



Global Farmout Review and Outlook

Mike Lakin

28th February 2017



ENVOI
delivering energy opportunities

Specialist A&D Services to the International Upstream Oil & Gas Industry



Contents

● Historical deal flow

- Data sources
- Location
- Success
- Risk
- Value

● What does this tell us - some examples

- Exploration success vs failures

● Influences (industry changes)

- Commodity price
- Technology
- Politics
- Global economics
- People

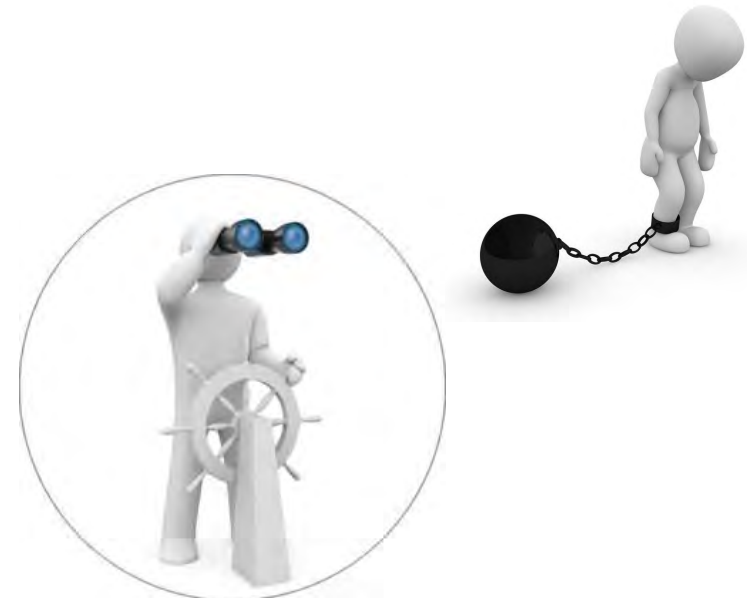
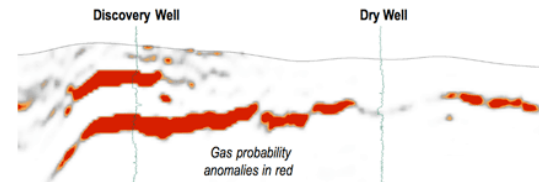
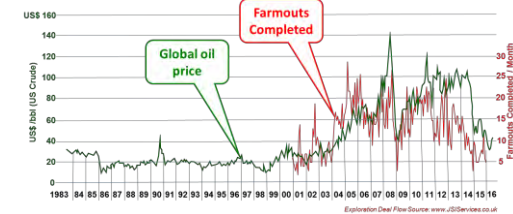
● Future opportunity

- Where next?
- Why

● Conclusions / Comment

- Current status & hope for the future

Global Deal Flow





African Deal Data

- Combined Envoi & 3rd party sources
- Thanks particularly to JSI Services

JSI Services Limited

- **GUD (Global Upstream Deals) Database**

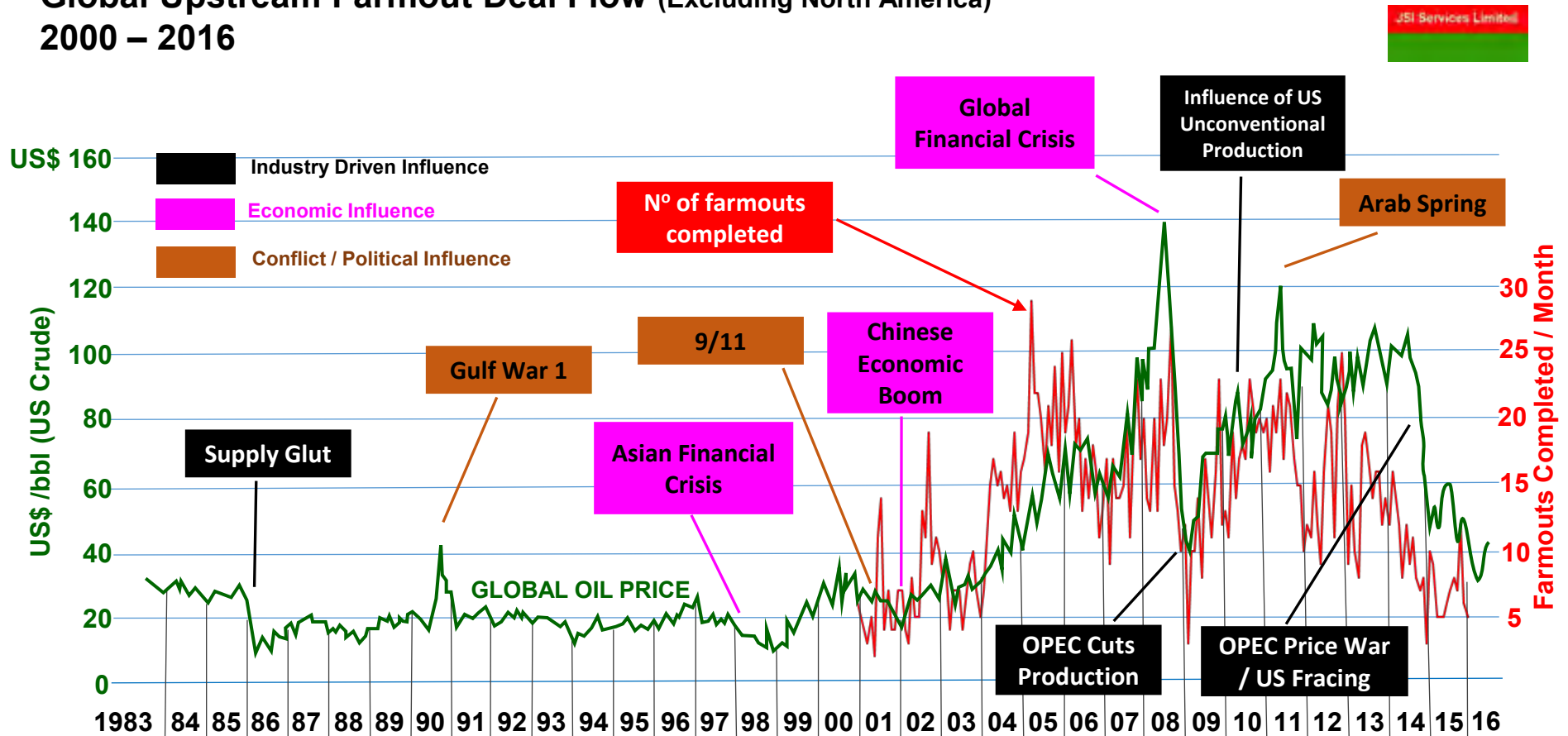
- Established 2000
- Independently reviewed a total 5,600+ E&P (mostly Exploration Famouts ~ excluding North America)
- Largely based on publically available data
- Est ~ 75% of all active deals ultimately confirmed as available
- Tracks private deals subsequently announced (incl. production & development deals)





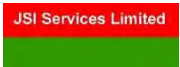
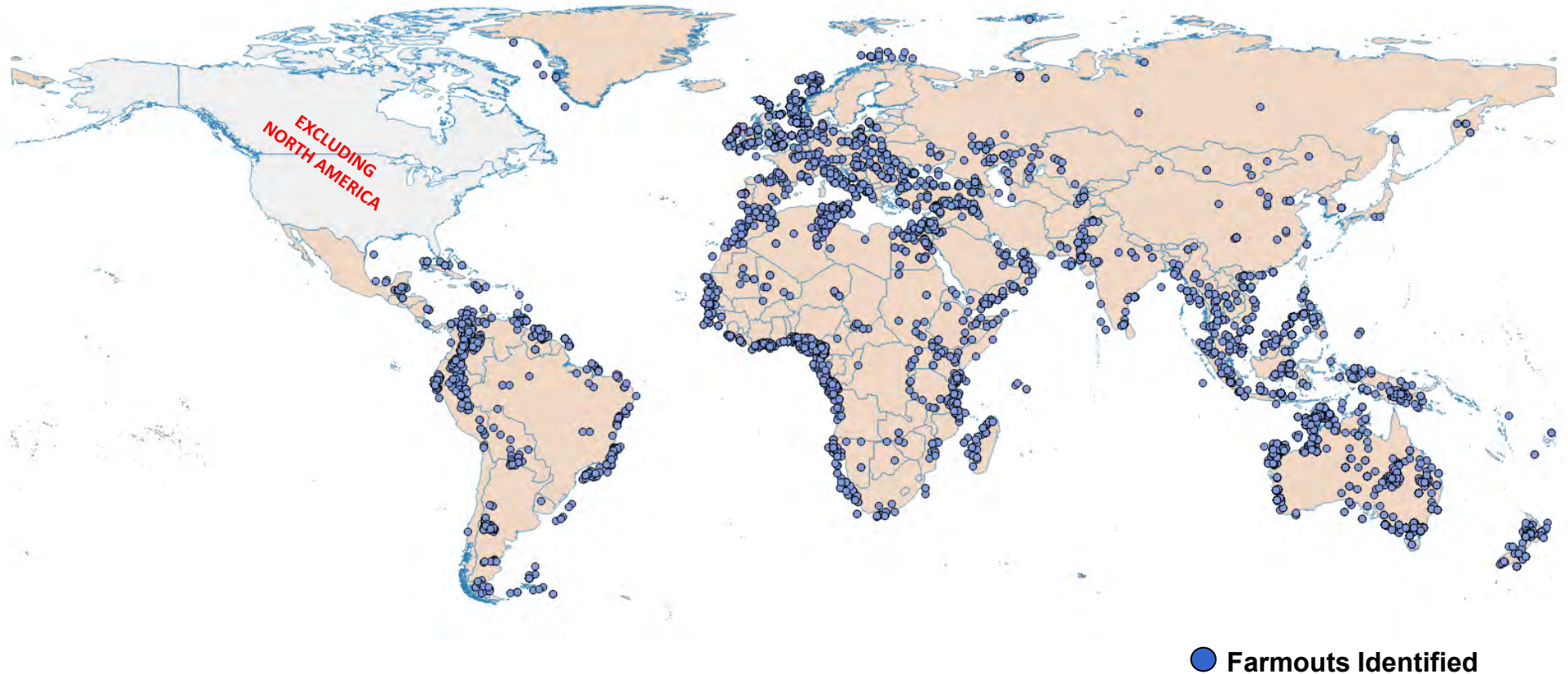
Global Deal Flow

Historical Events Vs
Global Upstream Farmout Deal Flow (Excluding North America)
2000 – 2016





Global Deals 2000-2016



Over 5,600 deals identified worldwide, excluding the USA and Canada

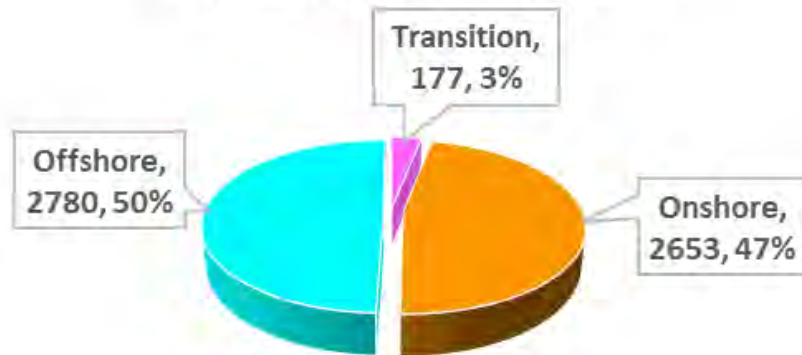
Source: JSI GUD Database



Global Deal Statistics

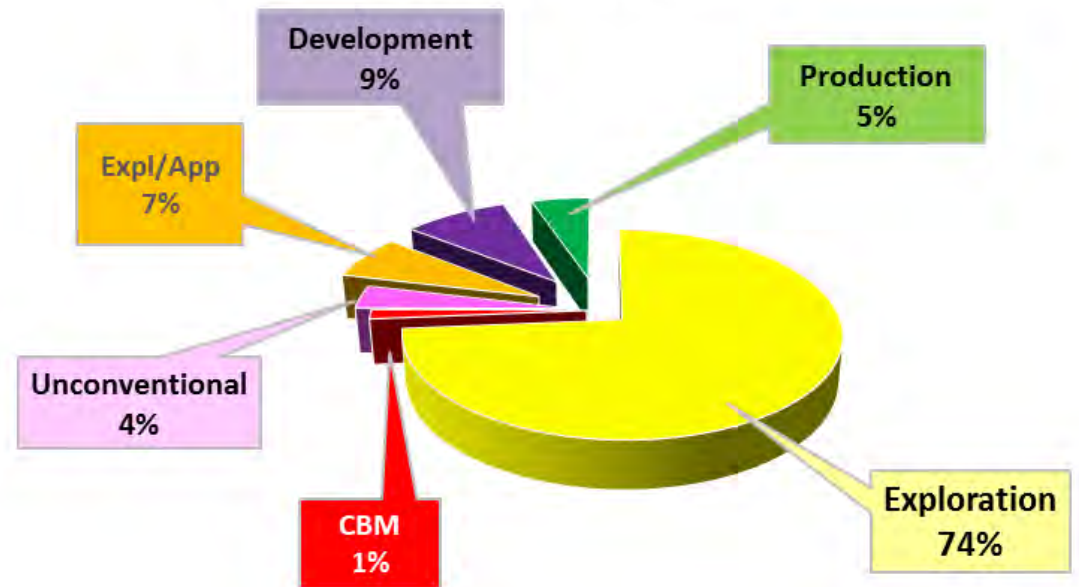
Splits

Global FO
Onshore Vs Offshore



50/50
Onshore/Offshore

Global FO by
Opportunity Type



Predominantly Exploration

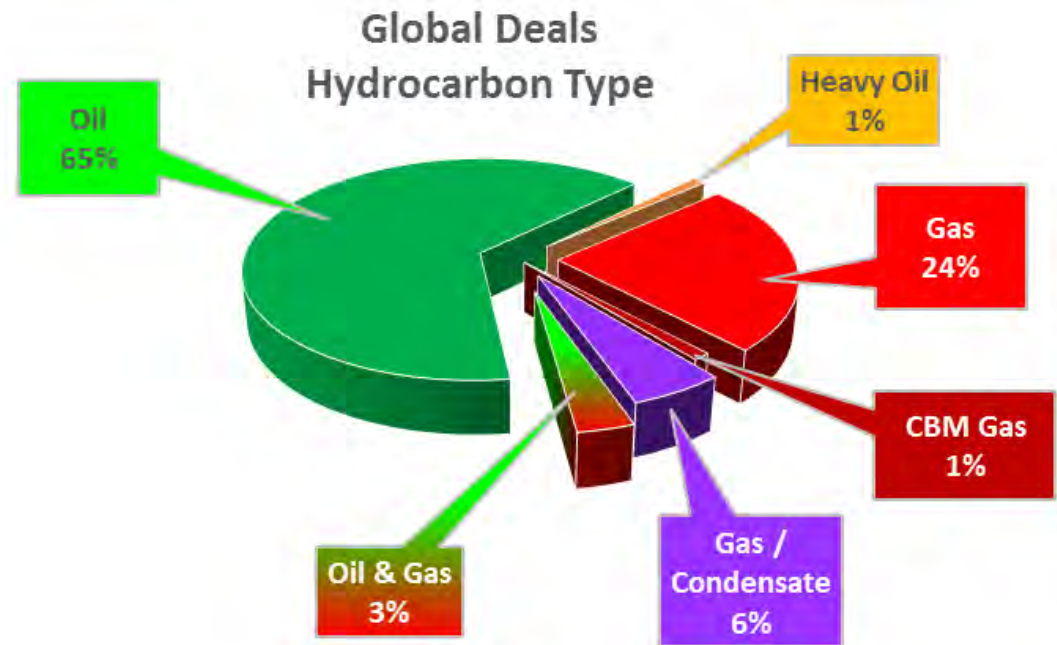


Global Deal Statistics

Splits



Deals mostly require drilling



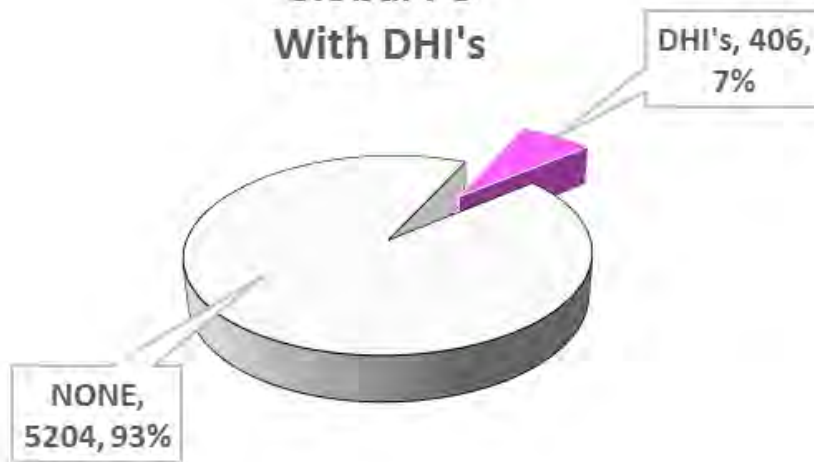
Primary Oil Focus



Global Deal Statistics

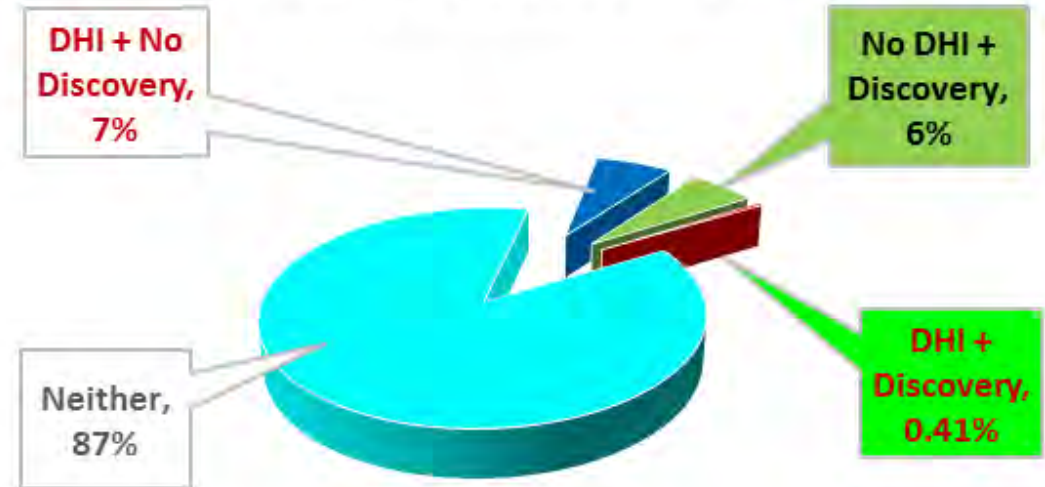
DHIs

Global FO
With DHI's

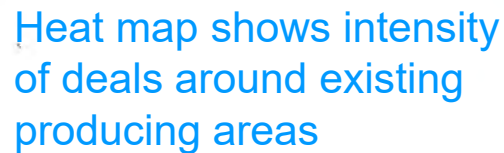


Small number of
Potentially Risk Reduced Deals

Global Deals
DHI's Vs Discoveries



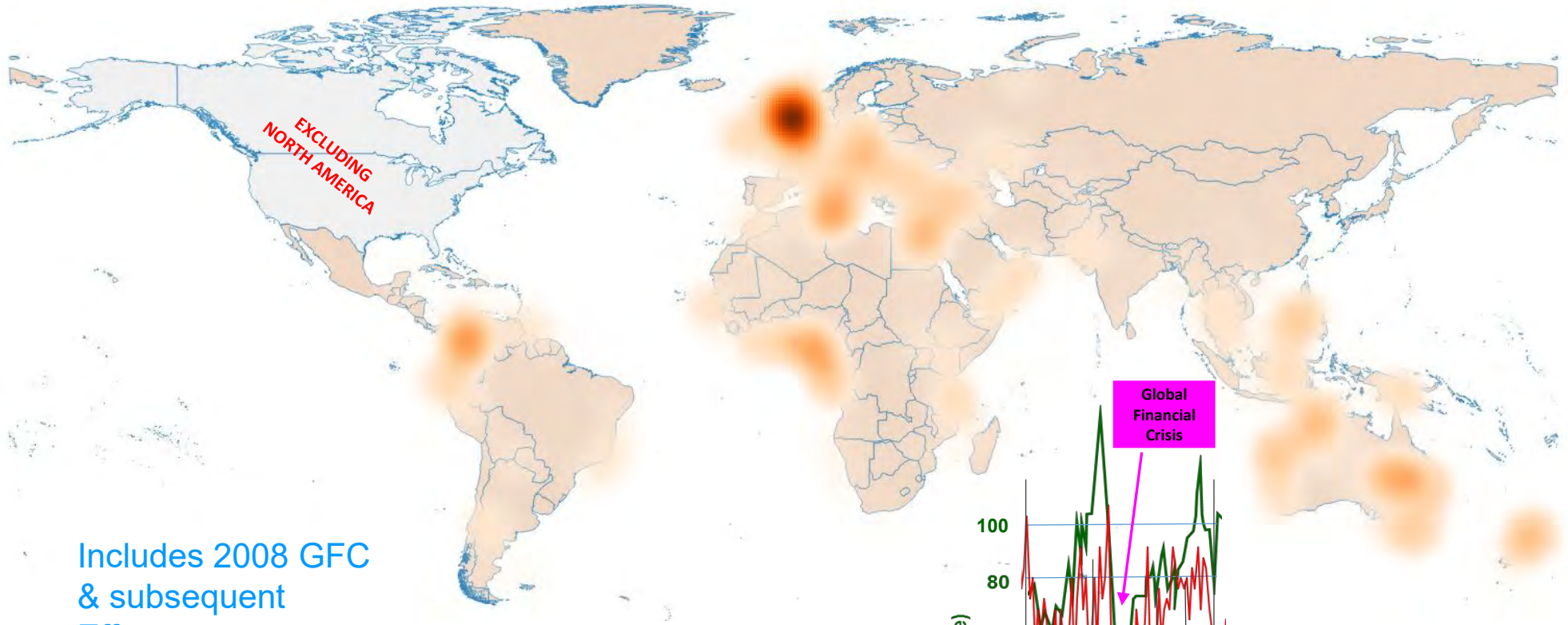
.....DHI's have limited Success



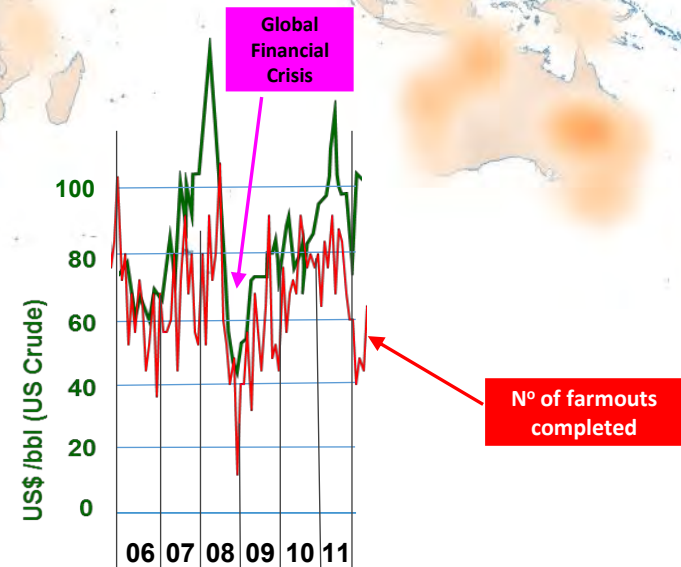
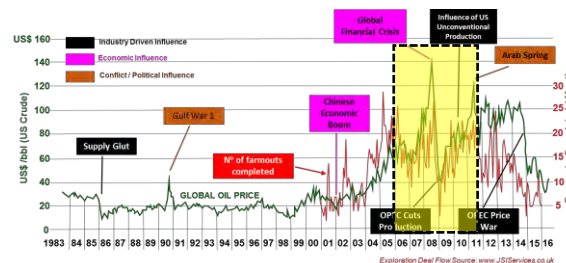


Global Deal Concentration

2006-2010



Includes 2008 GFC
& subsequent
Effects

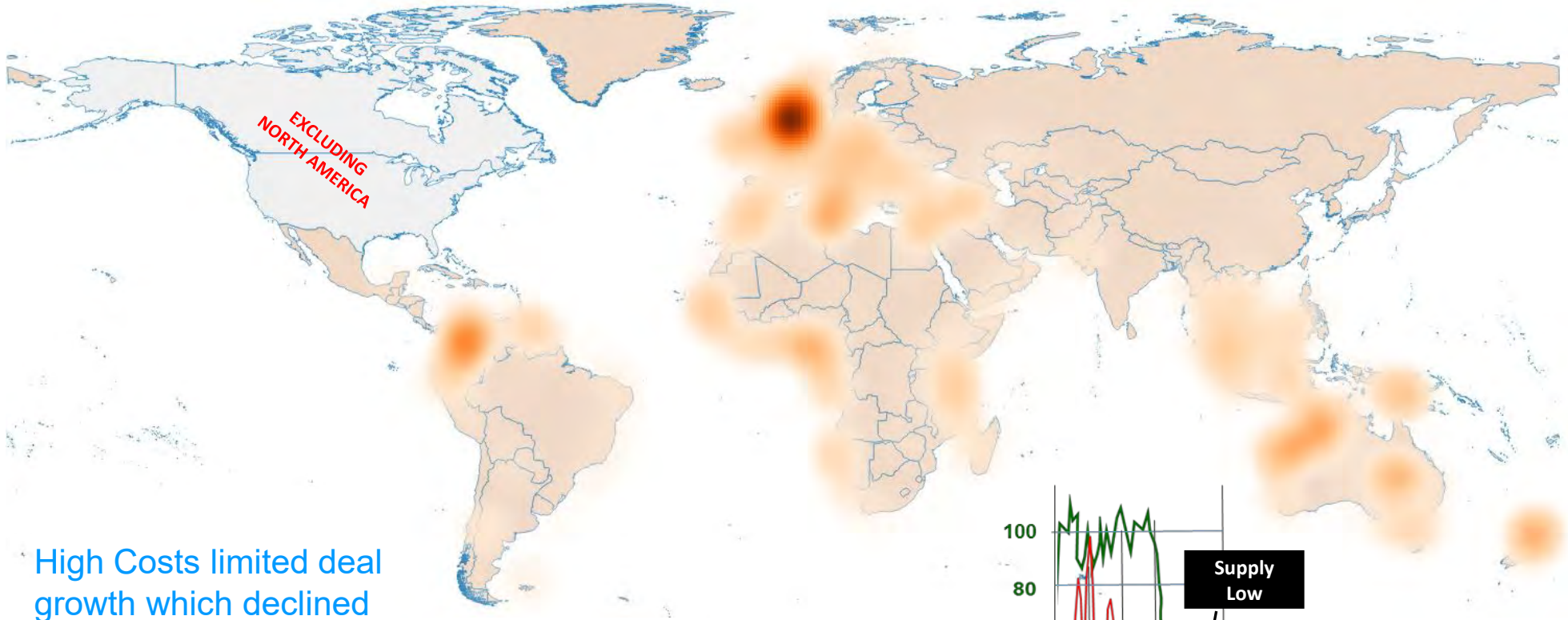


Source: JSI GUD Database



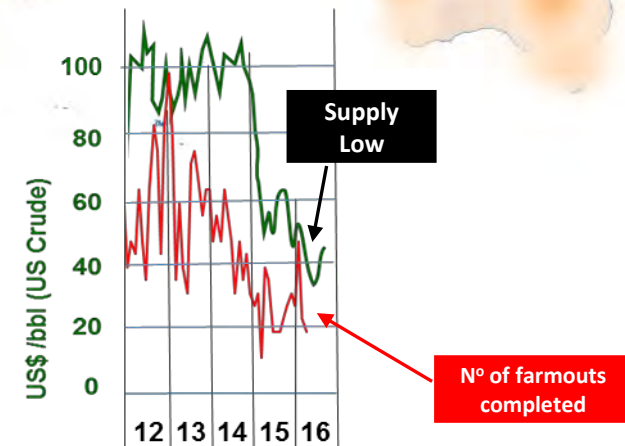
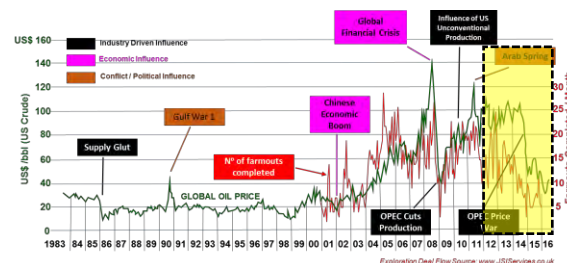
Global Deal Concentration

2011-2016



High Costs limited deal growth which declined before the price crash

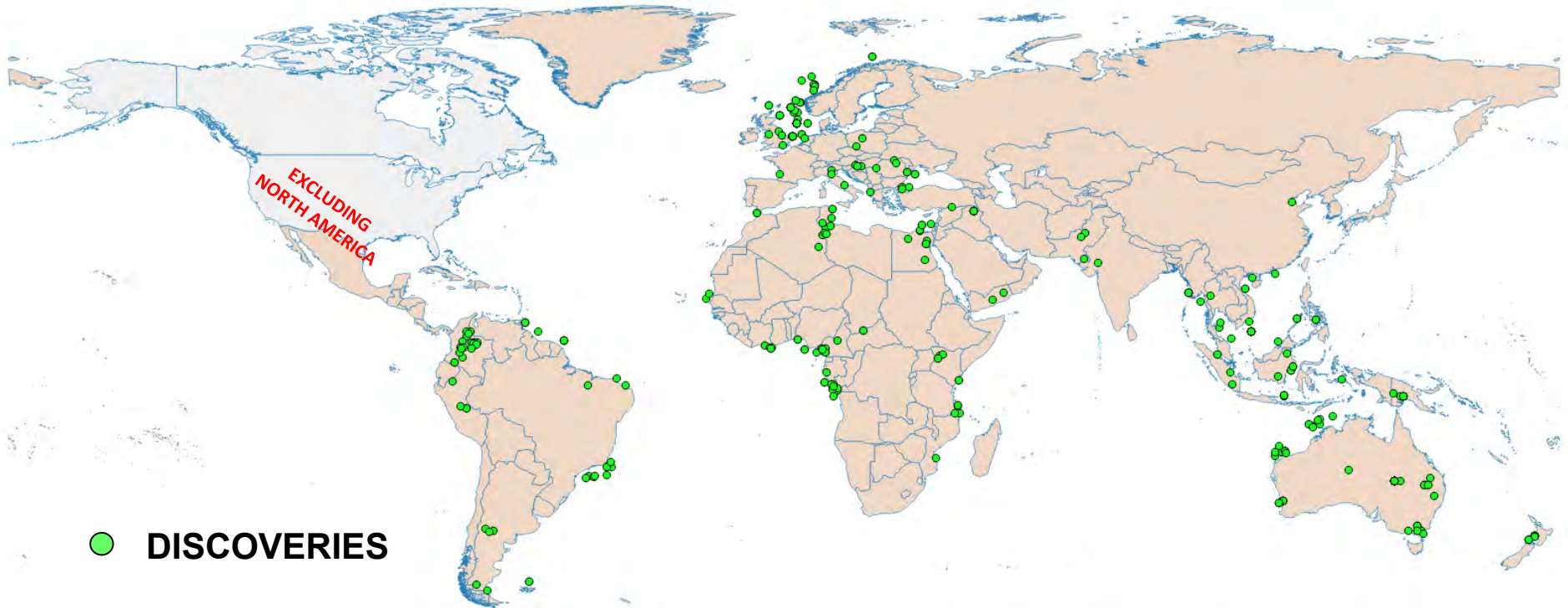
Source: JSI GUD Database



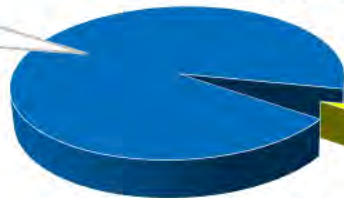


Global Deal Discoveries

2000 - 2016



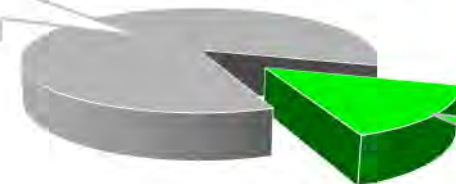
Unsuccessful
5254
94%



Global Total FO that
led to Discoveries

Discovery,
356, 6%

Drilled &
Unsuccessful
2050



Global FO Drilled
& Successful Discoveries

Successful
356
15%

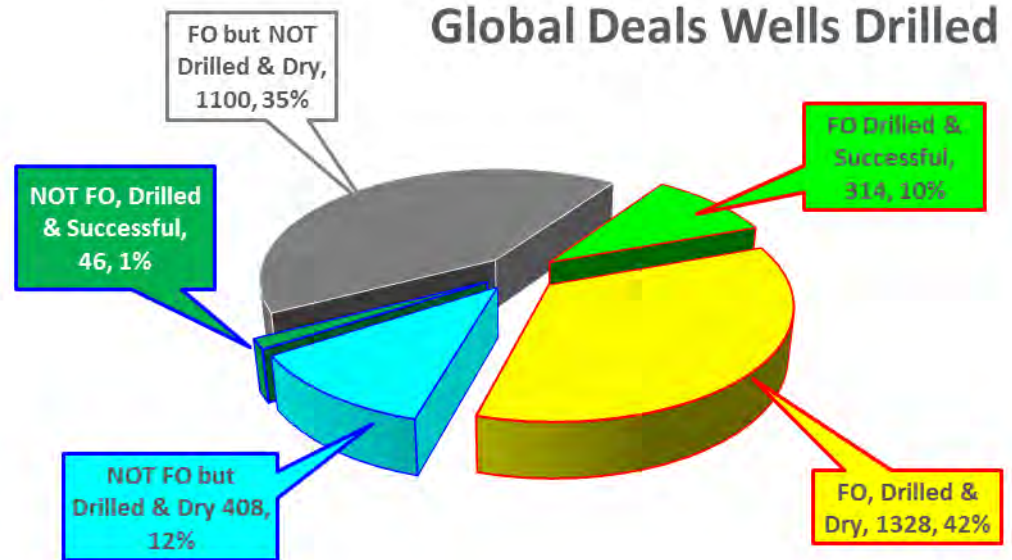


Global Deal Statistics

Deals Completed & Drilled



1 : 2
Deals Farmed Out
(Vs Common quote 1:100 deals reviewed might get done)

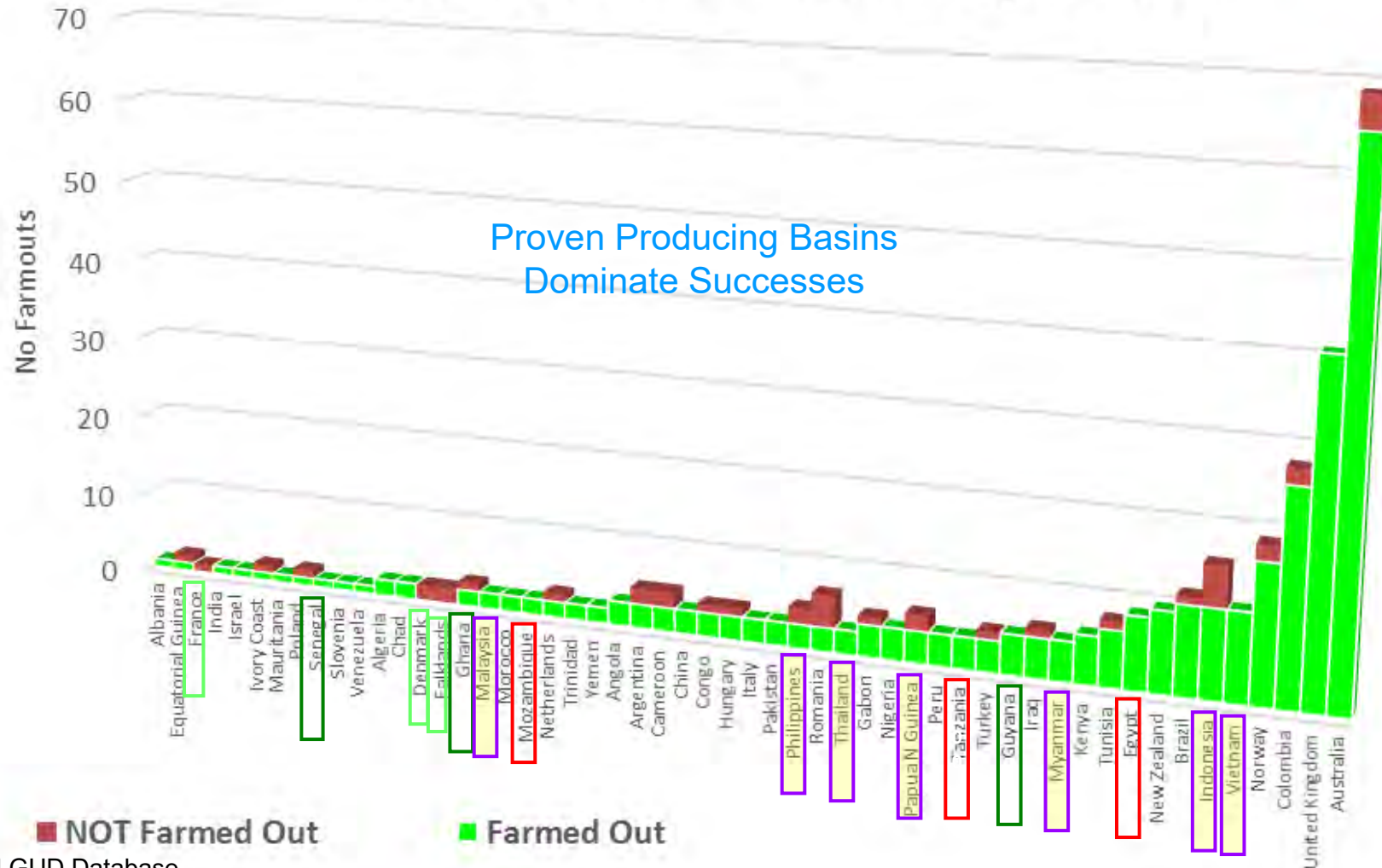


- Only 60% of Deals Completed were then drilled.....so
- 40% Deals Completed did NOT get drilled
- but....17% not completed were still drilled of which 46 were discoveries (i.e. 10% not FO were drilled anyway and declared Discoveries ..of which 60% were exploration wells)
- Compares to 314 discoveries from Deals Completed = 24% ...of which 80% exploration wells)
- **Chance of Success = 50% less if not Farmed Out!**



Global Deal Discoveries 2000 - 2016

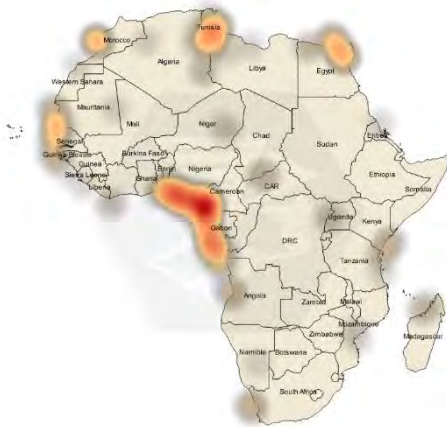
Deal Discoveries in wells by Location





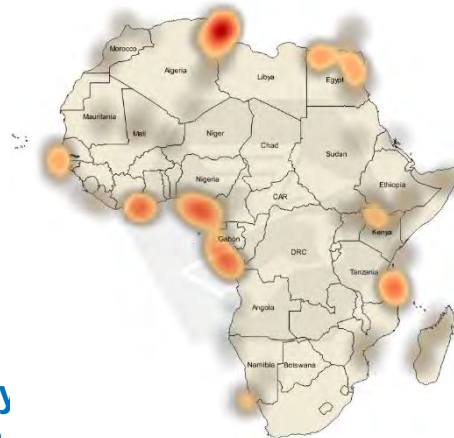
African Deals over Time

2001-2005



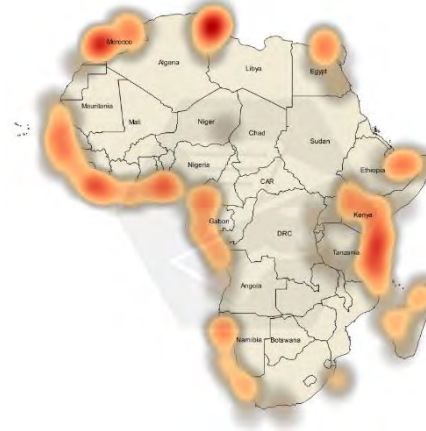
Heat map shows majority deals in West African producing region before & after oil price rise in 2003

2006 - 2010



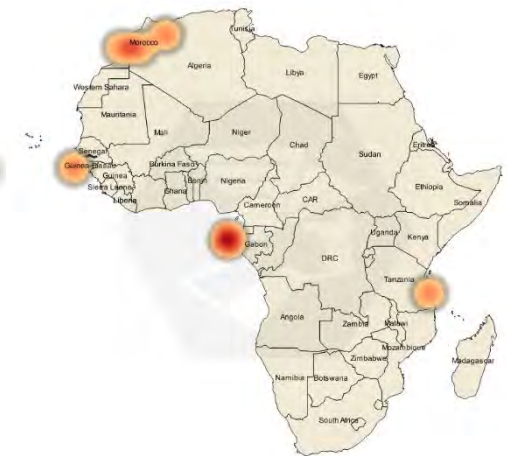
Gradual spread of deal making areas after sustained increased in oil price

2011 - 2015



Land Grab continues during higher oil price period

2016

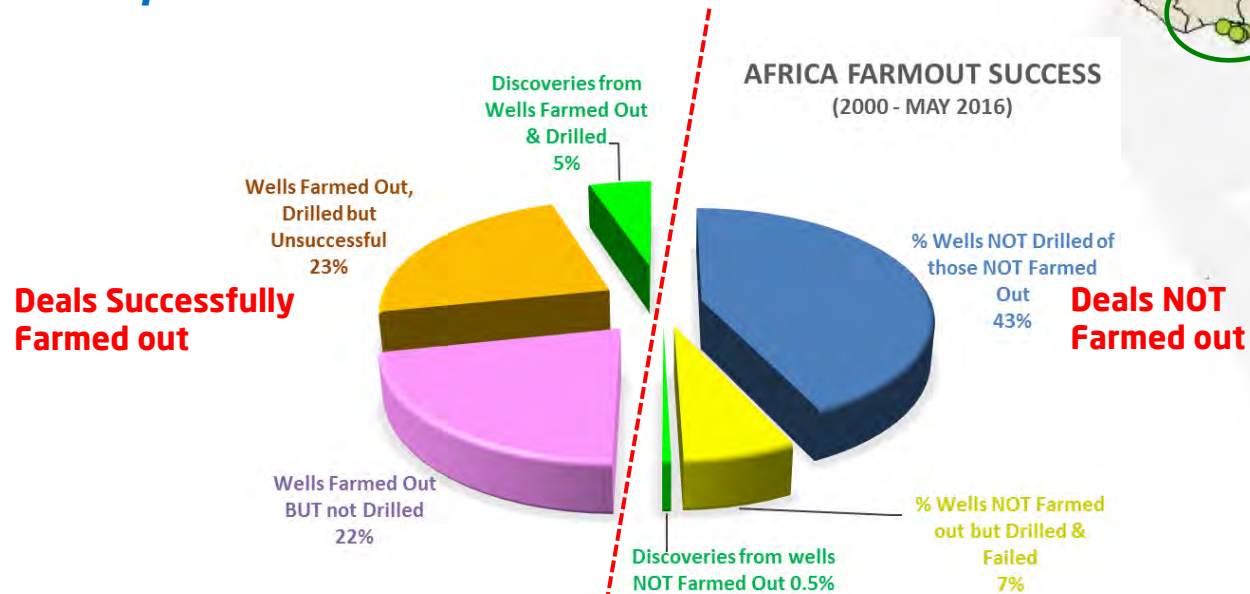


Curtailed focus of current deals in period of maximum price decline



African Deals Drilled & Discoveries (2000 - Q2~2016)

- Total 43 wells drilled announced as discoveries
- 15% of all deals drilled
- 5% of all deals identified
- *A precious few!*



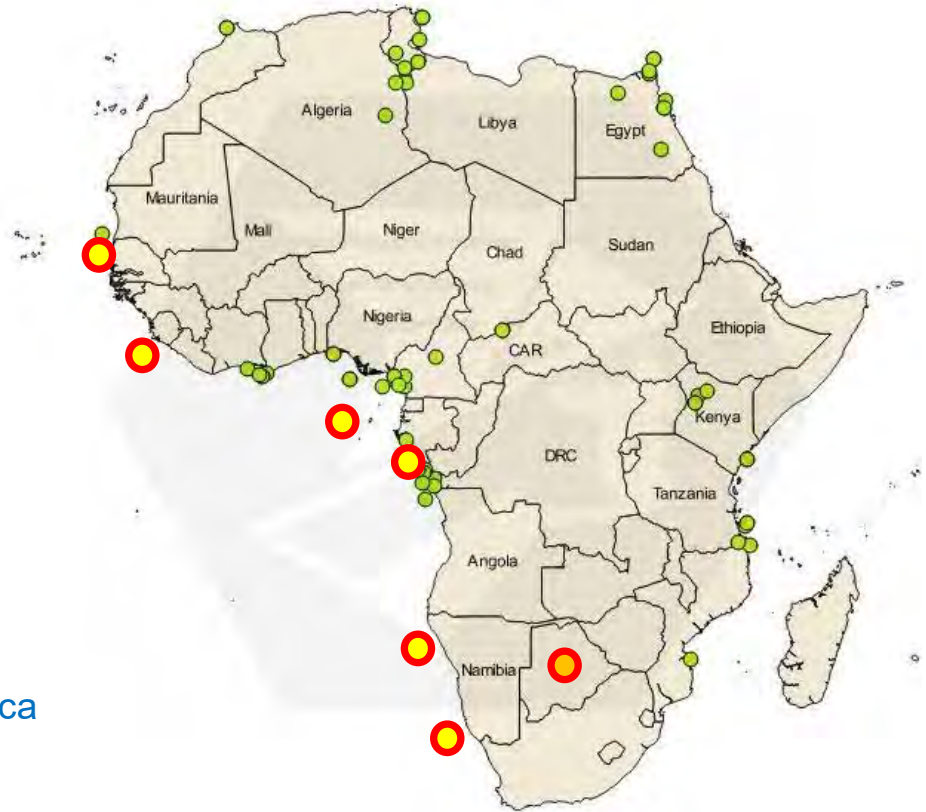
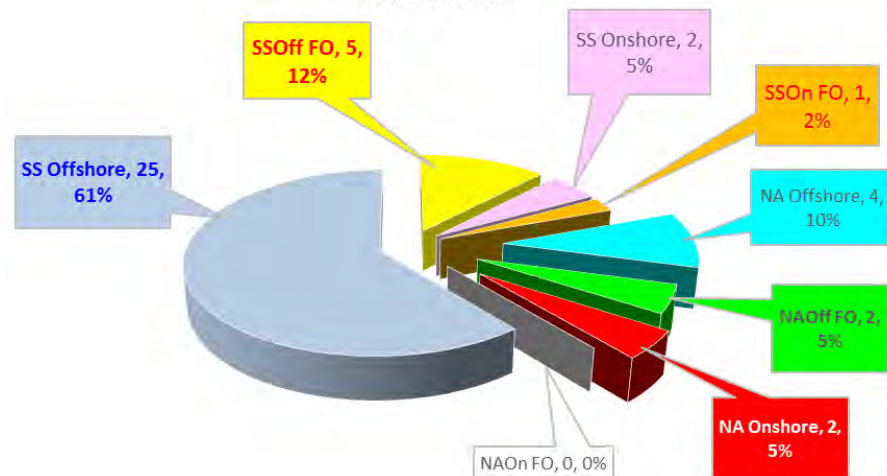
● Drilled discovery



African Deal Update

Deals announced in Last 13 Months (Mid 2016 - Q1 ~ 2017)

African Deals 2016 - Q1 2017
Break Down



Offshore Sub-Saharan Deals Completed

- 7-11-16 **Sao Tome:** Galp farmin to Kosmos Blocks
- 30-11-16 **Namibia:** Pancontinental 10% in PEL 37 to Africa Energy Corp
- 5-12-16 **Guinea:** Hyperdynamic FO - SAPETRO
- 12-12-16 **Egypt:** ENI – Sale of interest of Development Block to Rosneft
- 19-12-16 **Senegal:** BP farmin to Kosmos Block
- 15-12-16 **Gabon:** Dussafu Sale to BW Energy Holdings (Appraisal)
- 7-2-17 **Namibia:** Kudu Earnin BW Energy

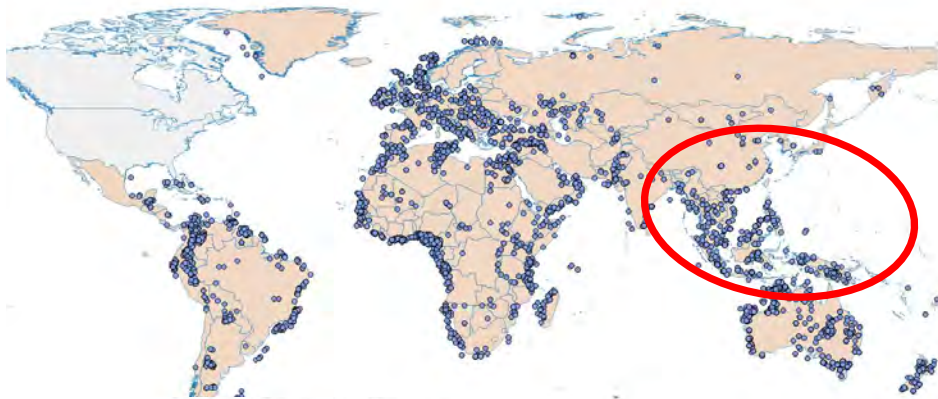
Onshore Sub-Saharan Deals Completed

- 11-11-16 **Botswana:** Magnum Power - Serowe Permit (CBM) to Strata-X

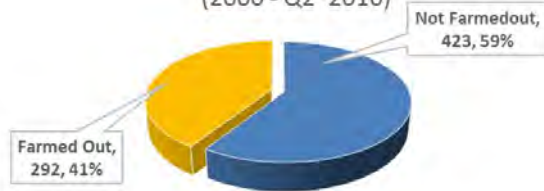


Far East Successes

(Deals Announced during 2000 - Q1~2016)



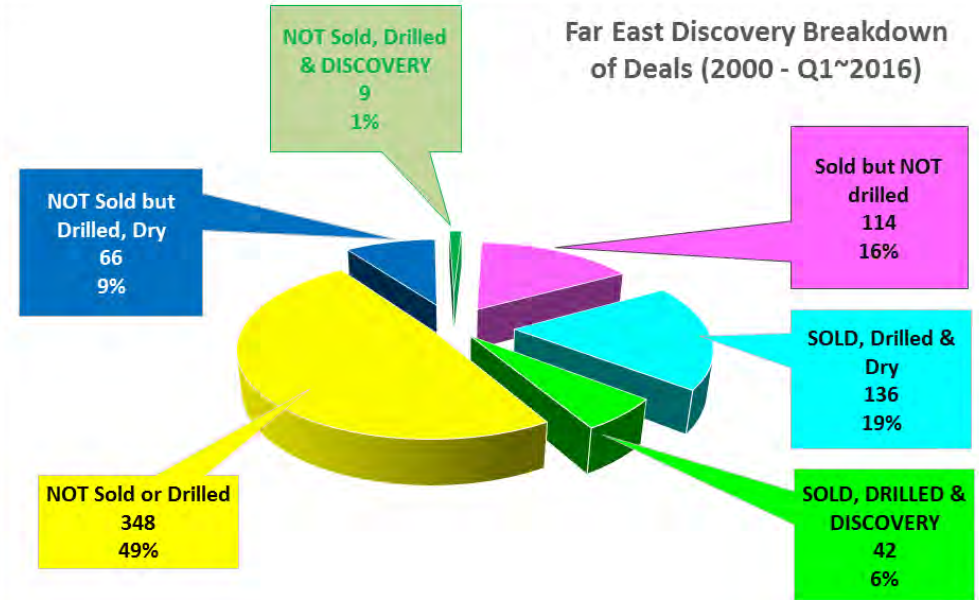
Far East Farmouts Success
(2000 - Q2~2016)



Far East Discovery Breakdown
(Deals announced 2000 - Q1~2016)



Far East Discovery Breakdown
of Deals (2000 - Q1~2016)



- 41% Success is less than 49% Global FO Average
- 12% Discovery Success Rate of Deals NOT Farmed Out, but Drilled anyway
- 24% Discovery Success Rate of Deals Farmed Out & Drilled
- **50% Better Success Rate if Farmed Out (Same as Global)**
- Mostly Exploration Discoveries



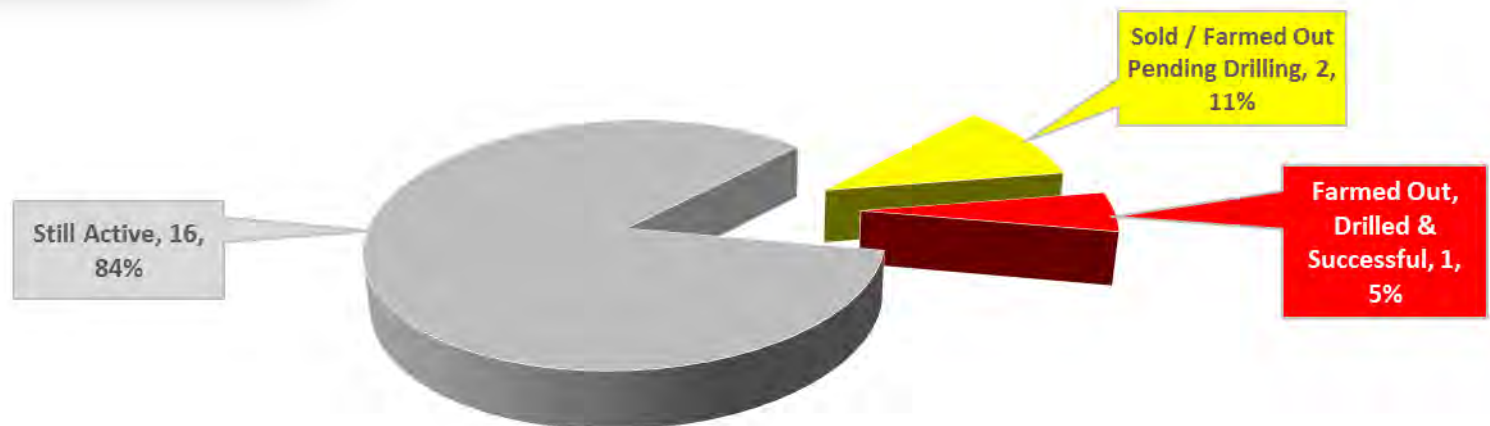
RECENT Far East Deals

(Only Deals Announced during 2016 - Q1 2107)



PNG (PPL 402)
Santos Farm into Oil Search
Muruk Gas Discovery (Fold Belt)
Est. 12 TCF

Far East Deals Announced between
2016 - Q1 2017
Status @ Feb 2017

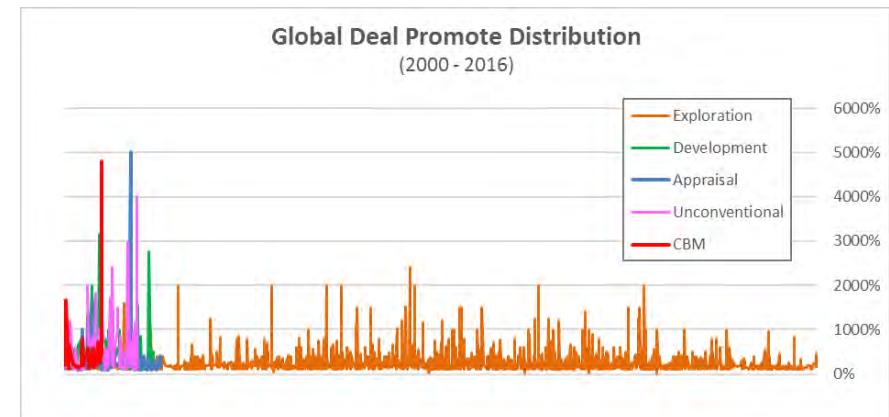




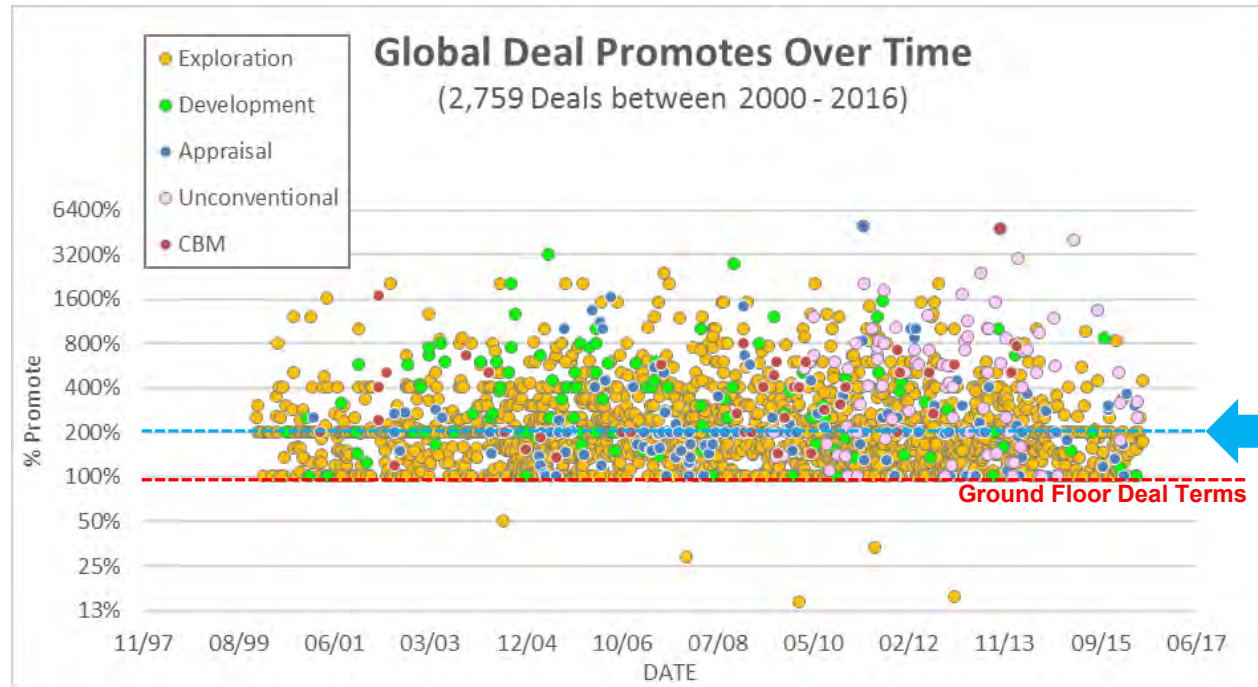
Global Deal Promote Overview



Promote Range
0% – 5,000%



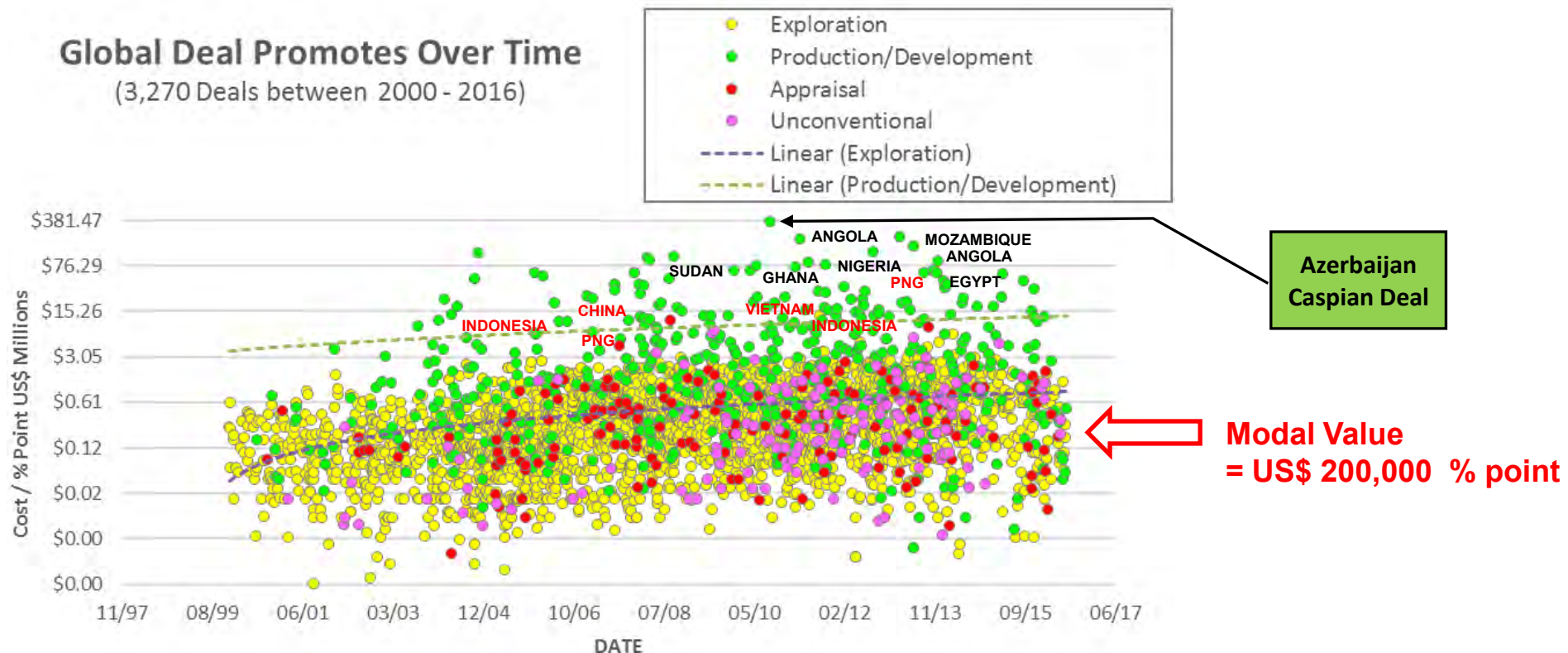
Aggregate / Mode of
Promote Over 16 years
= 2 : 1





Global Deal Cost - *Price per % Point*

(Logarithmic Scale)

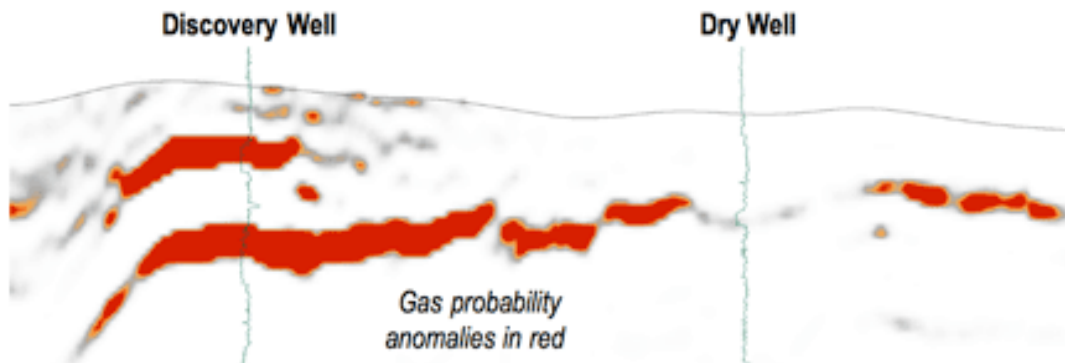


- Increased Value over time
- Unsurprising Higher Value for Cash Flow Assets



● What does this tell us - some examples

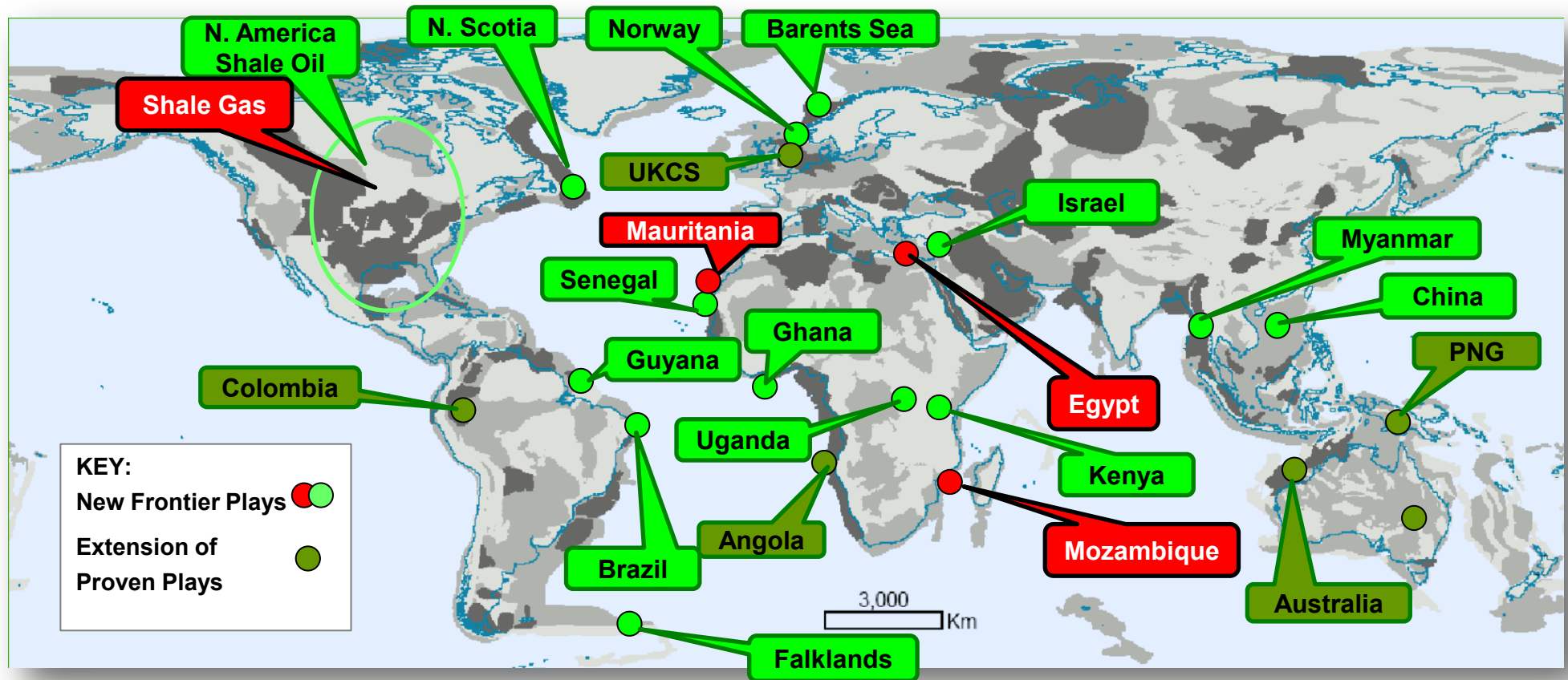
- Exploration success vs failures





'Material' New Global Play Discoveries

(Some Examples)

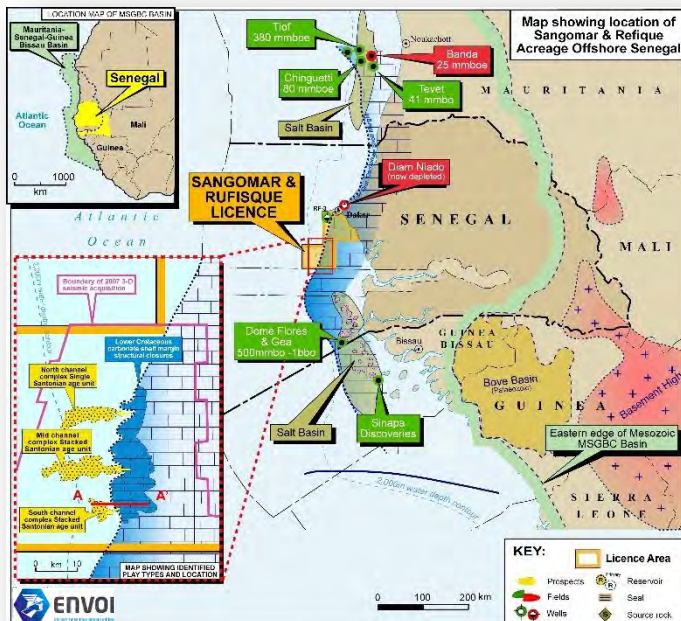


New frontier & proven play areas unlocked by new seismic & drilling capability funded by US\$ 100/bbl oil between 2003 – 2013 (interrupted by GFC in 2008)

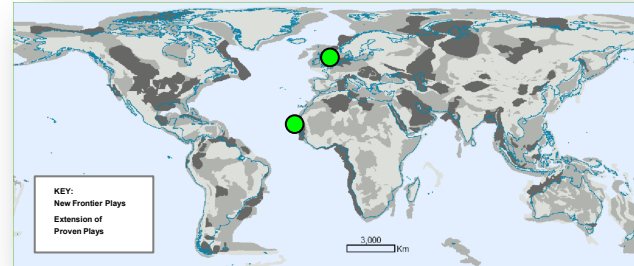


Specific New Play Examples

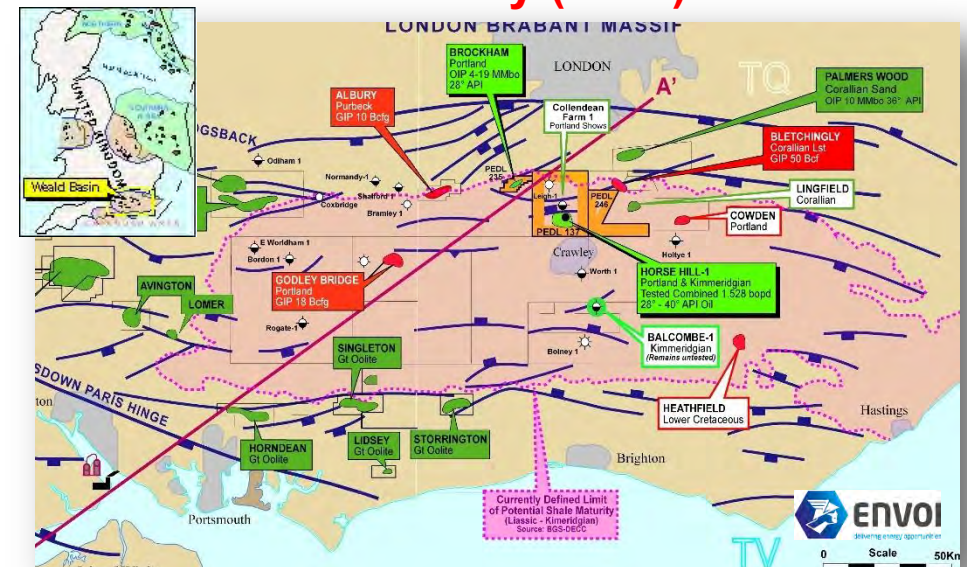
Senegal FAN-1 & SNE-1 Discoveries (2013)



- New frontier play drilled in unexplored basin based on modern seismic
- Took 3 ½ years to Farmout post 2008 GFC



Horse Hill 'Kimmeridge Play' Discovery (2015)



- New play in proven / producing basin unlocked by new regional G&G modelling & US tight play experience
- Took 4 years to Farmout whilst industry focused on BIG offshore plays in 'exciting areas of the World'



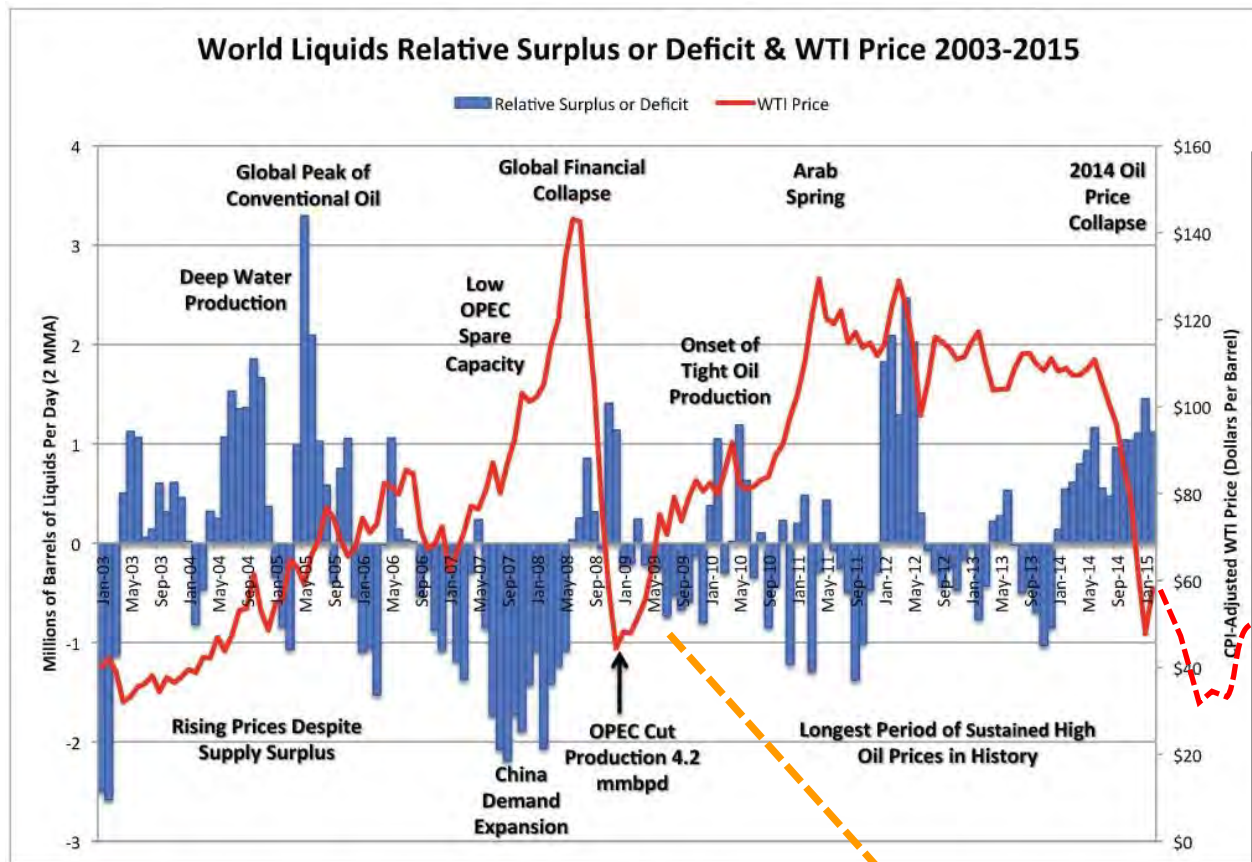
● Influences (industry changes)

- Commodity Price
- Technology
- Politics
- Global economic
- People



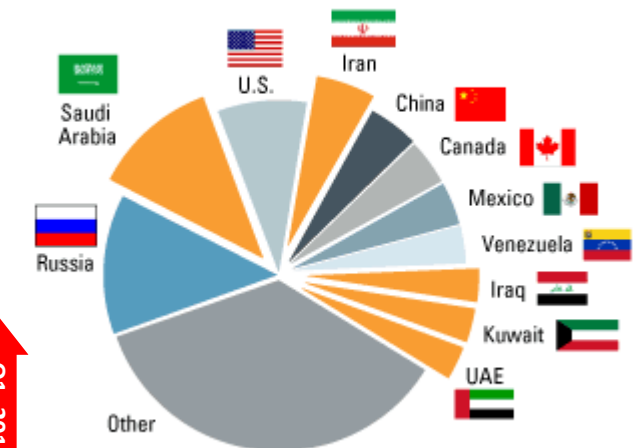


Historical Supply & Demand....current oversupply



Much of Global Oil Production Comes from the Middle East

Oil production as a % of world total as of 2009



Source: BP (Statistical Review of World Energy, 2010), Barclays Capital

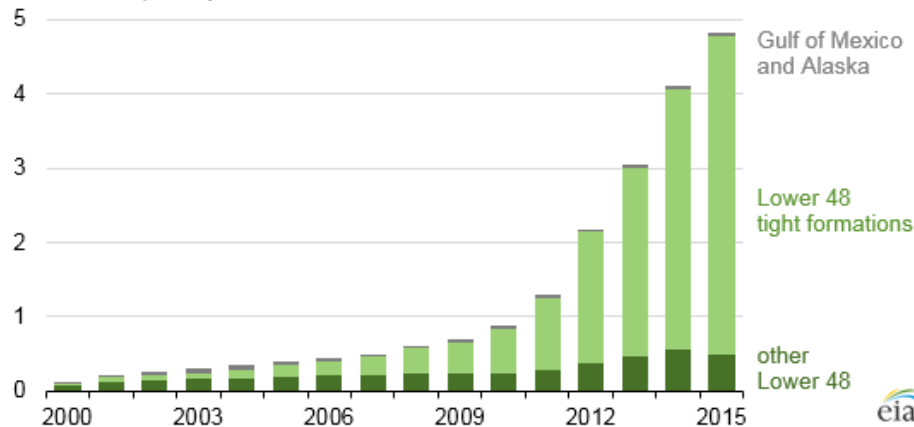
Global Supply Split as of 2009

Q1, 2017



US Supply Influence

Oil production from hydraulically fractured wells in the United States (2000-2015)
million barrels per day

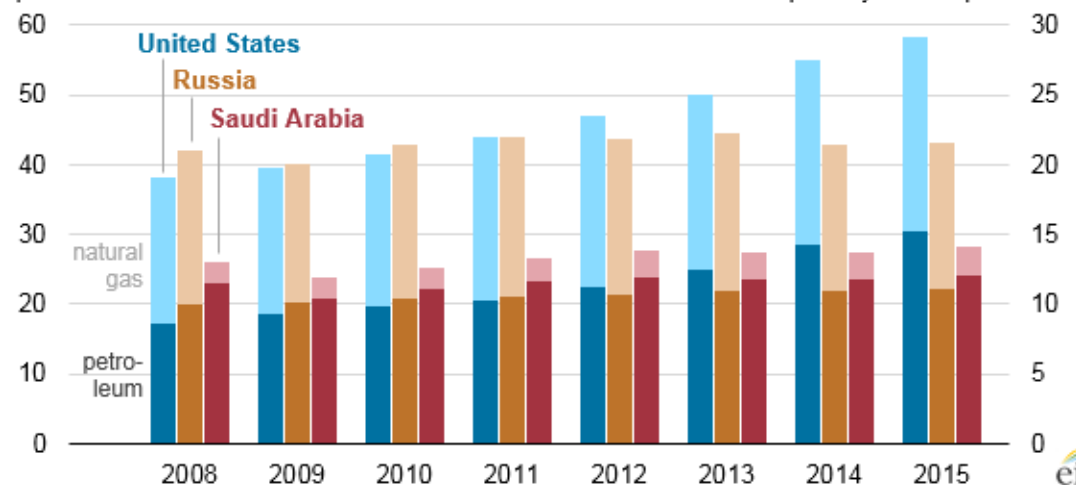


- In the May Short-Term Energy Outlook (STEO), U.S. petroleum and other liquid fuels production is expected to decline from 15.0 million barrels per day (b/d) in 2015 to about 14.5 million b/d in both 2016 and 2017.
- In contrast, STEO forecasts Russian liquid fuels production to remain at about 11.0 million barrels per day through 2017.
- STEO publishes a production forecast for Middle Eastern members of the Organization of the Petroleum Exporting Countries (OPEC) as a whole rather than for individual countries in the region. However, there is currently no indication now Saudi Arabia plans to reduce its current level of petroleum production.

United States remains largest producer of petroleum and natural gas hydrocarbons

In the United States, crude oil and lease condensate accounted for roughly 60% of the total petroleum hydrocarbon production in 2015.

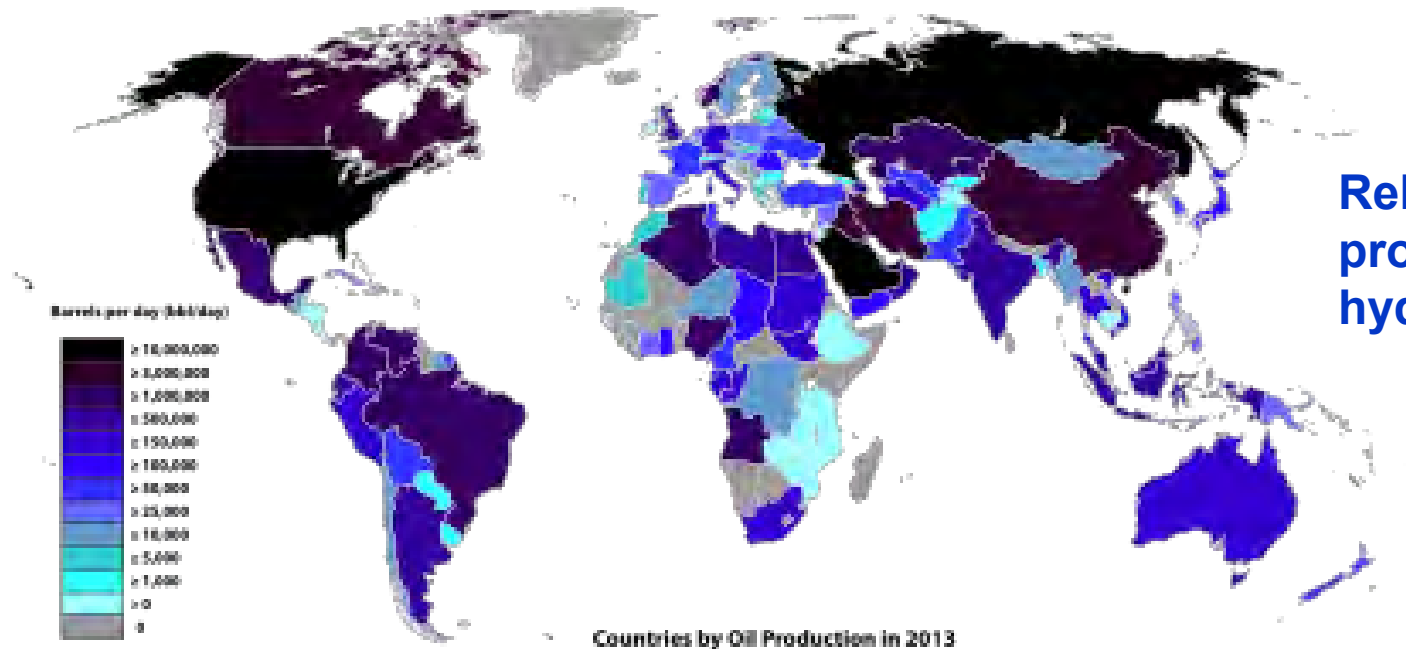
Estimated petroleum and natural gas hydrocarbon production in selected countries
quadrillion British thermal units million barrels per day of oil equivalent



Source: U.S. Energy Information Administration



Global Production



Relatively few countries
produce majority of
hydrocarbons

- **World Recovery Factor 22%**

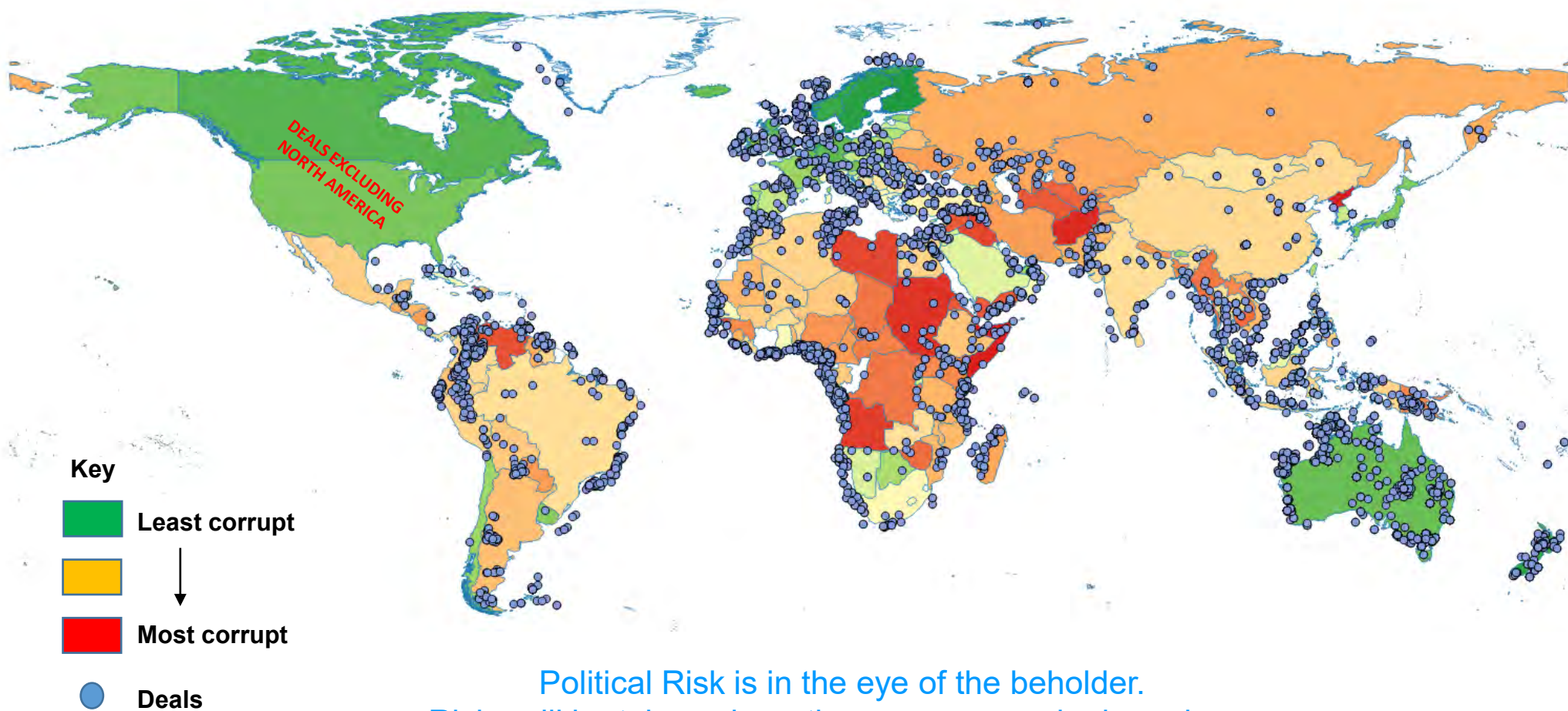
- *Saudi Arabia 32%*
- *North Sea 46%*

- ***Influences on recovery***

- *Geology*
- *Technology*
- *Energy Market size & access*
- *Infrastructure*
- *Rewarding Fiscal Regime*



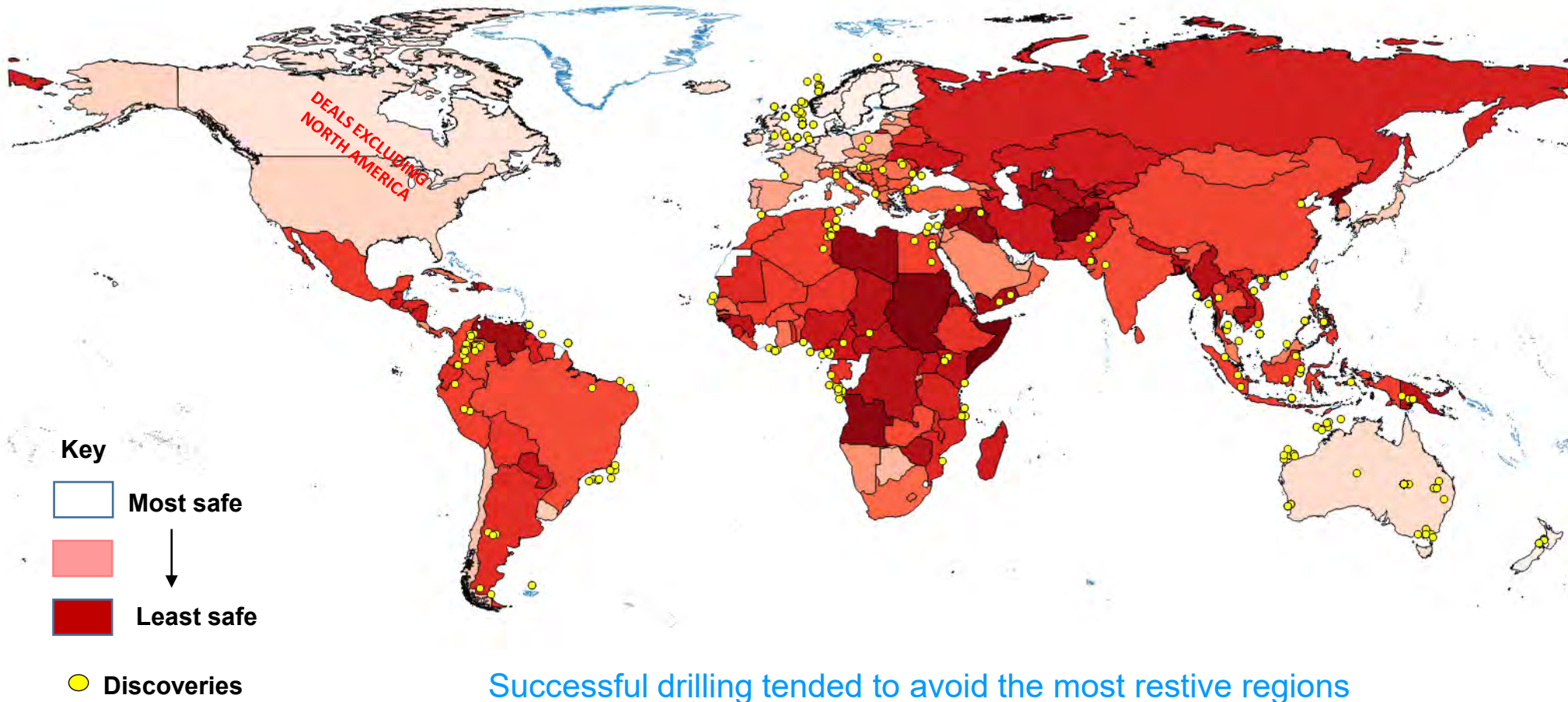
Global Transparency & Deal Security



Political Risk is in the eye of the beholder.
Risks will be taken where there are proven hydrocarbons



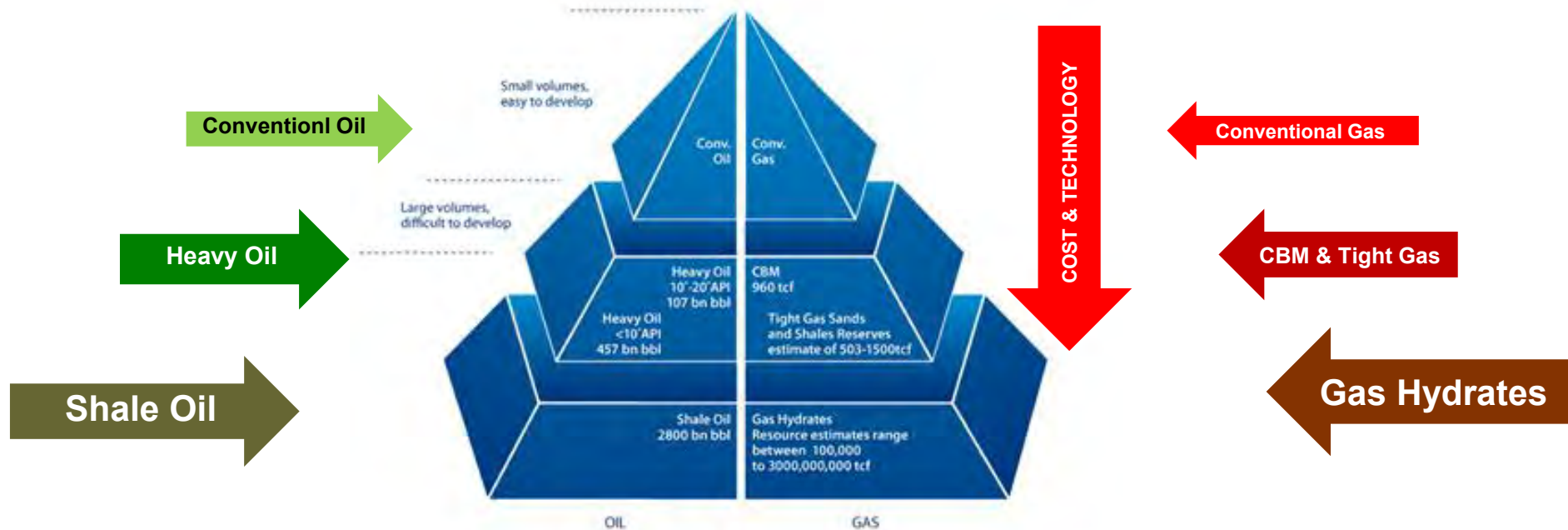
Global Stability





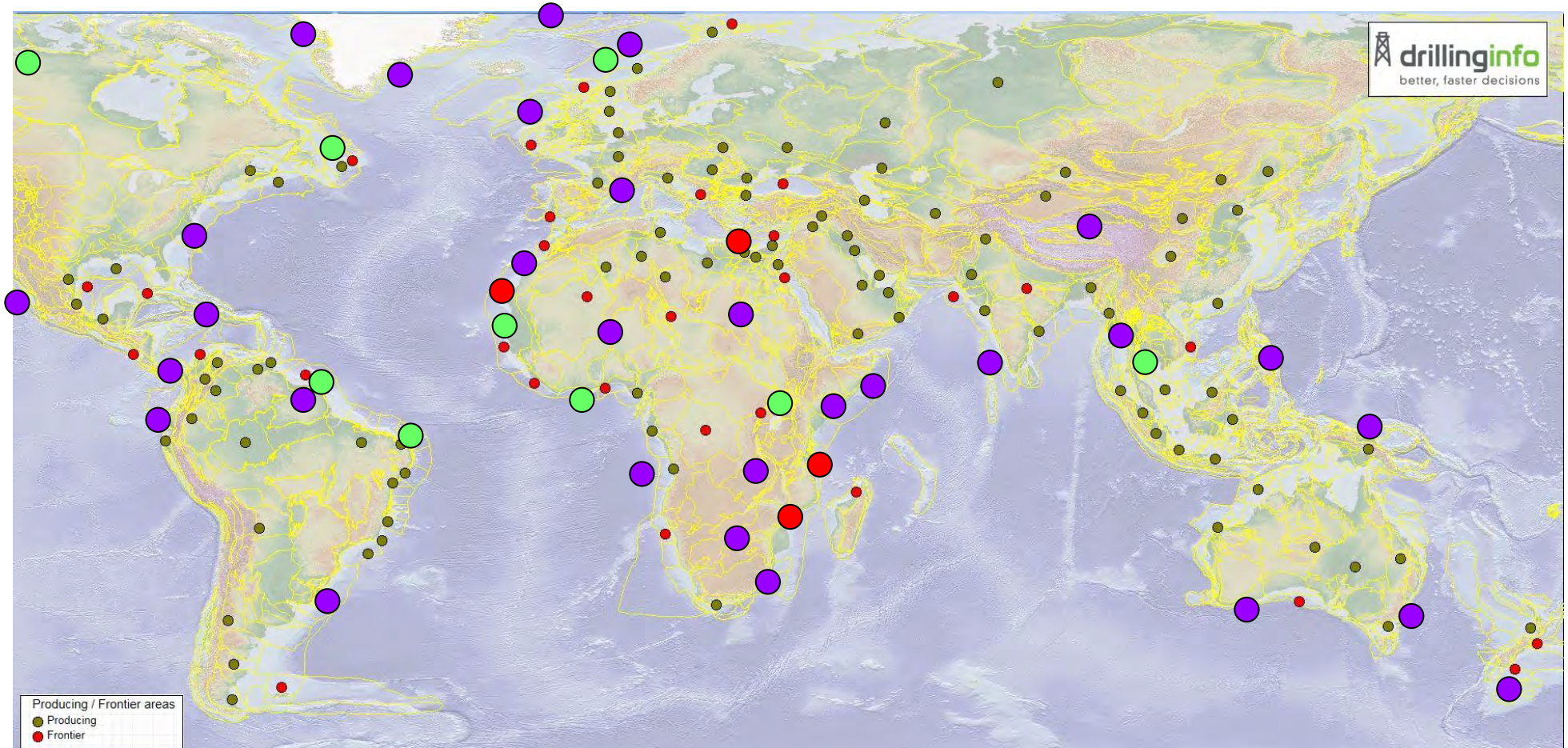
● Future opportunity

- Where next?
- Why





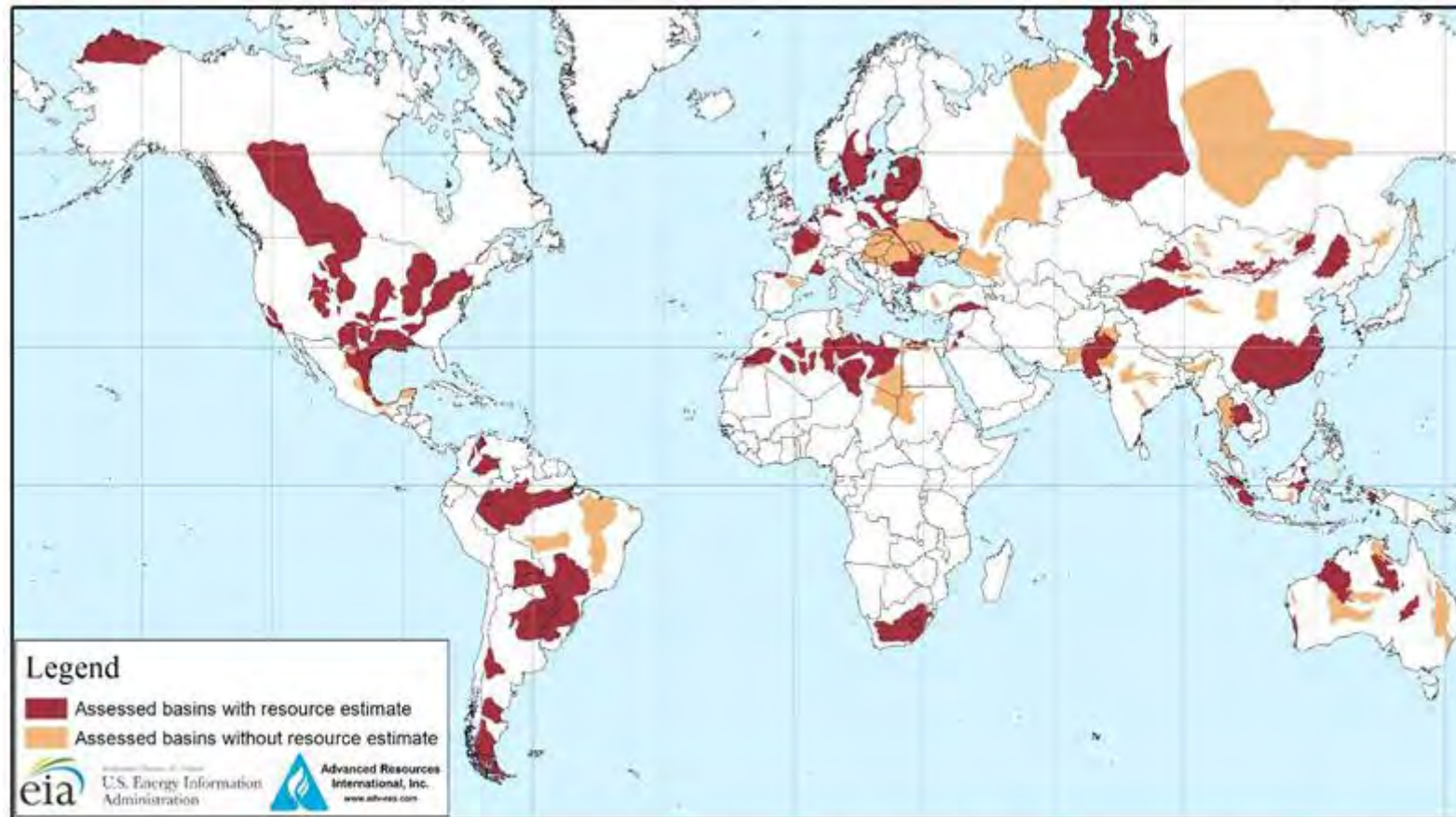
So....Where Next Globally ?



Un & Under Explored Basin Areas of the World where New Ideas, Technology & Political Change could unlock the next New Venture Frontiers



Future Global Unconventional Resources Potential



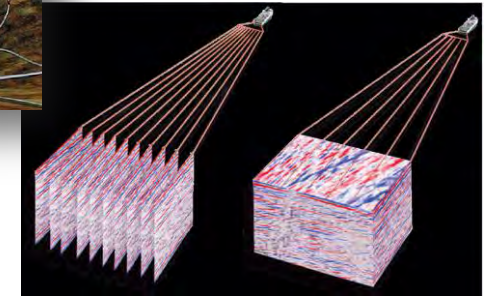
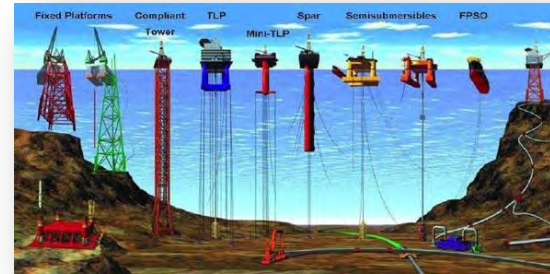
Source: United States basins from U.S. Energy Information Administration and United States Geological Survey; other basins from ARI based on data from various published studies.



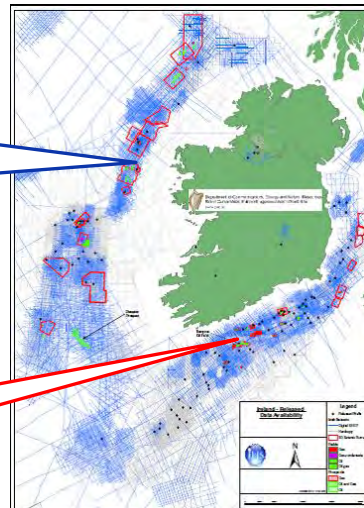
Unlocking the Global Frontiers

• Technology Advances

- *Deeper Water Drilling Rigs*
- *Subsea & FPSO Development*
- *Gradiometry (Hi Res Gravity)*
- *Broadband 3D & PSMD Seismic*
- *Sophisticated Re-processing (including Inversion Techniques)*

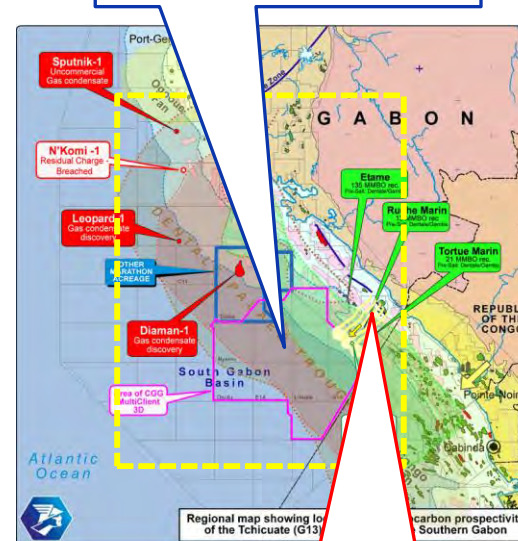


Opening New Deeper Water Frontiers e.g. Atlantic Margin Ireland

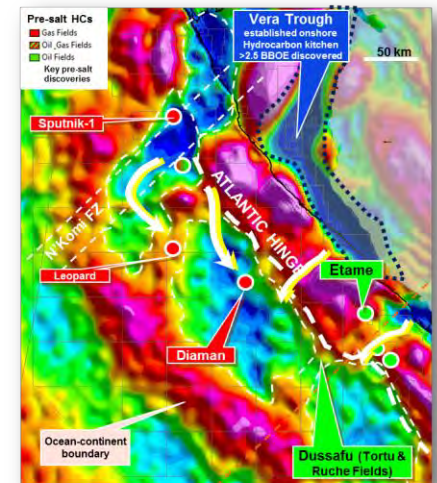


Revisiting New Plays in Proven Basins

Opening New Deeper Water Frontiers e.g. Atlantic Margin Gabon



Revisiting New Plays in Proven Basins





● **Conclusions / Comment**

- Current status & hope for the future

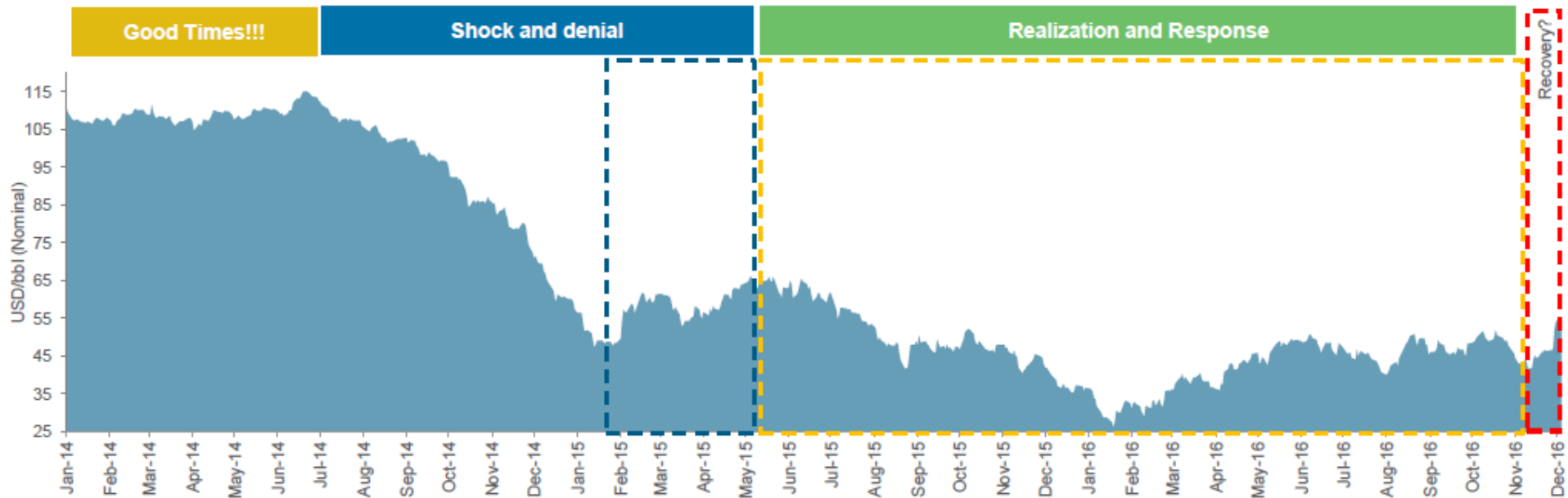




Standard
Chartered

... Where are we in the latest cycle?

Brent Prices Jun 2014 -YTD
USD/bbl (Nominal)

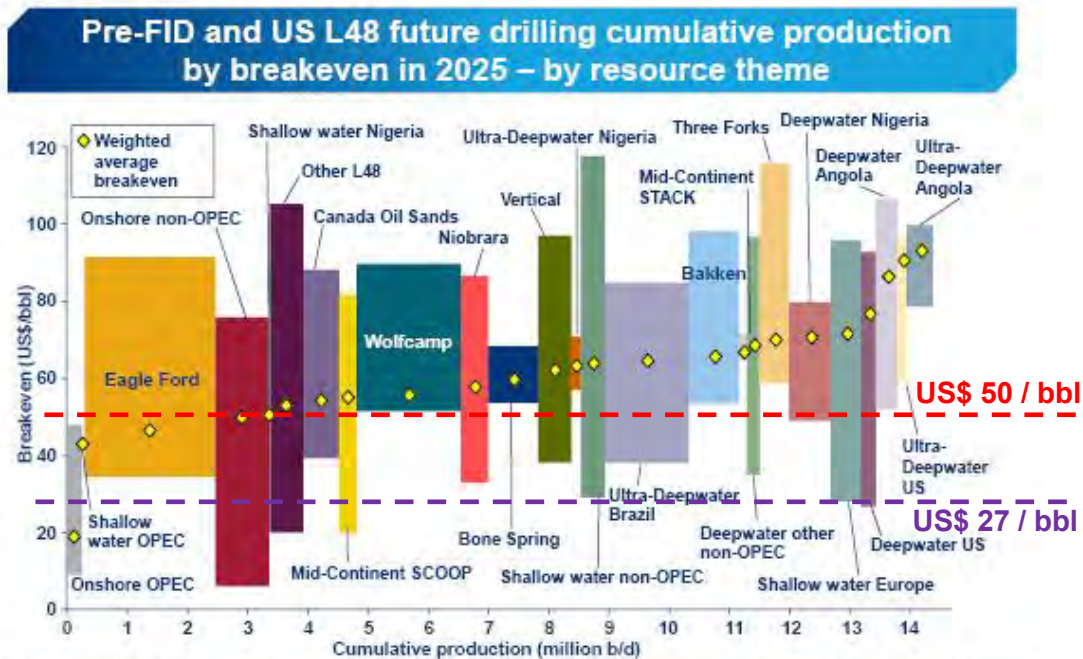


- **Commodity Prices Not Predicted by most or any experts consistently**
 - *Even though history has proven to repeat itself more than once*
 - *Panic by many who will never truly understand E&P risk*
 - *Stalled action....*
 - *Feel Good Factor ~ Confidence returns (money being made again)*
 - *Re-BoomRe-Bust! Make Hay when the sunshine's.... hopefully remembering it WILL rain again sometime and be prepared!*
- **E&P Industry is definitely NOT blameless!**



Breakeven Cost Comparison

Forward look at Breakeven By Play Location

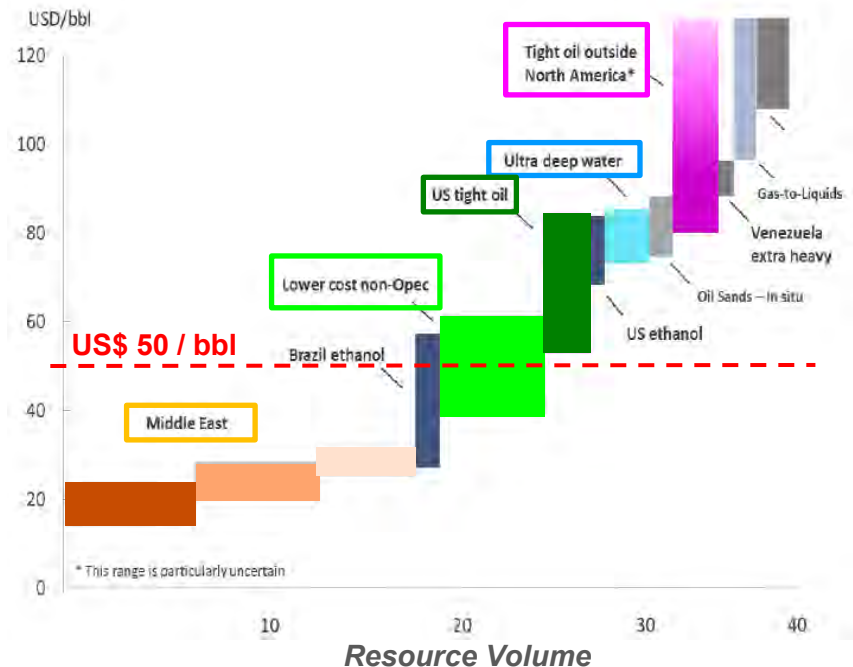


Source: Wood Mackenzie, onshore breakevens at 10% discount rate, offshore at 15% discount rate, breakevens in US\$ Brent equivalent

Wood Mac Analysis & Views:

- 50% of production from future developments uneconomic at US\$ 60/bbl (includes conventional projects [pre Final Investment Decision] + future drilling onshore US L48 which are critical to future oil supply)
- By 2025 production from Pre-FID project + L48 could be 17million bopd where only 7.6 million bopd comes from projects that are commercial at US\$ 60/bbl
- Over 22 million bopd likely to be needed by 2025 to meet demand & supports ~min US\$ 70 BOPD

Global Resource Breakeven By Theme





Biggest Future E&P Challenges?

Unlocking the new plays and resources in frontier basins which are often in politically difficult & sensitive areas likely to be severely limited by:

- **Future E&P Funding**

- Exploration *(High Risk, high margin and reserves replacement)*
- Production *(Low Risk but small margin)*
- Technology & Research *(Risk reducing E&P tools)*

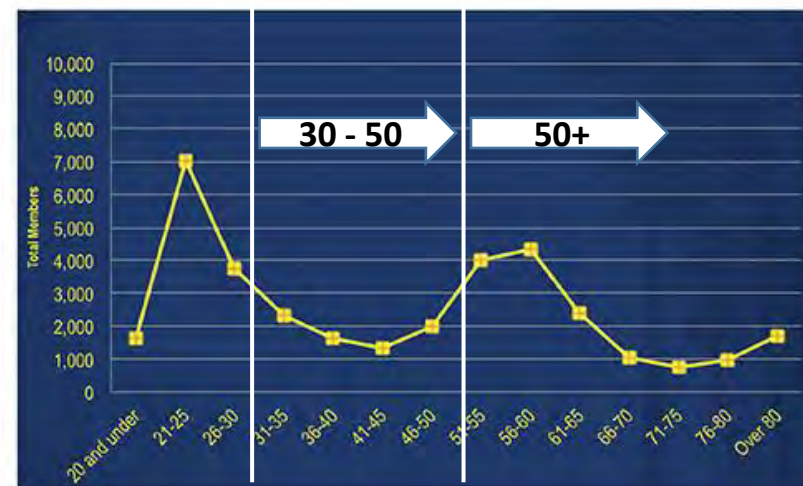
- **Short termism**

- Overcoming the difference in industry & investor expectations
- Change in Global Financial Funding / Investing Metrics *(Transition to CASH away from Asset Values)*

- **Knowledge Loss**

- Experienced technical (G&G + engineering) staff needed to successfully replace, find and exploit enough hydrocarbons commercially

AAPG Member Demographics





Summary

- **Exploration is not easy**
 - Essential to have the right technical people defining where to drill appropriately risked
- **The Price Will Come Back**
 - Upstream A&D will grow progressively (...likely to be different)
 - Hope for better financial risk management
- **Experience Legacy**
 - How does the industry fill the looming G&G knowledge gap



ENVOI

delivering energy opportunities

London Office :

**Old Stables House
1d Manor Road
London W13 0LH
United Kingdom**

Phone :

+44 (0)20 8566 1310

E Mail :

deliver@envoi.co.uk

Website :

www.envoi.co.uk



Contact :

**Mike Lakin
Managing Director**

**Registered Office & Company Secretary:
23 Bedford Row, London, WC1R 4EB**

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