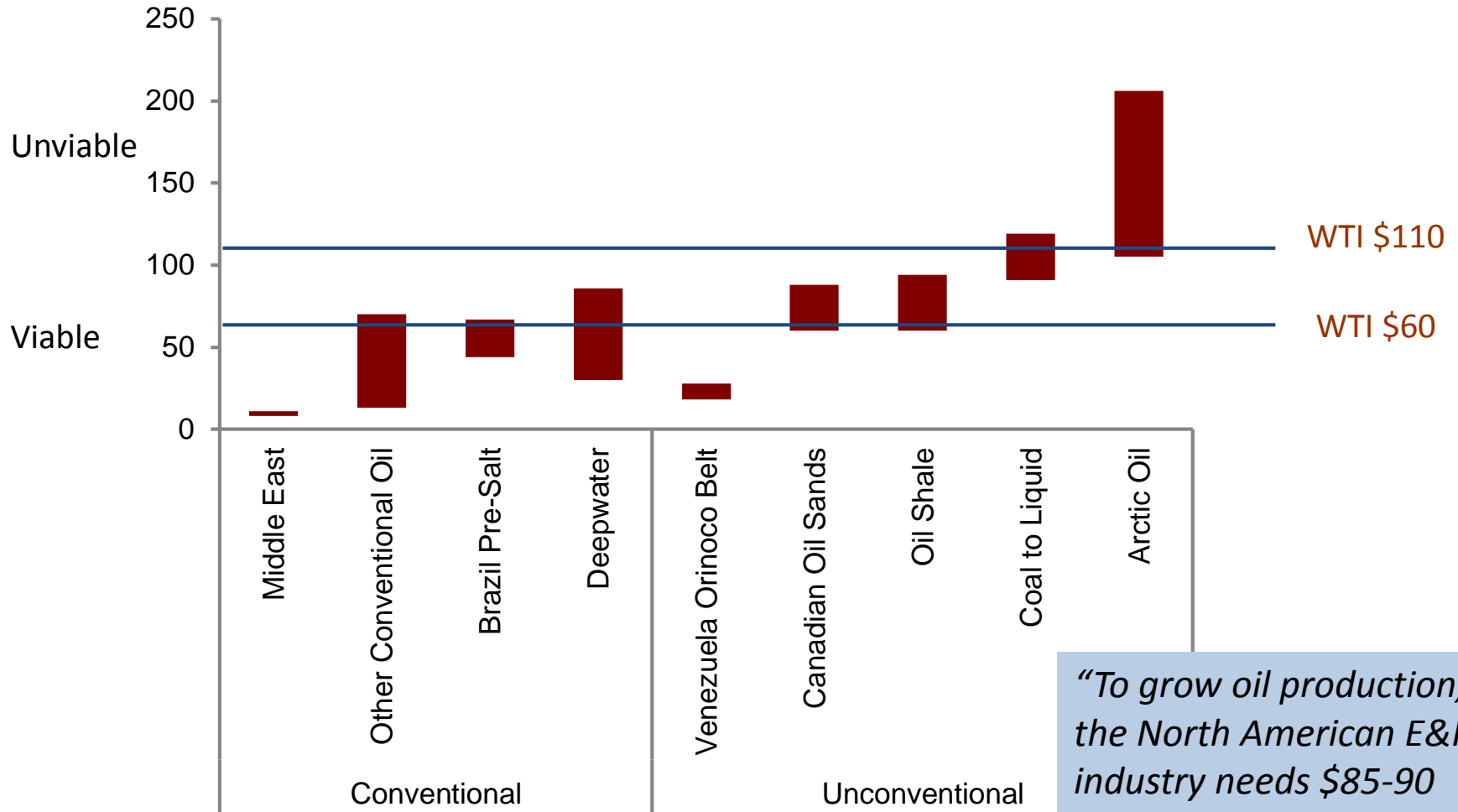
Control of Oil Reserves
Source: ENI Review 2014

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

Production (000 b/d)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	
Royal Dutch Shell	2,359	2,379	2,253	2,093	2,030	1,899	1,771	1,680	1,709	1,666	1,633	1,541	-35%
Statoil	1,112	1,132	1,135	1,102	1,058	1,070	1,055	1,067	967	945	966	964	-15%
Total	1,589	1,661	1,695	1,621	1,506	1,509	1,456	1,381	1,340	1,226	1,220	1,167	-30%
Eni	921	981	1,034	1,111	1,079	1,020	1,026	1,007	997	845	882	833	-18%
BP	2,018	2,121	2,531	2,562	2,475	2,414	2,401	2,535	2,374	2,157	2,056	2,013	-5%
ConocoPhillips	701	953	924	926	1,489	1,433	1,371	1,429	1,268	866	871	867	-10%
Exxon Mobil	2,496	2,516	2,571	2,523	2,681	2,616	2,405	2,387	2,422	2,312	2,185	2,202	-12%
Chevron	1,897	1,823	1,737	1,701	1,759	1,783	1,676	1,872	1,923	1,849	1,764	1,731	-5%
Petrobras	1,533	1,701	1,661	1,847	1,920	1,918	1,975	2,112	2,150	2,167	2,119	2,040	+20%
Petrochina	2,109	2,119	2,265	2,270	2,276	2,299	2,380	2,311	2,350	2,428	2,504	2,556	+21%

Majors' Oil Production
Source: Douglas-Westwood & Company Reports

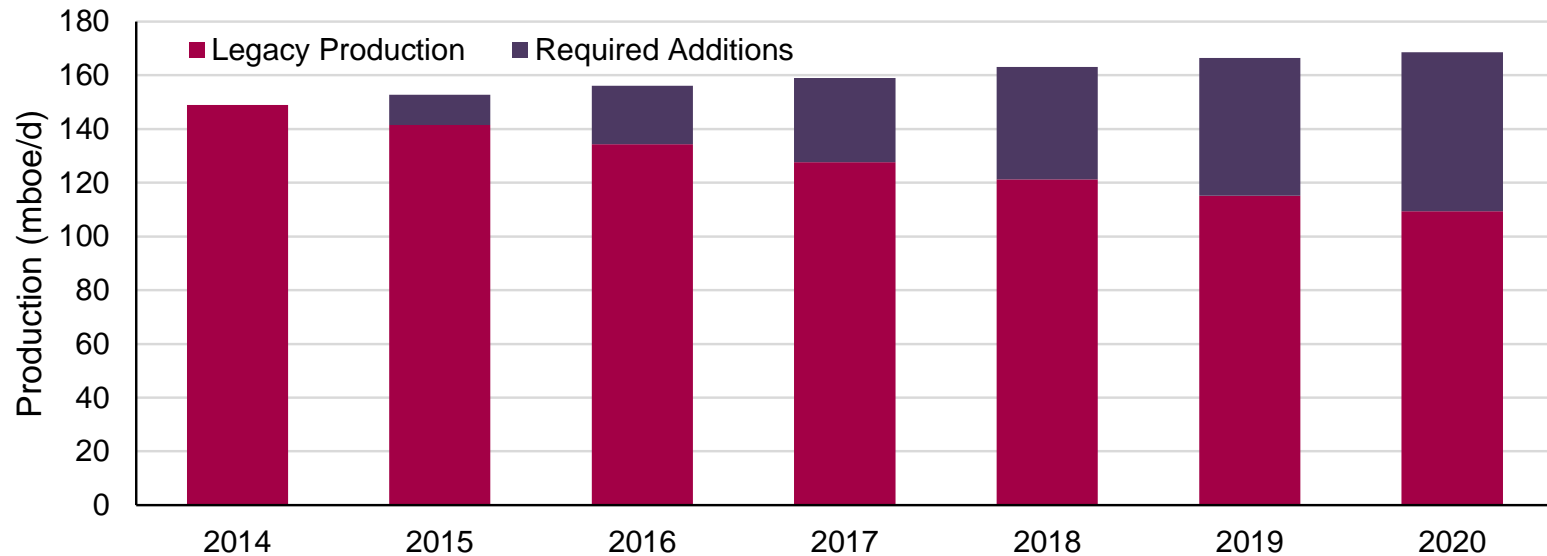
Viability of oil developments (\$/bbl)



"To grow oil production, the North American E&P industry needs \$85-90 WTI" Simmons & Co,

Sources: Douglas-Westwood

Production Decline Will Erode Excess Capacity

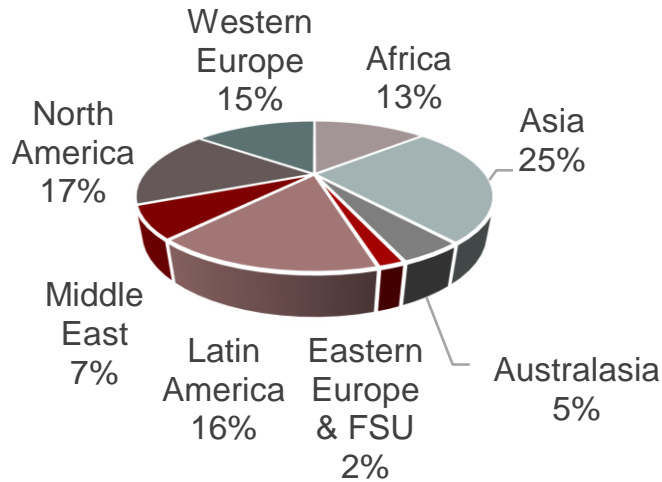


Production Outlook – Existing Wells and Required Additions

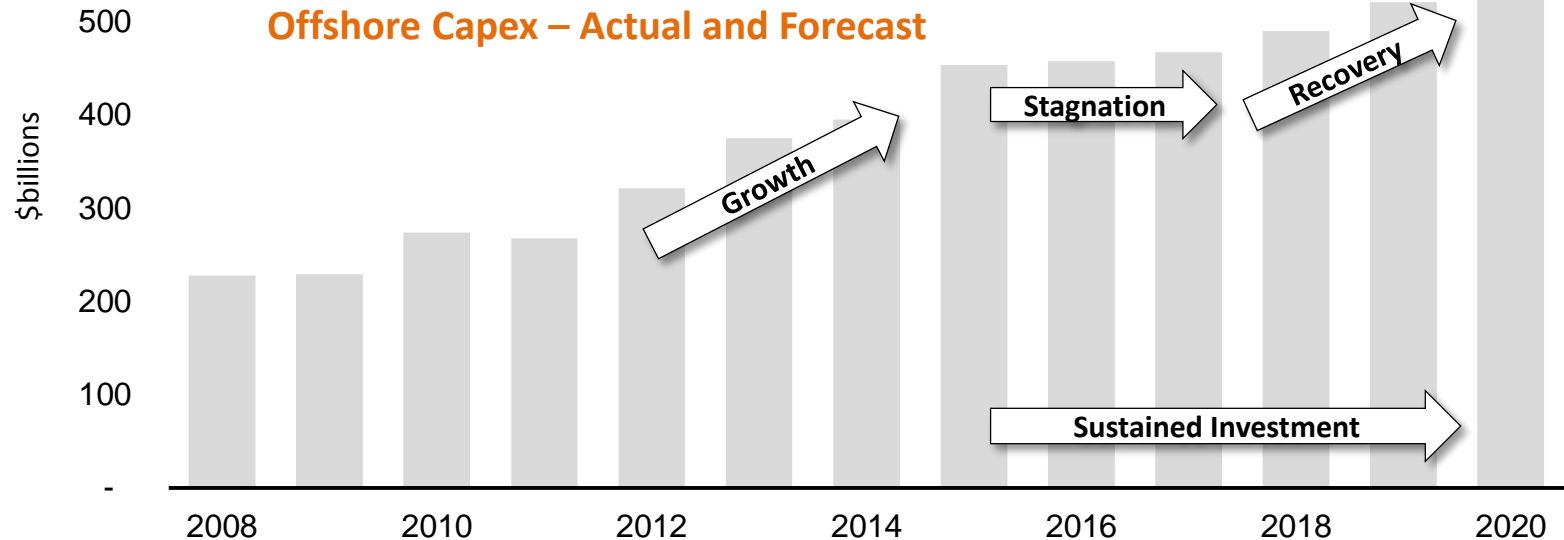
- Low oil price, spiralling E&P costs, softening demand → activity slowdown
- Natural production decline rates (with well maintenance) average around 5% p.a.
- Unconventional wells decline much faster: 40-50% p.a. (Haynesville, Bakken)
- Important in the context of declining US activity with low oil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

Where is the industry heading?

2015-20 Spend by Region

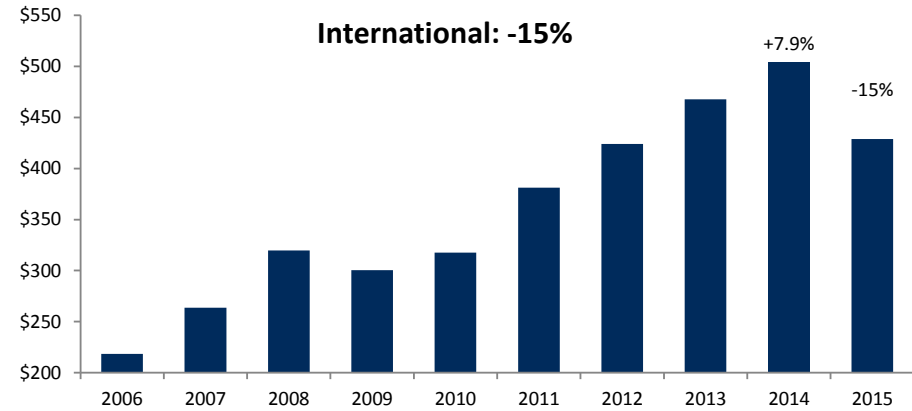
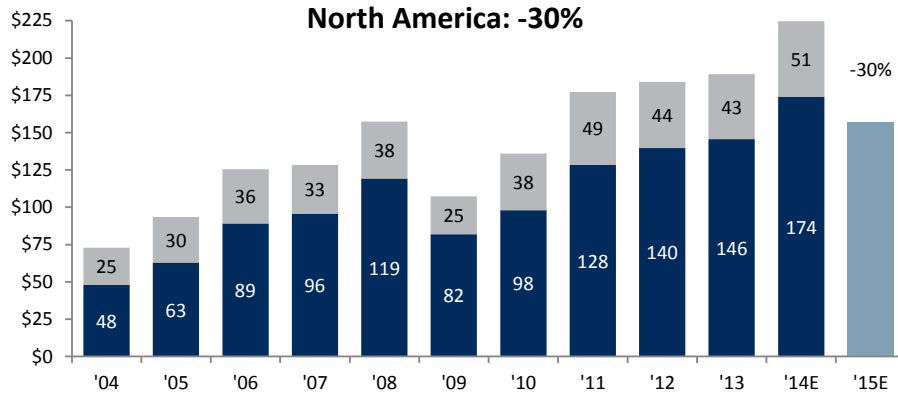


- Many offshore projects are long term and rarely cancelled post-FID.
- Momentum following several years of high oil prices 2011-mid 2014 will carry the industry through a flat period of spend to 2017.
- Recovery 2018 onwards.



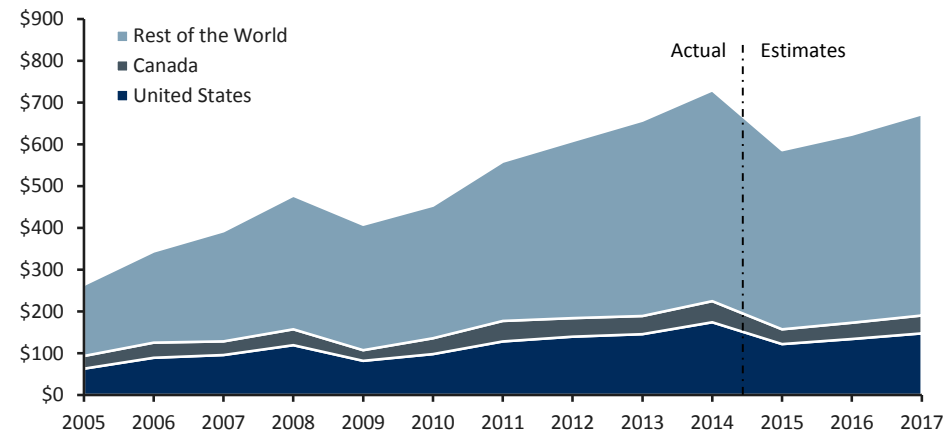
Where is the industry heading?

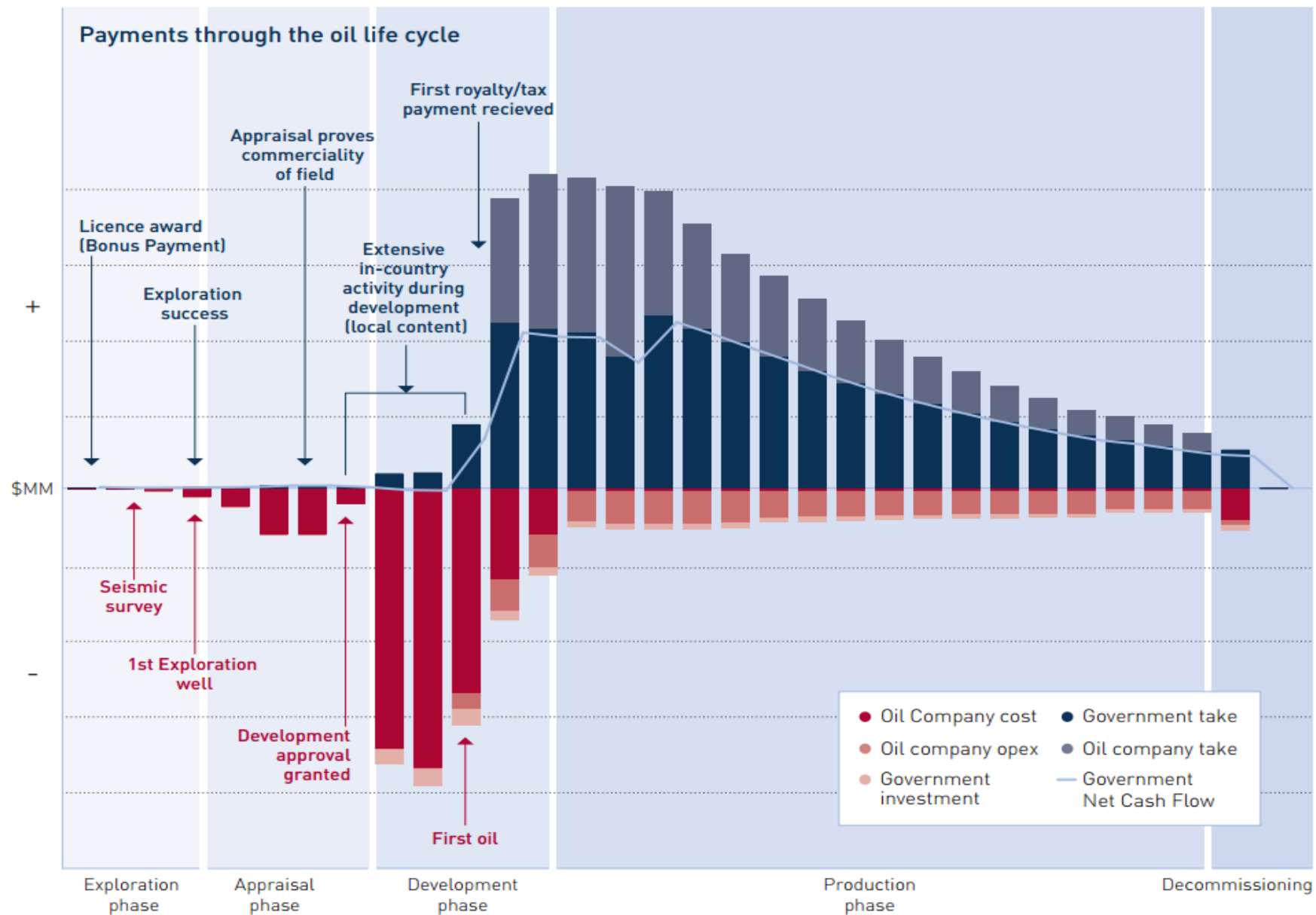
Exploration & Production Spending – Actual and Forecast

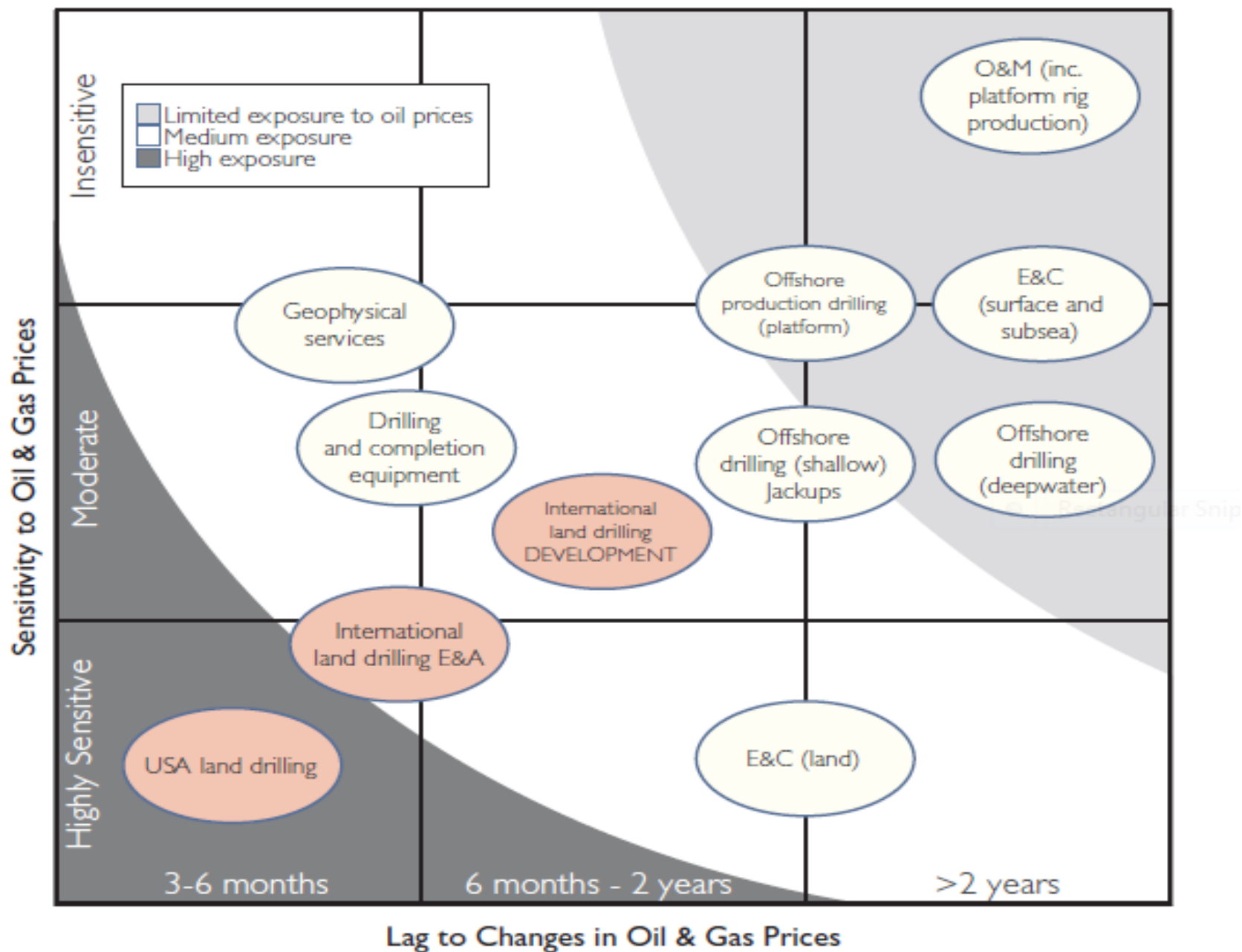


- Evercore view - revised downward:
- “Sharp recession in the oilfield”
- “Middle East the only Bright Spot”
- “Disappearance of new offshore rig orders”
- “Rapid fall in US activity and bottoming of rig count in Q3 or Q4”
- “Recovery in 2016”

Recovery: Circa 7% p.a. 2016 & 2017





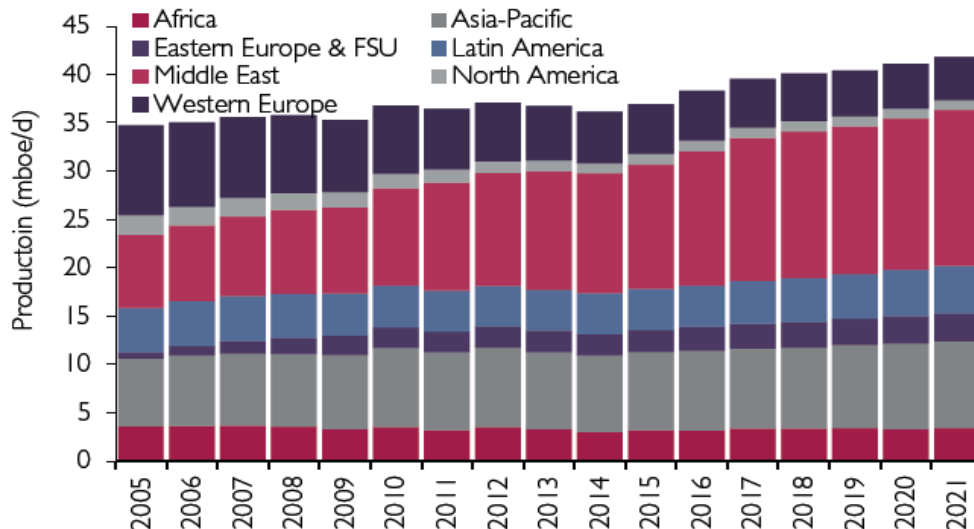


Offshore & Deepwater Supply Growth

Shallow water production (Mboe/d)

Shallow:

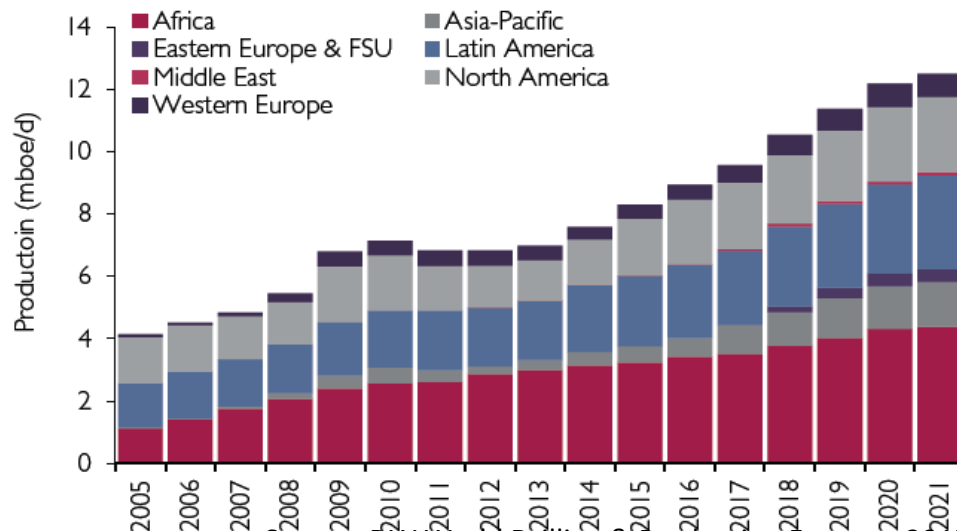
- Shallow water production is set to grow 13% over the forecast period due to success in the gas drilling side of the market. This is despite a mature oil market that requires significant investment to stop production rapidly declining, particularly in the North Sea and US Gulf of Mexico



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.

Deepwater production (Mboe/d)



Source: DW World Drilling & Production Forecast 2015-2021

North Sea Decommissioning Market Outlook- Projects

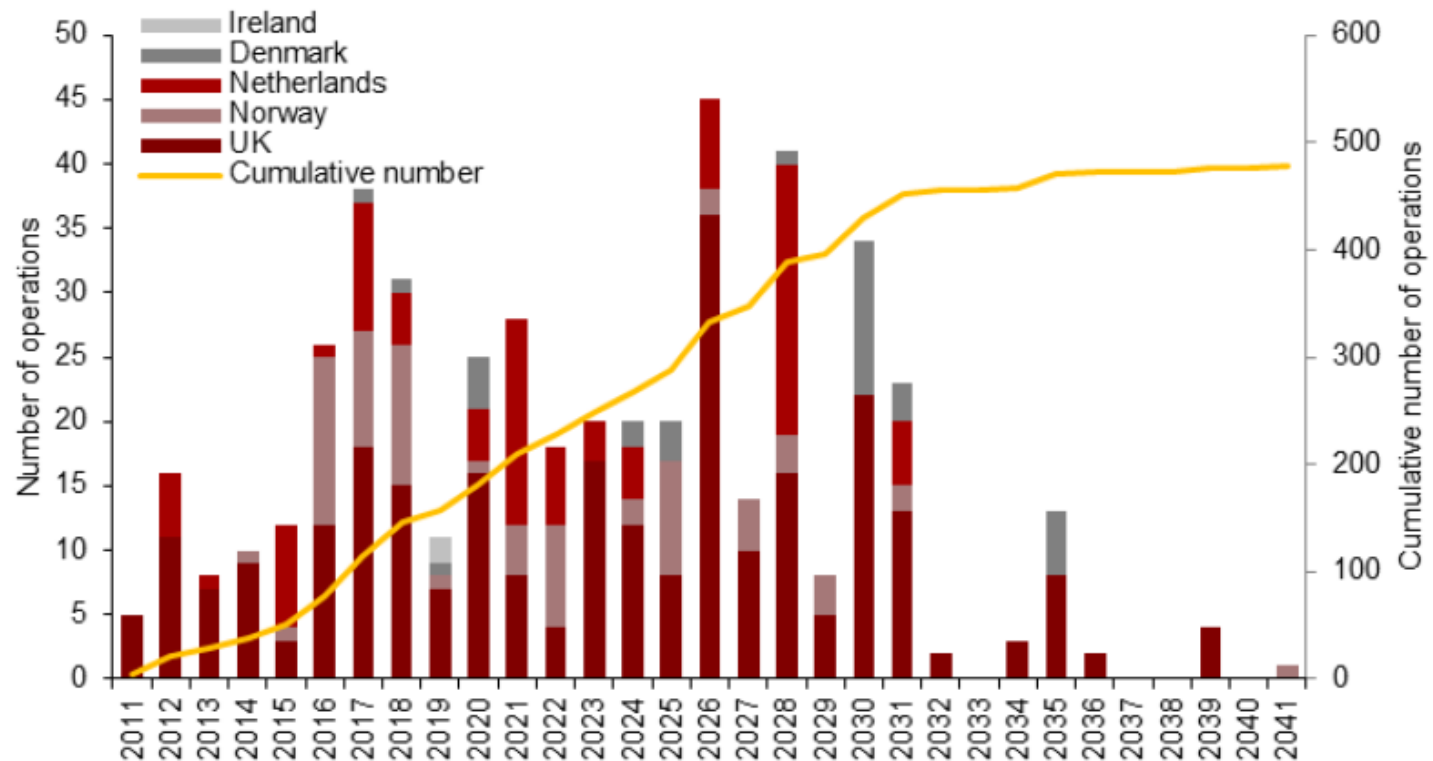


Figure 6: Number of Projects to be Abandoned per Year



Thank you

www.douglaswestwood.com

See me for a copy of this
presentation

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