



# Richmond Energy Partners

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Improving performance through better intelligence

## Surviving a Perfect Storm The State of Exploration 2016

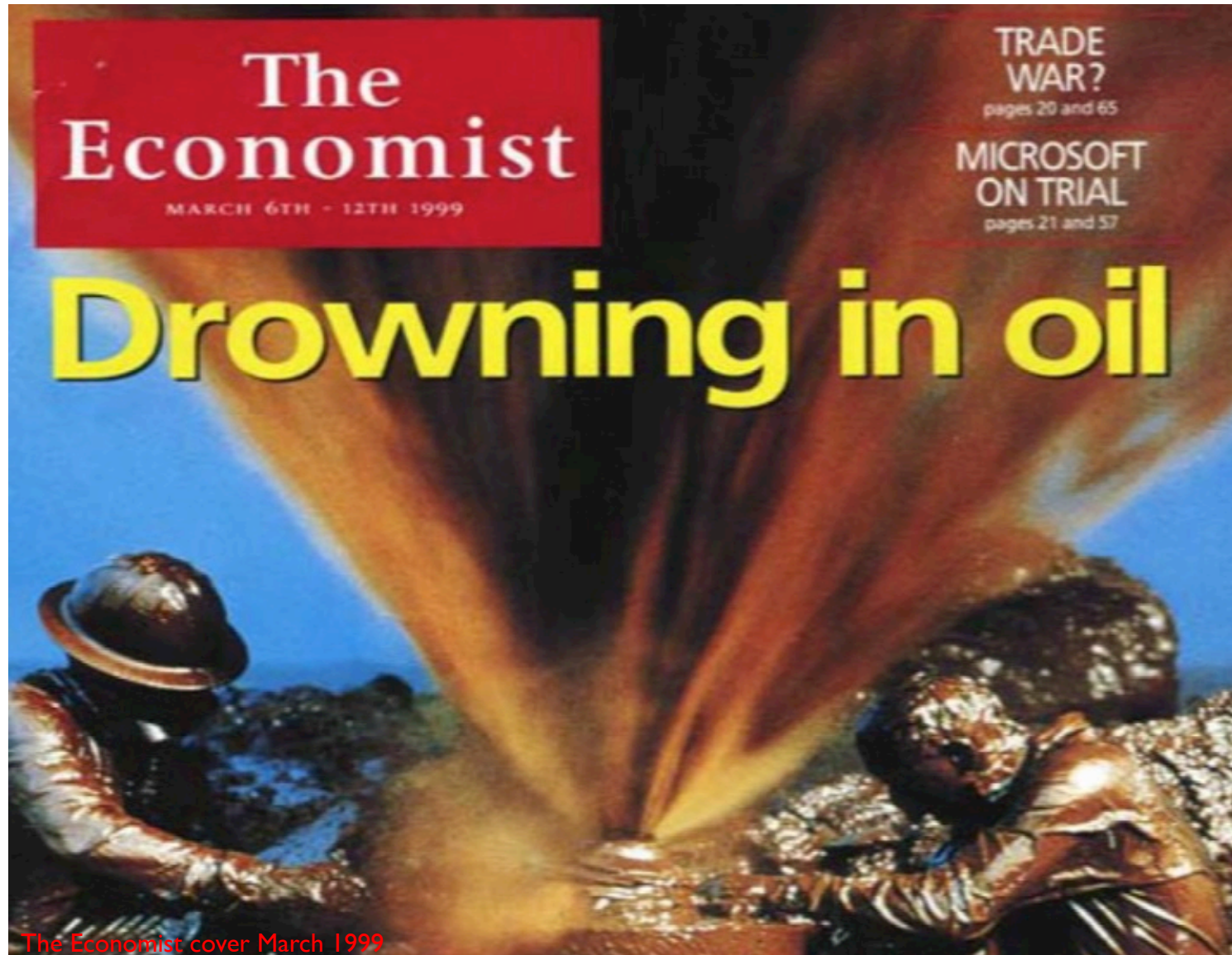
Keith Myers

APPEX London

1<sup>st</sup> March 2016

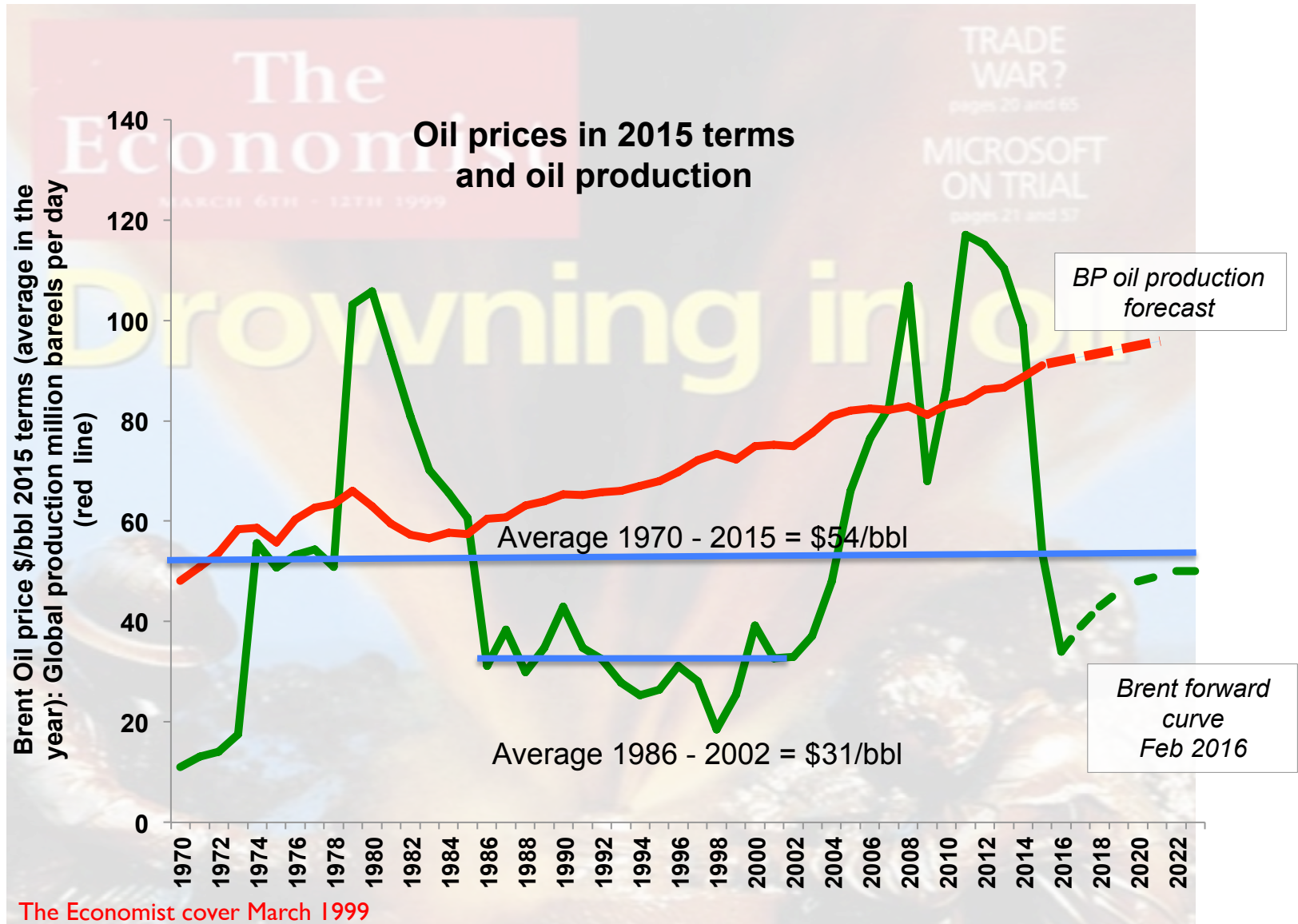
- The perfect storm
- The industry response
- Exploration performance and what is driving it
- Catalysts to re-ignite investor interest in 2016

## The perfect storm part 1 - Back to the 90's



The Economist cover March 1999

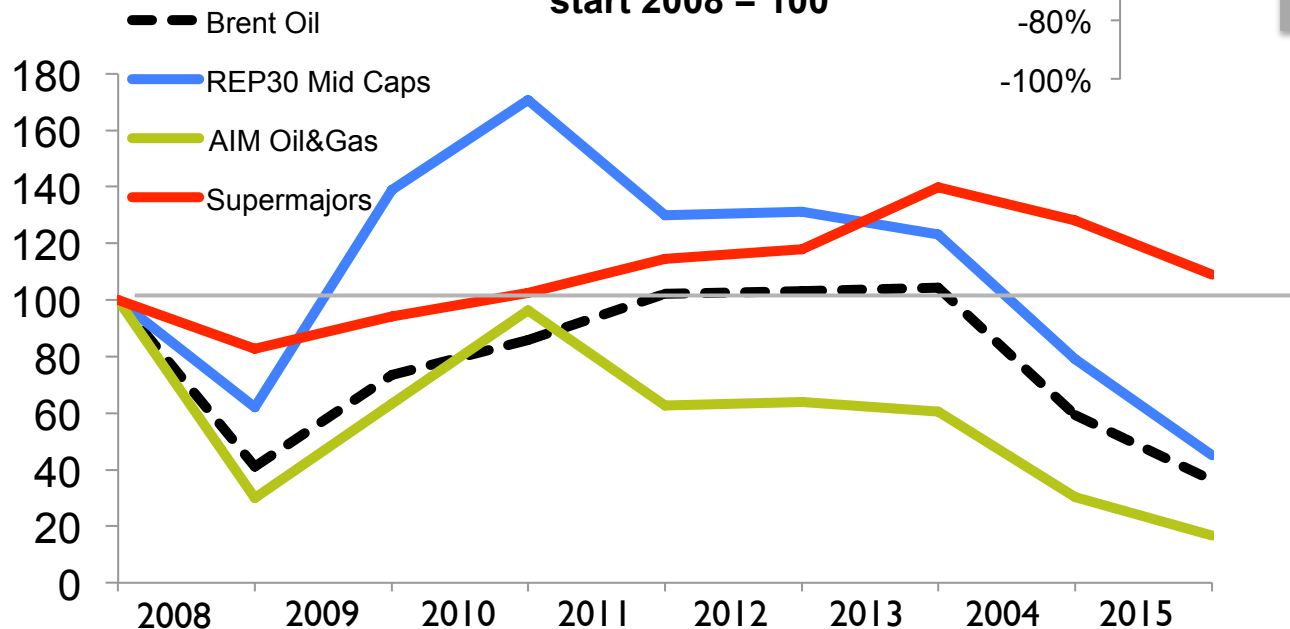
# The perfect storm part 1 - Back to the 90's



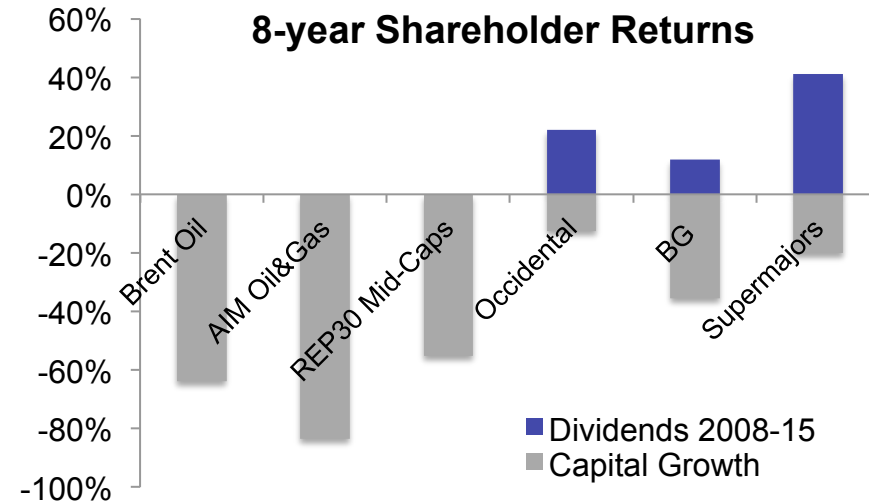
# The perfect storm part 2 – Equity market behaviour

- In bear oil markets investors correlate smaller cap values to short term oil price
- Picking small cap winners is extremely difficult, so investors avoid the sector
- Larger oil company investors want dividends

**Shareholder Returns Normalised  
start 2008 = 100**



**8-year Shareholder Returns**

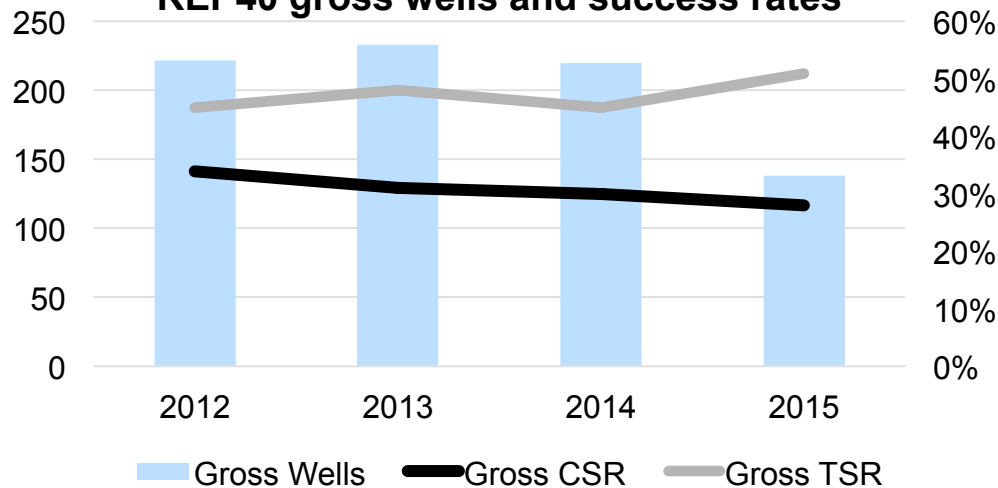




# Perfect storm – 3

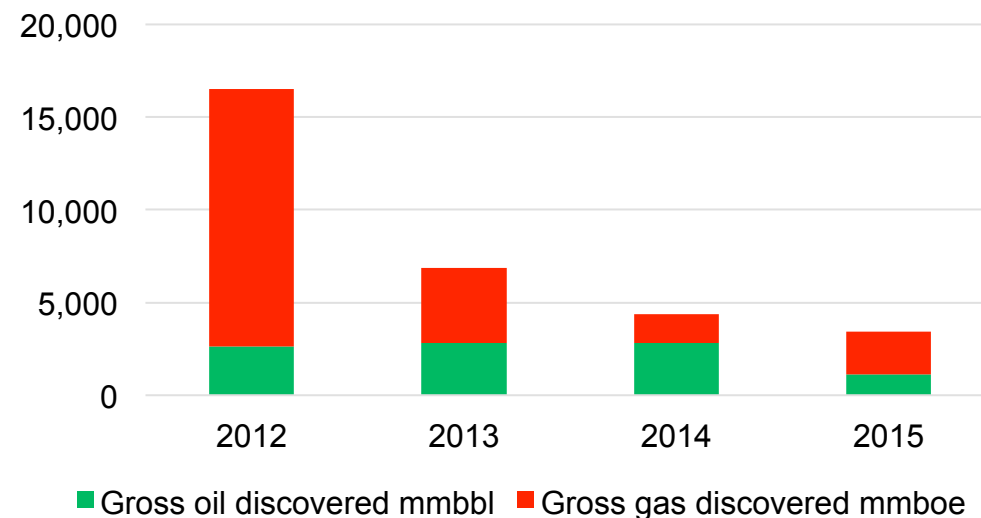
## Declining exploration performance

**REP40 gross wells and success rates**

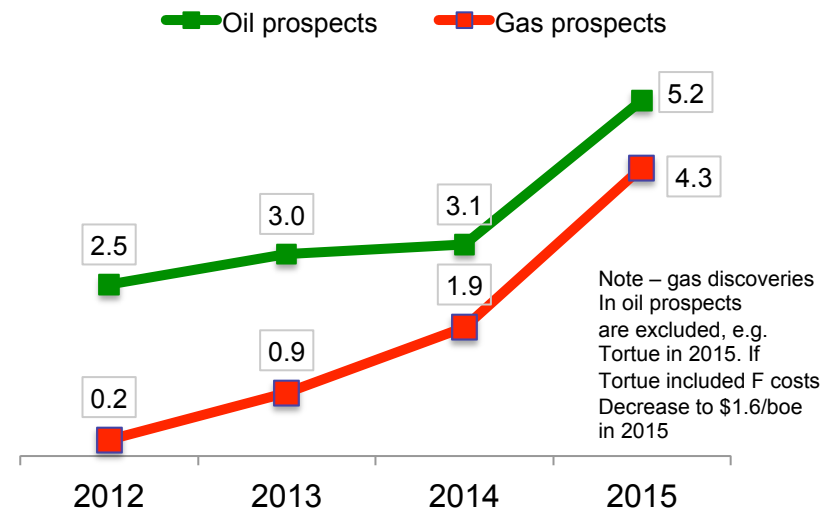


- Exploration drilling down 40% in 2015 but commercial success rates did not improve
- Hydrocarbons discovered per well increased in 2015, due to more deep water gas
- Oil discovered in 2015 is down 60% compared to 2014 and finding costs are at a record high.

**REP40 gross volumes discovered**



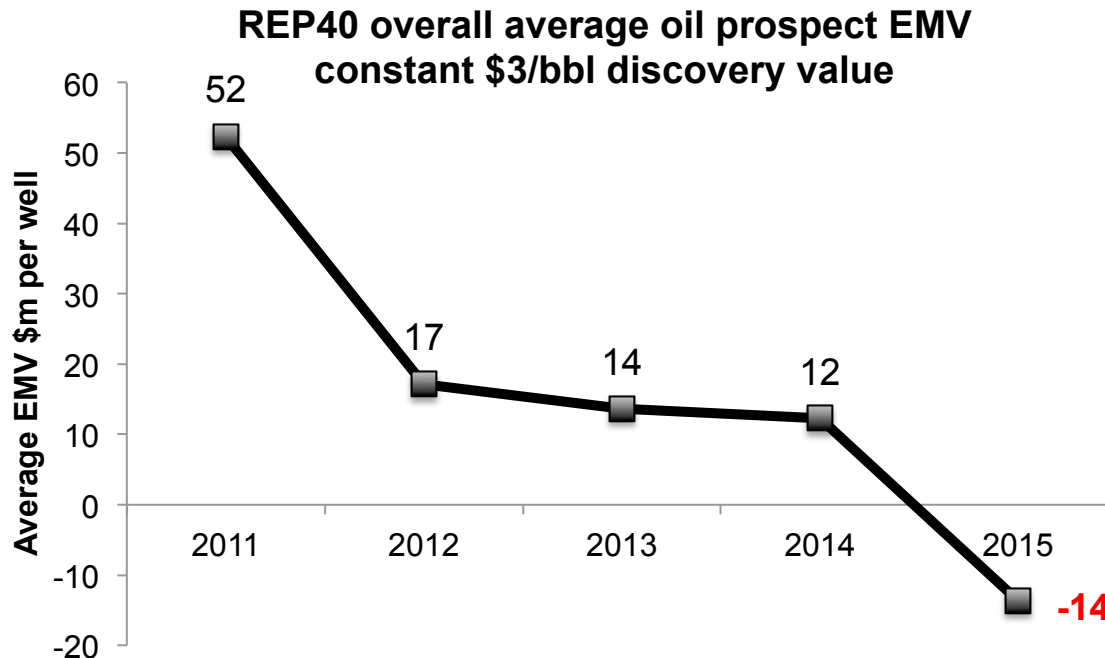
**REP40 gross finding costs \$/boe**





# Industry EMV for oil prospects was negative in 2015

Oil Prospects drilled	2011	2012	2013	2014	2015
Average Exploration Well Cost \$m	38	42	47	53	64
Average Commercial Success Rate	0.36	0.27	0.29	0.28	0.22
Average Discovery Size mmbbl	71	59	54	60	55



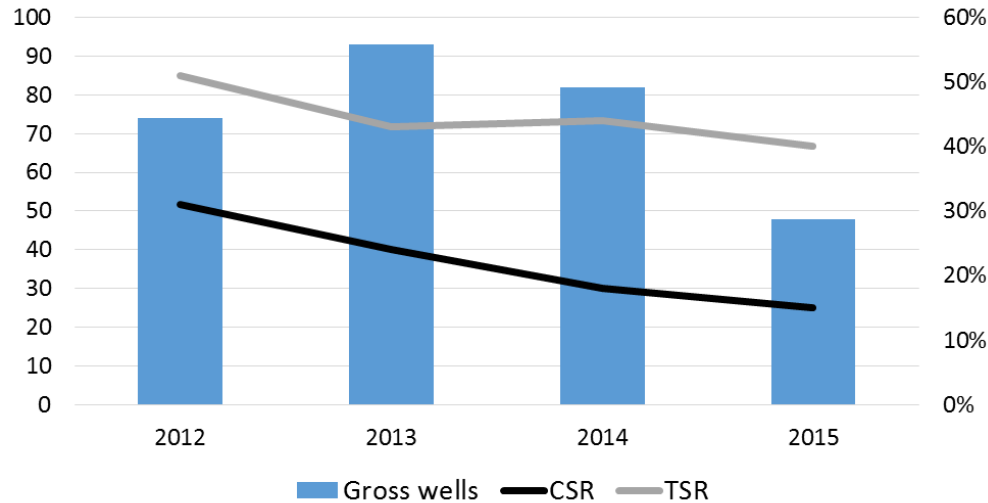
*EMV calculated as  
(Average disc size \* NPV/bbl  
\* COCS) – (Average Well  
Cost \* (1- COCS))*





# The industry response in 2015 - fewer but more risky high impact wells

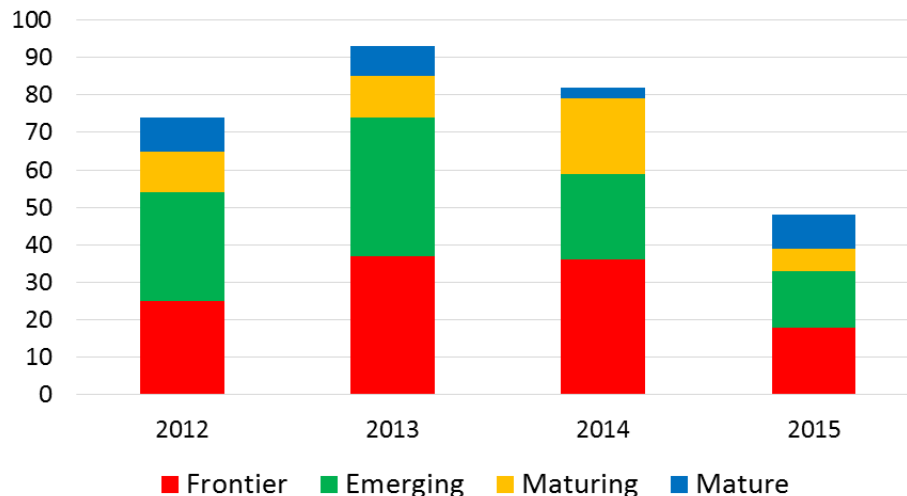
REP40 gross high impact wells and success rates



*REP defines high impact wells as all frontier wells and prospects in proven plays of >100mmboe in size pre-drill.*

- For high-impact wells, success rates have fallen steadily since 2012
- Even with 40% fewer wells the industry didn't increase success rates in 2015.
- Number of high impact wells drilled in emerging plays reducing, but drilling bigger prospects in more mature basins isn't improving the statistics

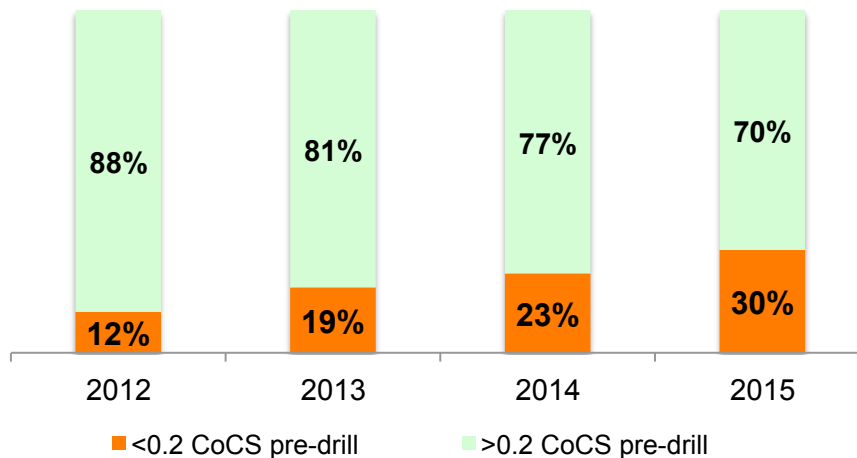
REP40 gross high impact wells, by play maturity





# Proportion of very high risk wells (< 20% CoCS) increased in 2015

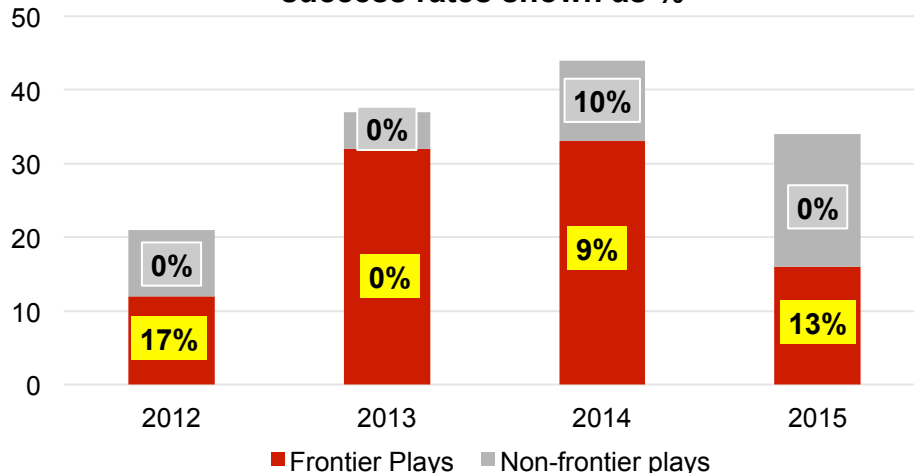
Proportion of wells completed by REP40 in very high risk pre-drill (<0.2 CoCS) category



*REP has risked prospects pre-drill since 2012, based on prospect analogues statistics and geological judgement.*

- The proportion of wells risked at <20% CoCS increased to a record 30% in 2015
- Proportionally more wells judged by REP as < 20% CoCS were drilled in proven basins in 2015, but with no commercial success.
- Only a 1 in 43 commercial success rate since 2012 in prospects rated by REP as <20% CoCS in proven basins showing possible cognitive bias in prospect selection

REP40 pre-drill <20% CoCS wells 2012-15 actual success rates shown as %

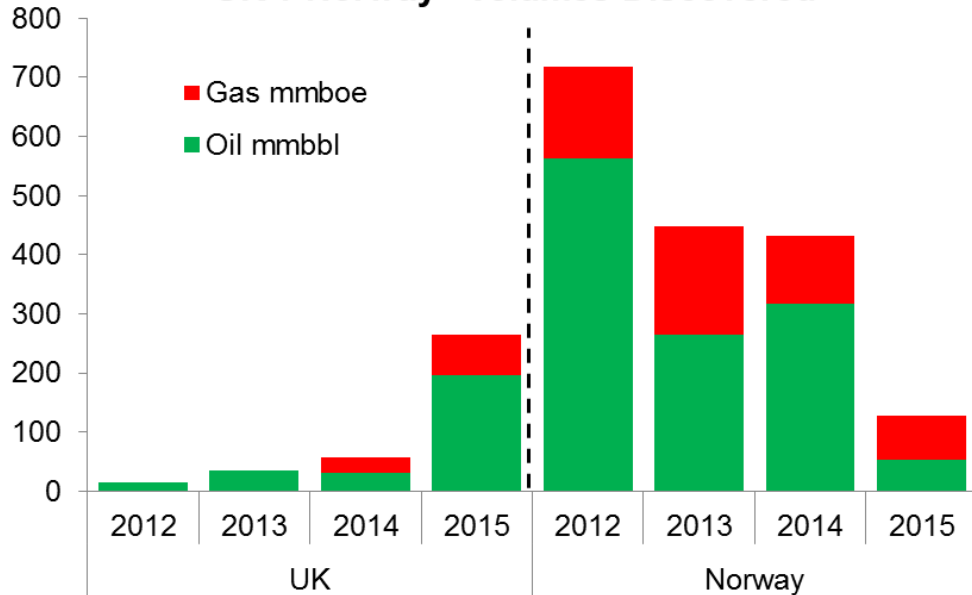


# North Sea performance

## UK overtakes Norway

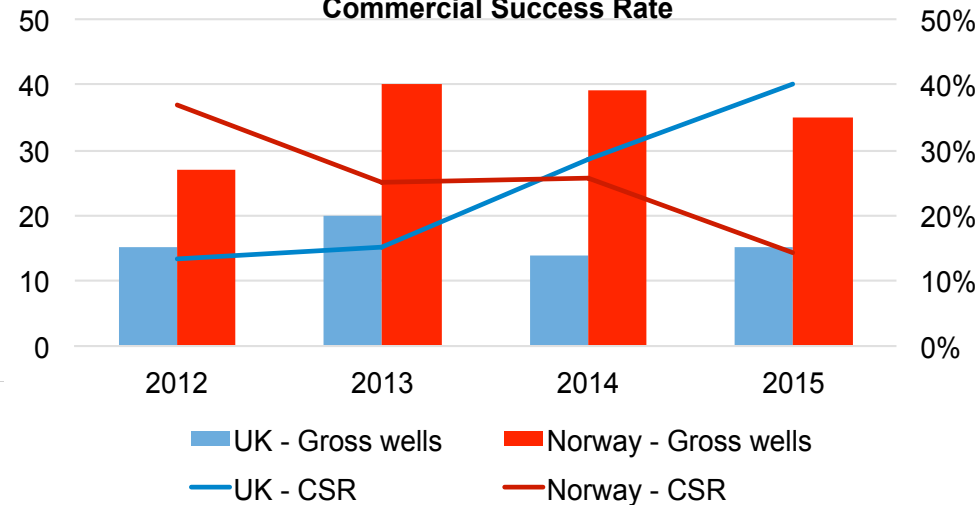
- Declining commercial success rates and volumes discovered in Norway
- UK performance improving and overtakes Norway in 2015

**UK v Norway - Volumes Discovered**

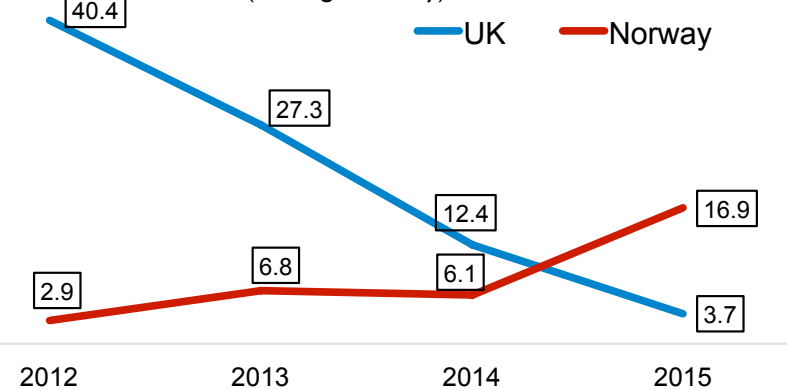


NB: 2015 UK volumes include 114 mmboe in Seagull South well classed as exploration by REP

**UK v Norway - Wells Drilled and Commercial Success Rate**



**UK v Norway - Finding Cost \$/boe**  
(Drilling cost only)





## What lies behind the declining exploration performance trend?

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- Declining average discovery size and lower commercial success rates across all play maturities
- Increased numbers of very high risk wells <20% pre-drill CoS being drilled
- Degradation of the industry prospect inventory as significant new oil plays fail to emerge from the frontier programme and existing plays mature



# Reigniting investor interest in 2016 - Much to prove

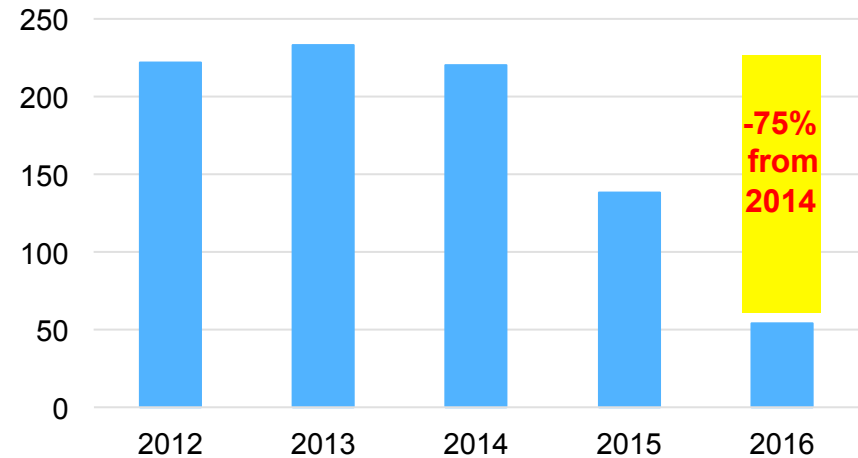
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- Can Supermajors sustain dividend pay-outs through the down cycle?
  - watch out for more budget cuts and higher borrowing
- Are conventional E&Ps a) financially robust, and b) capable of delivering profitable growth.
  - those with assets that generate cash at low oil prices and have low debt leverage, should do OK;
  - those with robust assets but over-leveraged and could look to merge or be acquired;
  - those with low grade assets and over leverage may well be wound up.
- Can unconventional E&Ps generate the cash in a sub \$40/bbl world to both fund drilling, and service their debt?
- Can explorers improve success rates and make discoveries profitable to develop at sub \$40/bbl oil?

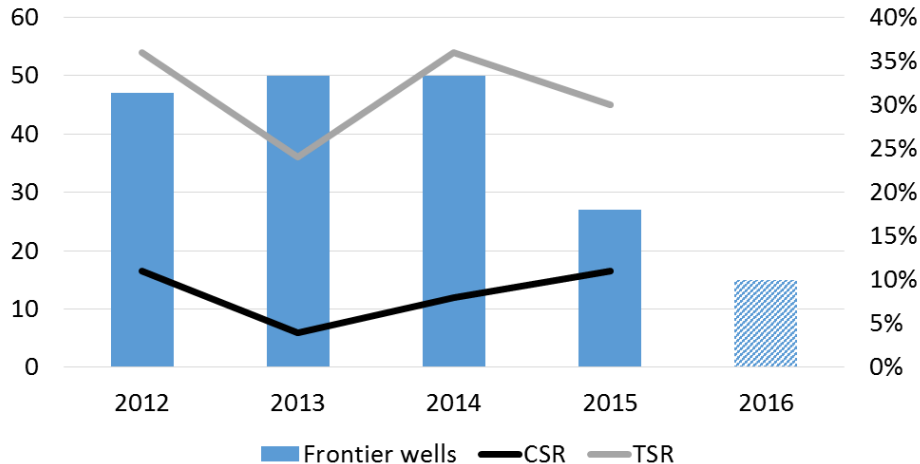
# Exploration in 2016

- Exploration drilling forecast down 75% on 2014
- Proportionally fewer very high risk wells
- Expect overall success rates to improve
- Focus on building prospect inventories through new acreage without well commitments

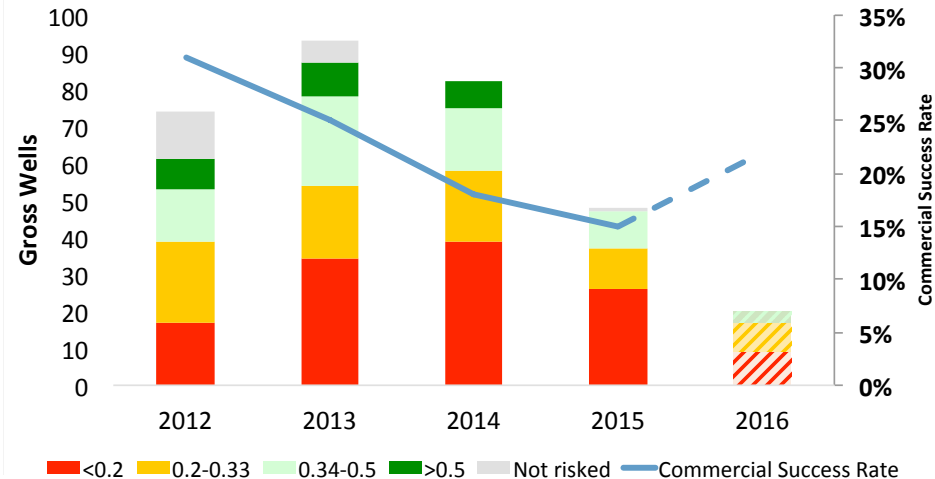
REP40 gross wells



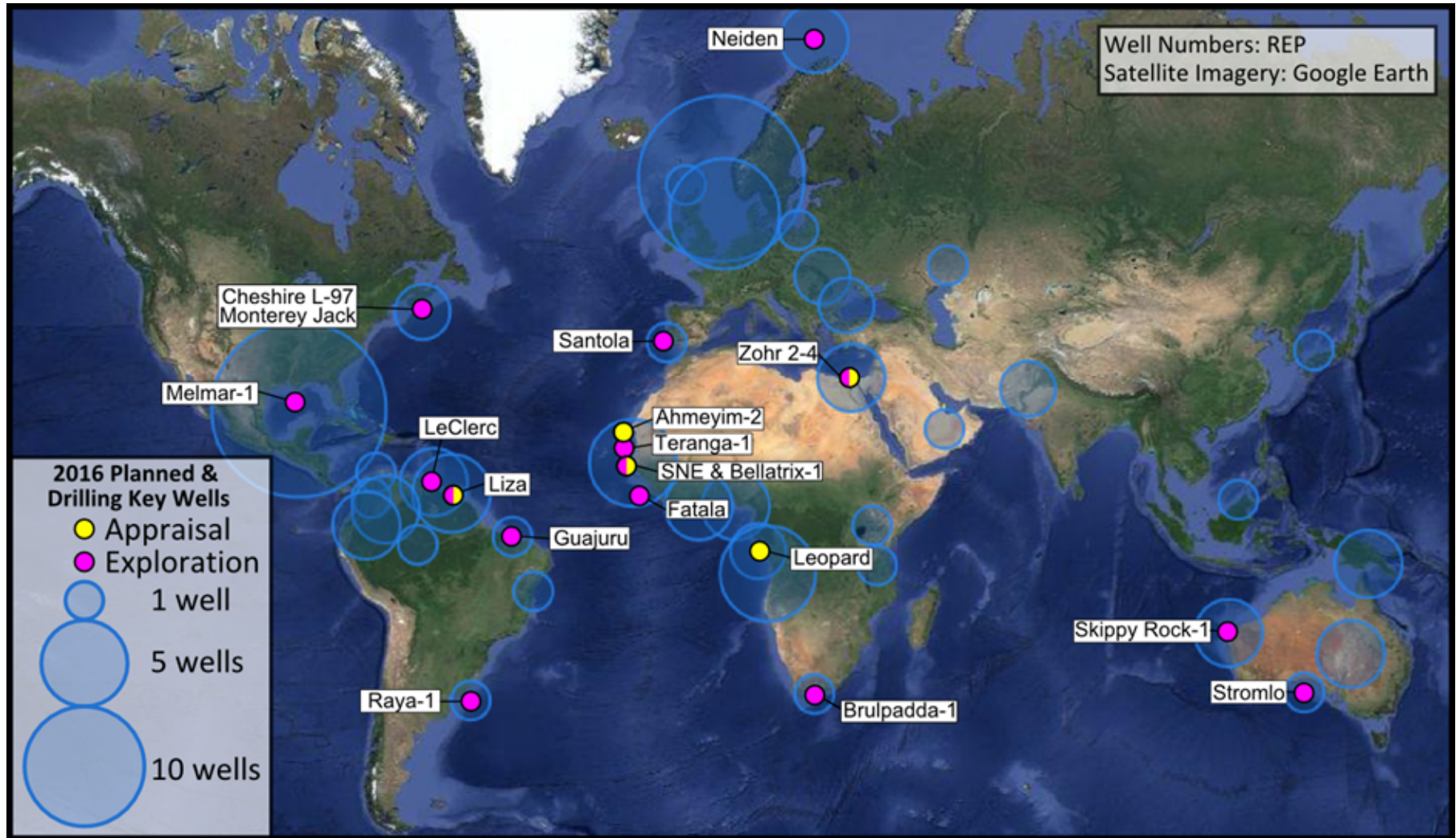
Frontier Wells - All Companies



REP40 gross wells by REP pre-drill CoCS category - high impact wells



# Wells to watch out for in 2016

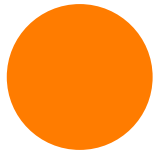
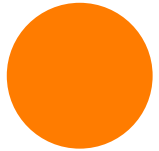
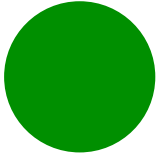




# Catalysts for reigniting investor interest its not rocket science....

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- Reduce the cost of exploration
  - Seismic and well costs tumbling
- Higher commercial success rates
  - High grading of portfolios, better risking, eliminating cognitive bias
- Low cost to develop discoveries
  - Bigger discoveries with better reservoirs and hydrocarbon properties.....where are they to be found?







# Thank you – come and see us on stand 75

## Independent, expert research and insights into global exploration and E&P companies

### Wildcat Service Global Exploration Intelligence

REP's Wildcat Service provides quick and easy access to expert intelligence on international conventional exploration and appraisal drilling for business development, strategy and performance benchmarking.

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REP's annual report analyses international conventional exploration performance. We look back over the past five years and include exploration drilling plans for the current year for a group of 40 mid and large-cap E&P companies.

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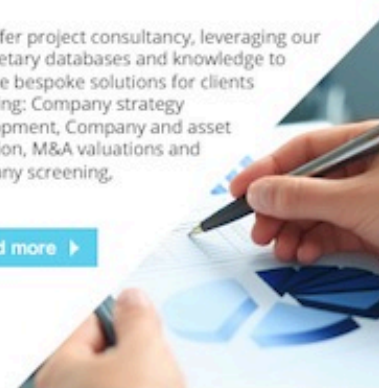
### Buy Side Investor Research

REP's independent expert analysis and insight helps decision-making for financial investors. REP specialises in smaller E&P companies, their assets and growth prospects.

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The quality of well cost and resource estimates vary and may differ from earlier REP publications where appraisal results or other information becomes available. The classification of wells as dry/non-commercial/commercial, as well as the definition of a frontier well, is subjective and REP's classifications may differ from your own.

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