

# The Future of Exploration Survey

The review and analysis of responses



# The Future of Exploration Survey

The review and analysis of responses



## Aims and Objectives of the Survey

- › To ensure that we are up to date with trends in a continually evolving market, we annually solicit the views of the industry to better understand the key issues and challenges that companies are facing. The 2011 survey (conducted in January 2012) builds upon the success of surveys carried out in 2008, 2009 and 2010.
- › Wood Mackenzie is at the forefront of thought leadership in this arena through the Exploration Service and events such as the Exploration Summit. It is useful to check our understanding against the views of the community that we serve and identify the key exploration related issues.
- › The results of the survey represent a snapshot of the state of the exploration business and by conducting these surveys annually, we can provide a useful benchmark to recognise the changing nature of exploration and predominant trends in the sector.

# The Future of Exploration Survey

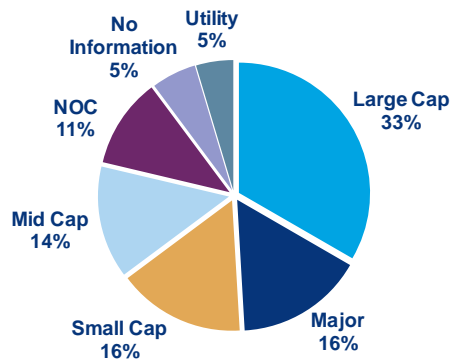
The review and analysis of responses



## Respondents

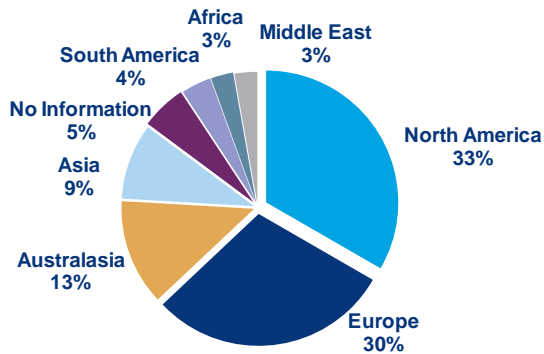
The survey provides views from a wide range of companies active in the exploration business and many of the key decision makers who have been responsible for the opening of the new plays being pursued today.

### Companies



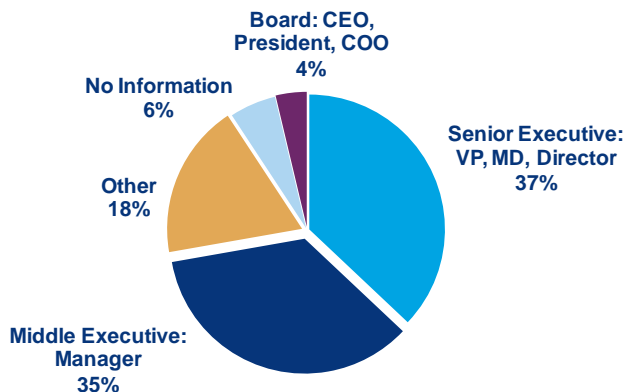
A total of 108 responses were collected for the 2011 survey, a 42% increase over the previous year. The Majors showed the largest increase in respondents, perhaps a reflection of their greater emphasis on exploration today.

### Regions



95% of respondents provided contact information with representation across the globe. North America and Europe saw the greatest percentage of respondents.

### Respondents



Over 76% of respondents are at board or senior/middle executive level, the senior decision makers who are influencing global exploration strategy in their companies.

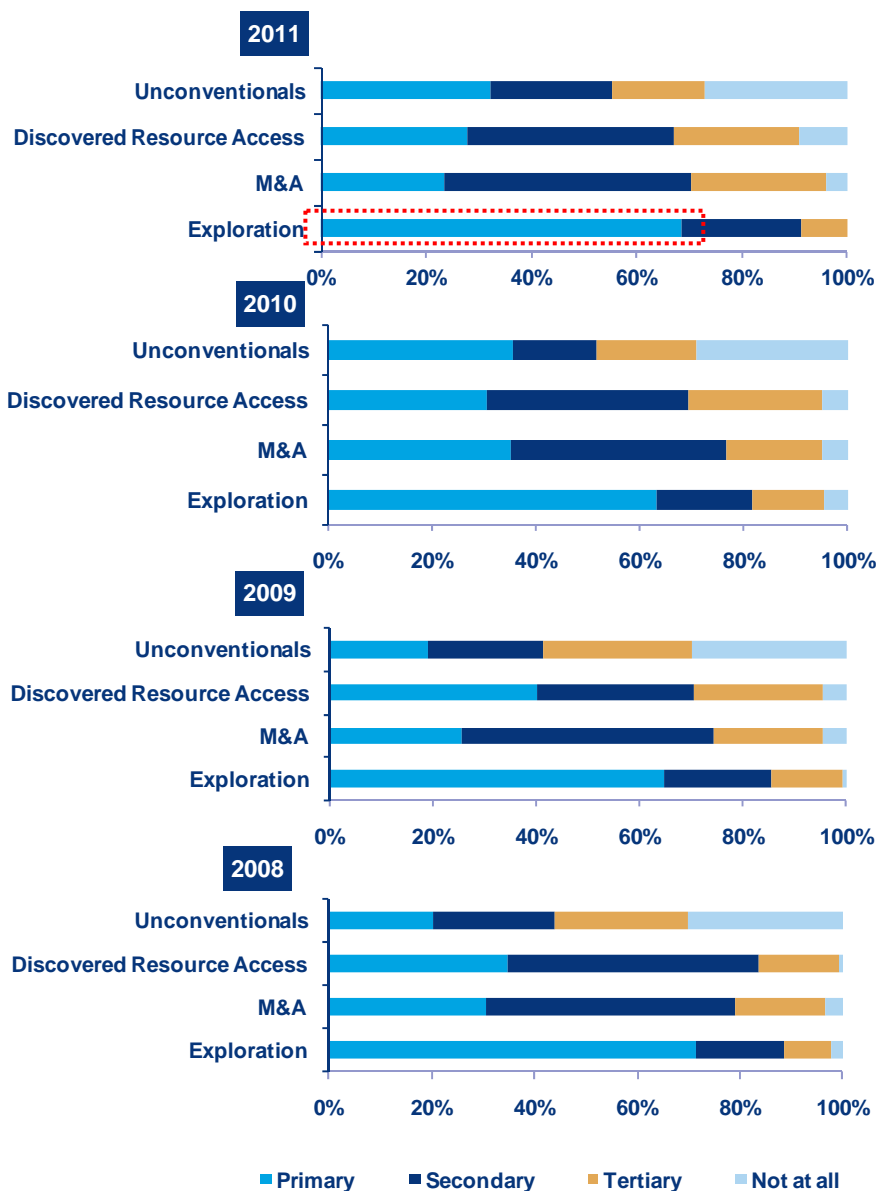
# The Future of Exploration Survey

The review and analysis of responses



## Role of Exploration – As a resource capture option

“How does exploration rank as a resource capture option for your company, compared with M&A, discovered resource access and unconventional?”



Over 65% of respondents ranked exploration as their primary resource capture option, an increase from 63% seen in 2010. Unconventionals, discovered resource access and M&A all declined in importance as a primary resource capture option.

### Selected Comments

Adding reserves with repeatability and positive value is paramount

Our value in the market place is directly tied to our exploration success

Organic growth through exploration is in our DNA

For exploration to compete for internal funding with resource plays, the opportunities must be material and profitable

Exploration is a value additive stream for us

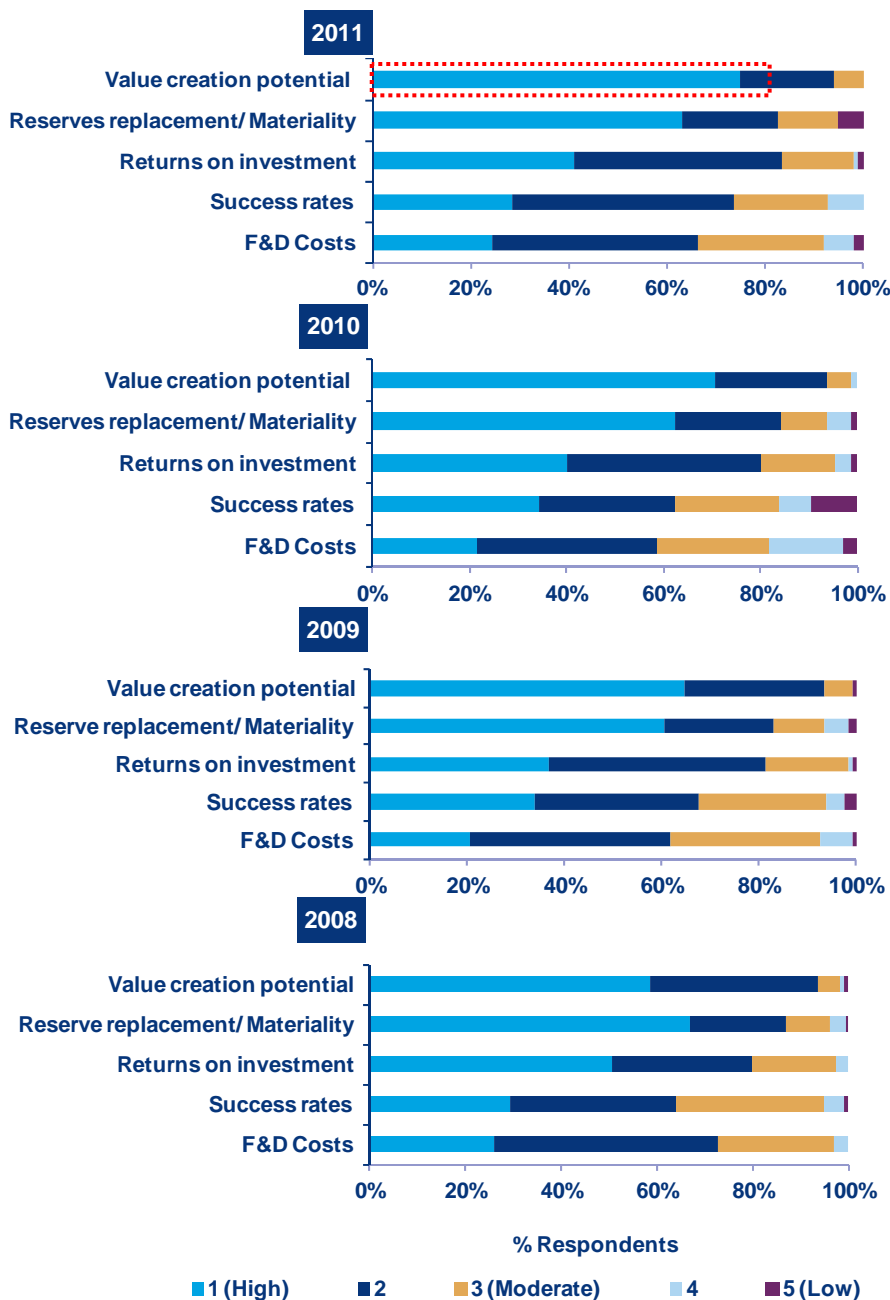
# The Future of Exploration Survey

The review and analysis of responses



## Role of Exploration – Tracking performance

“How important are each of these metrics in demonstrating your exploration performance?”



Value creation is consistently the most important metric to demonstrate exploration performance, followed by reserves replacement/materiality.

### Selected Comments

Value creation is always talked about as most important but really we need to have material resources added through drilling

We focus on resource additions, not reserves, and we focus on unit finding cost for those resources

Materiality rather than specific reserves replacement – we have an IRR hurdle and monitor F&D costs, but less critical

Value creation translates most directly to shareholder value

Materiality and potential to create value are key criteria

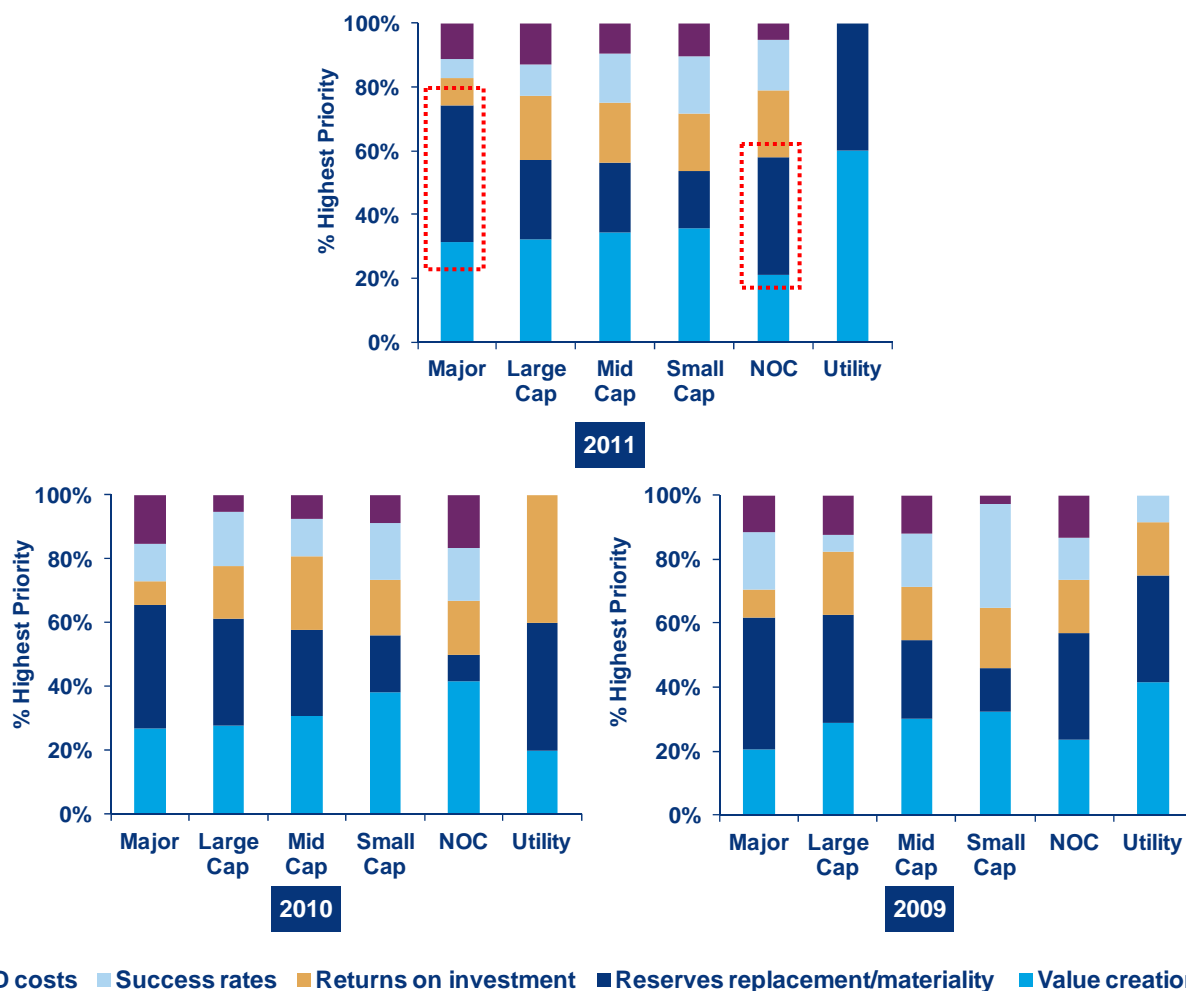
# The Future of Exploration Survey

The review and analysis of responses



## Role of Exploration – Tracking performance

“How important are each of these metrics in demonstrating your exploration performance?”



Reserves replacement/materiality remains important for the Majors and also increasingly for the NOCs. Value creation potential is an essential metric for the IOCs but less so for NOCs.

# The Future of Exploration Survey

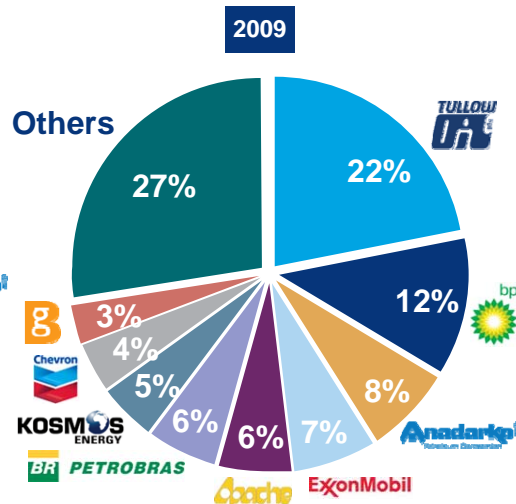
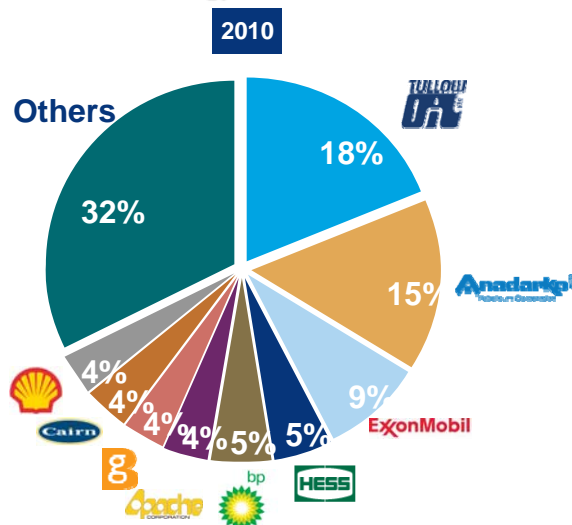
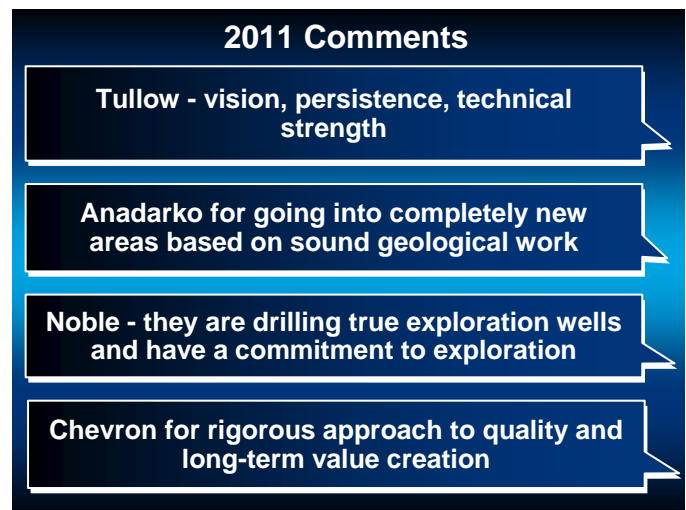
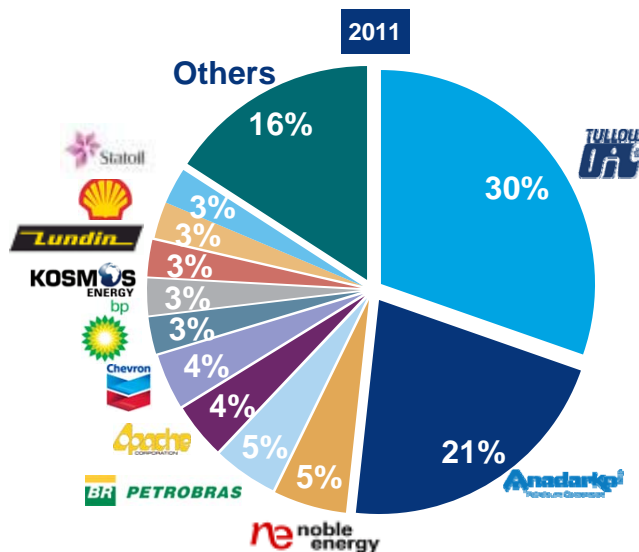
The review and analysis of responses



## Role of Exploration – Who is the most admired explorer?

“Aside from your own, which exploring company do you most admire and why?”

Tullow remains as the most admired exploration company with 30% of respondents' votes. Anadarko features prominently on the list as does new entrant to the top ten, Noble Energy.



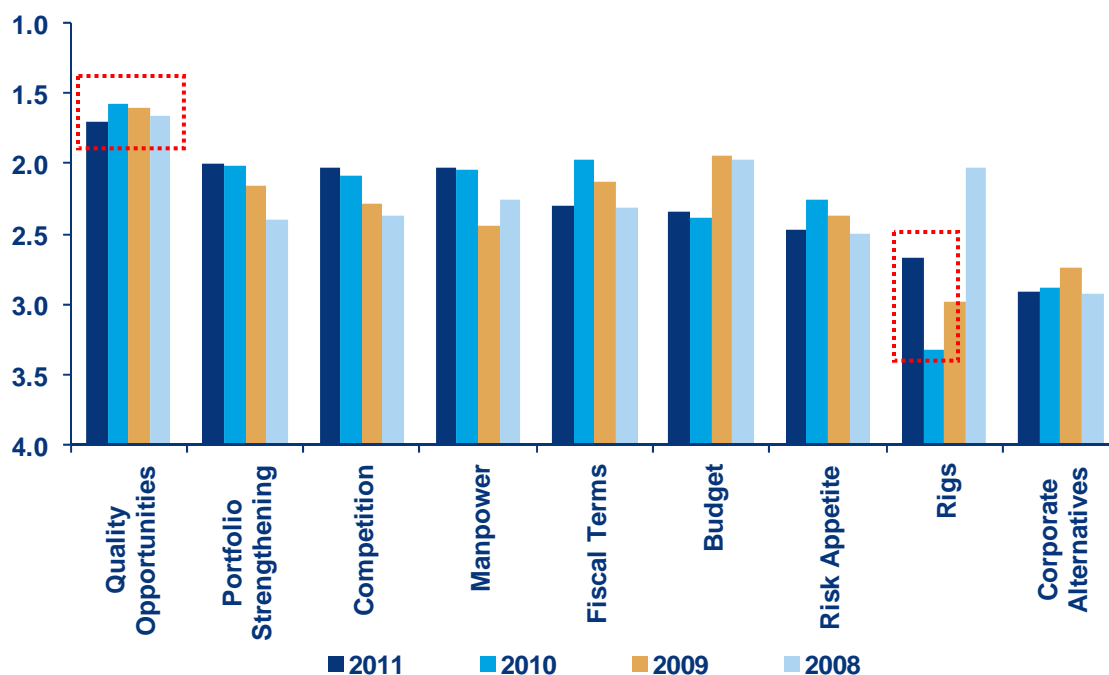
# The Future of Exploration Survey

The review and analysis of responses



## Today's Challenges for Exploration – The most significant challenges

“What do you consider the most significant challenges for Exploration today?”  
(1 being the most significant and 5 being the least)



Quality opportunities remain the most significant challenge faced by Explorers today. Since the 2010 survey, fiscal terms have decreased in significance, but rigs have jumped up in importance once again.

### Other challenges mentioned include:

Environmental issues, too many requirements, long lead times

Maintaining valued aspects of company culture during growth

Corporate courage to take the risk to add more exploration opportunities

Safe operations

The cost of doing business is hurting, particularly in Australia



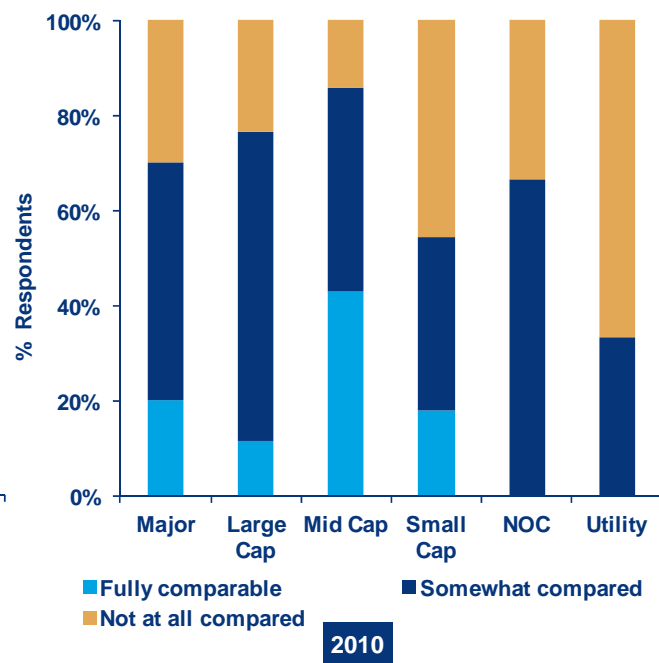
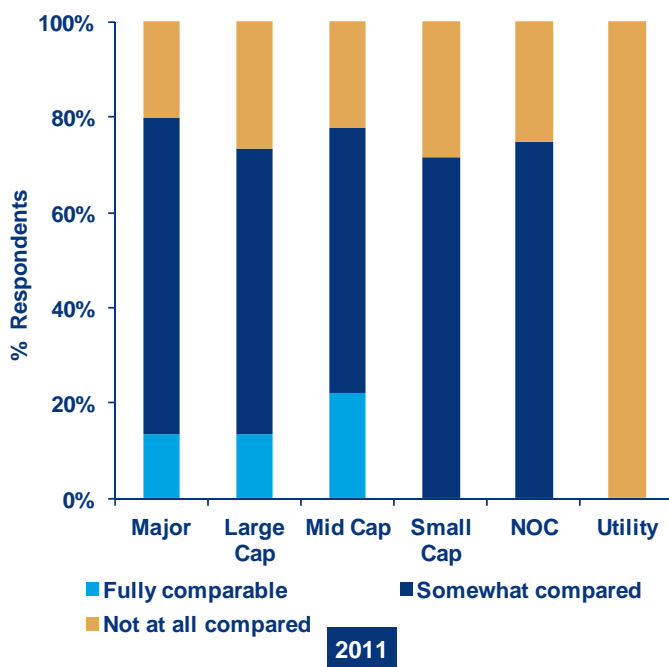
# The Future of Exploration Survey

The review and analysis of responses



## Today's Challenges for Exploration – Comparing conventional and unconventional opportunities

“Do your current processes and organisation allow you to adequately compare both conventional and unconventional opportunities within your portfolio?”



In 2010 only 17% of respondents had processes which allowed them to compare conventional and unconventional opportunities, and in 2011 this figure was only 11%, highlighting the continuing difficulty in objectively comparing these opportunities. Companies that can somewhat compare opportunities increased.

### 2011 Comments

They achieve different things for us, so we tend to decide the balance between them and then work within that

Still lacking a good understanding of risk on commercial outcomes outside the technical ranks on Resource Plays

Need both...apples and oranges

We have worked hard to balance the probability of economic success for unconventional pilots with the probability of cost forward success on conventional exploration

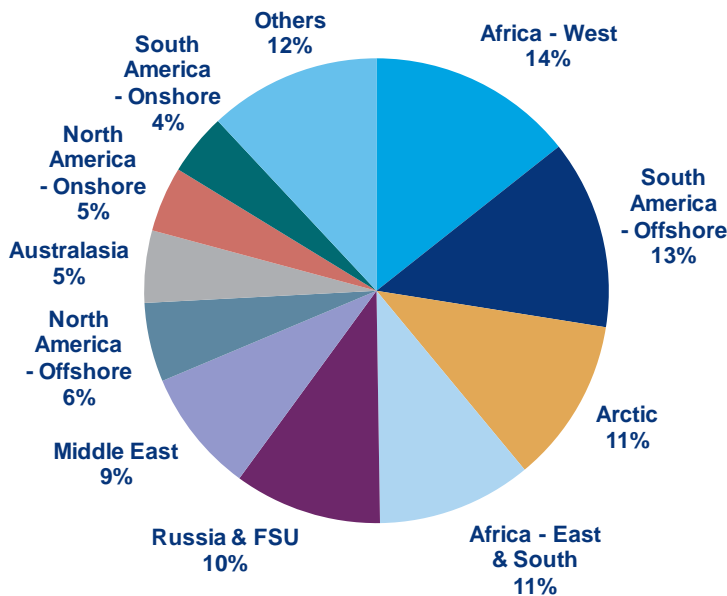
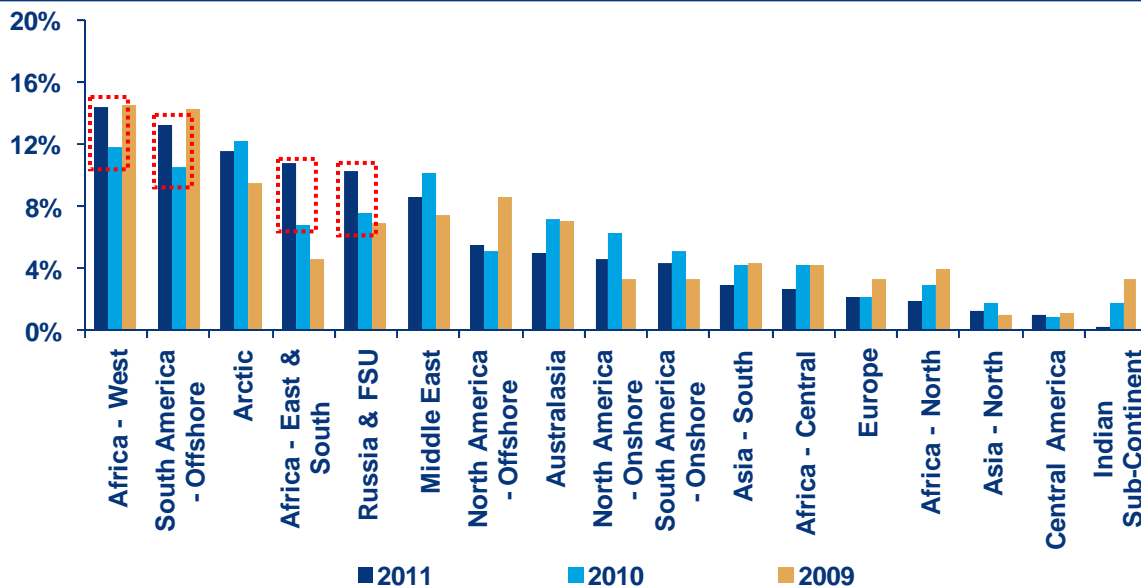
# The Future of Exploration Survey

The review and analysis of responses



## Today's Challenges for Exploration – Regional “hotspots”

“Which areas have the most attractive future resource potential?”



The African continent had the highest votes with significant increases for South America offshore, Africa - East and South, and Russia and the FSU. Arctic dropped slightly but still ranks well for resource potential.

# The Future of Exploration Survey

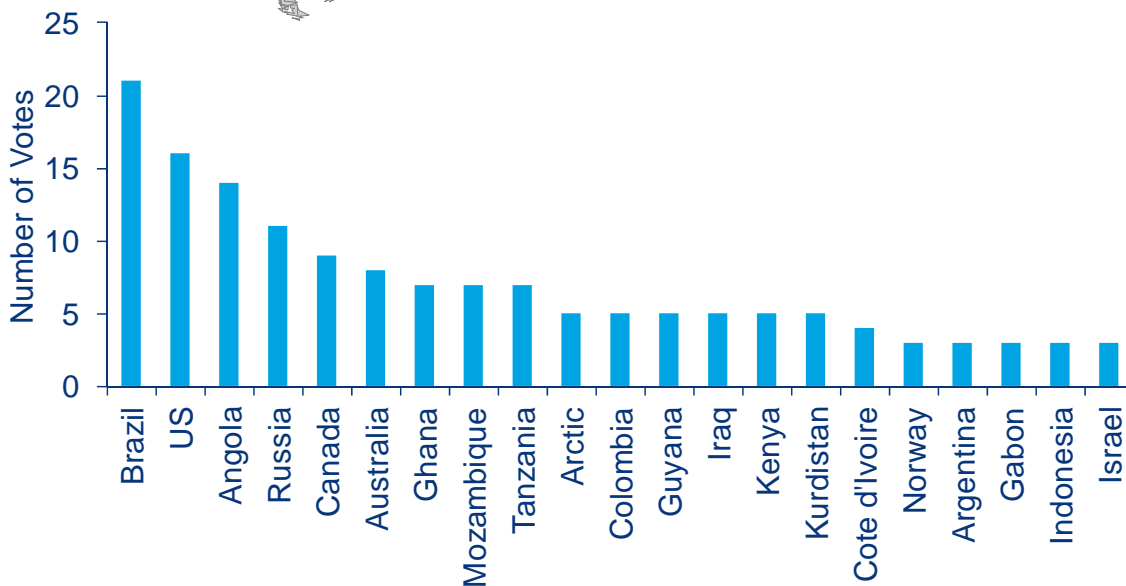
The review and analysis of responses



## Today's Challenges for Exploration – Country “hotspots”

“Within the regions identified, which country/countries are of particular interest?”

\* Countries with more than 5 individual mentions



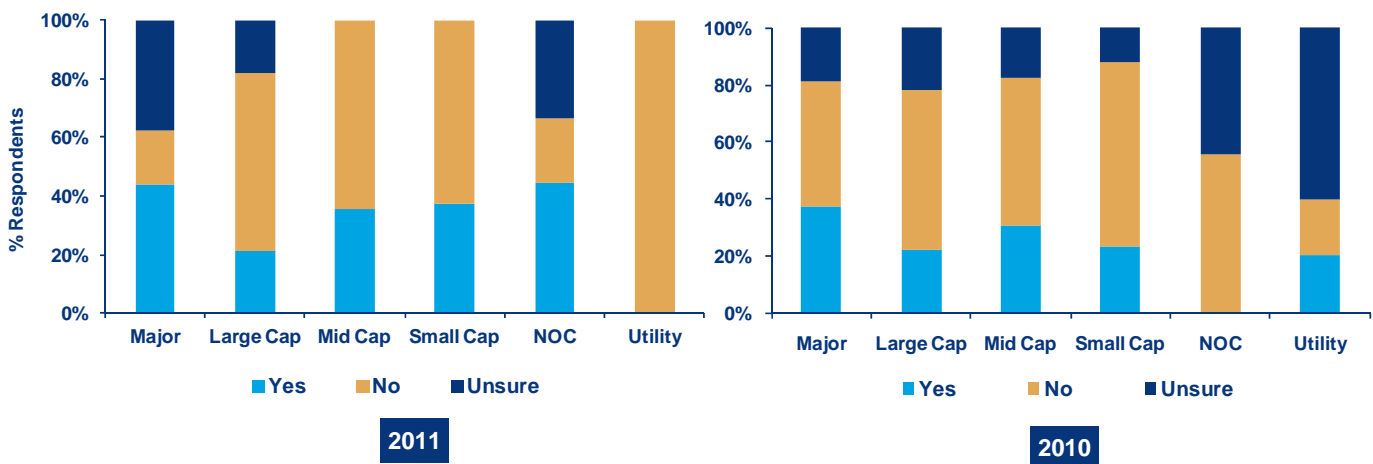
# The Future of Exploration Survey

The review and analysis of responses



## Today's Challenges for Exploration – Portfolio depth

“Do you think your current exploration portfolio offers enough scope to achieve your growth ambitions?”



Despite the increased significance placed on exploration in many companies, there still remains underlying concern for many around the depth of their current portfolios.

### 2011 Comments

Getting appropriate acreage that technically offers the prospectivity to match corporate growth expectations is...an increasing challenge

We need to have access to further unlicensed areas

It does for three to five years with the challenge being to get the wells drilled and add new leases with opportunities beyond that period

Portfolios of many companies now contain a larger component of high risk positions

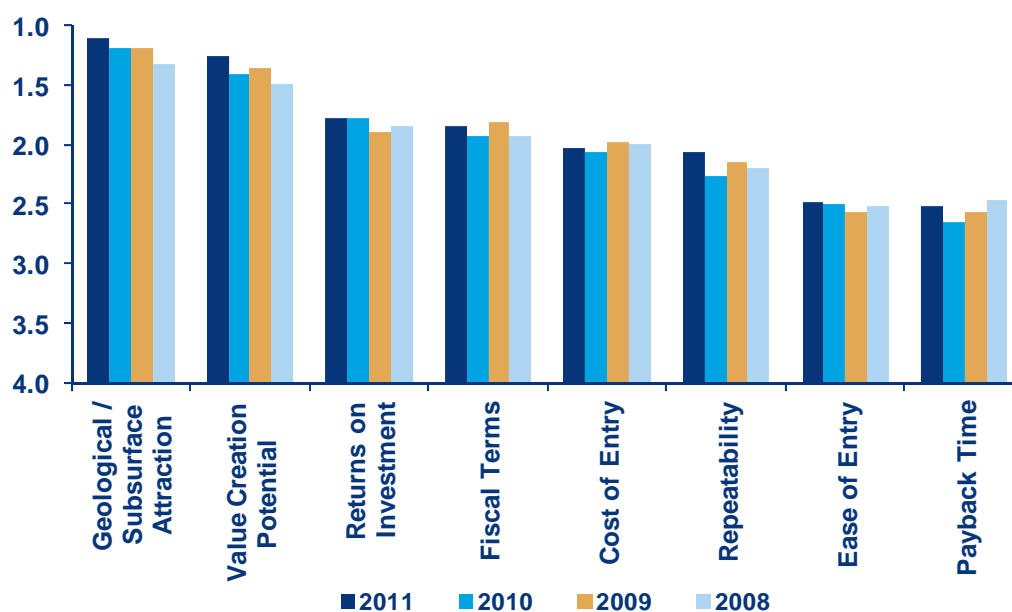
# The Future of Exploration Survey

The review and analysis of responses



## Your Approach to Exploration – Ranking new acreage

“When considering new acreage, how do you rank the following in terms of importance?”  
(1 being very important, 5 being not important)



No change in the overall importance of different parameters to rank new acreage, subsurface attraction and value creation remain the most important for many.

### Other parameters mentioned include:

Gas versus oil is also important

Political stability

Running room and ability to reduce risk with learnings

The technical merit of the opportunity and follow-up potential are the primary drivers

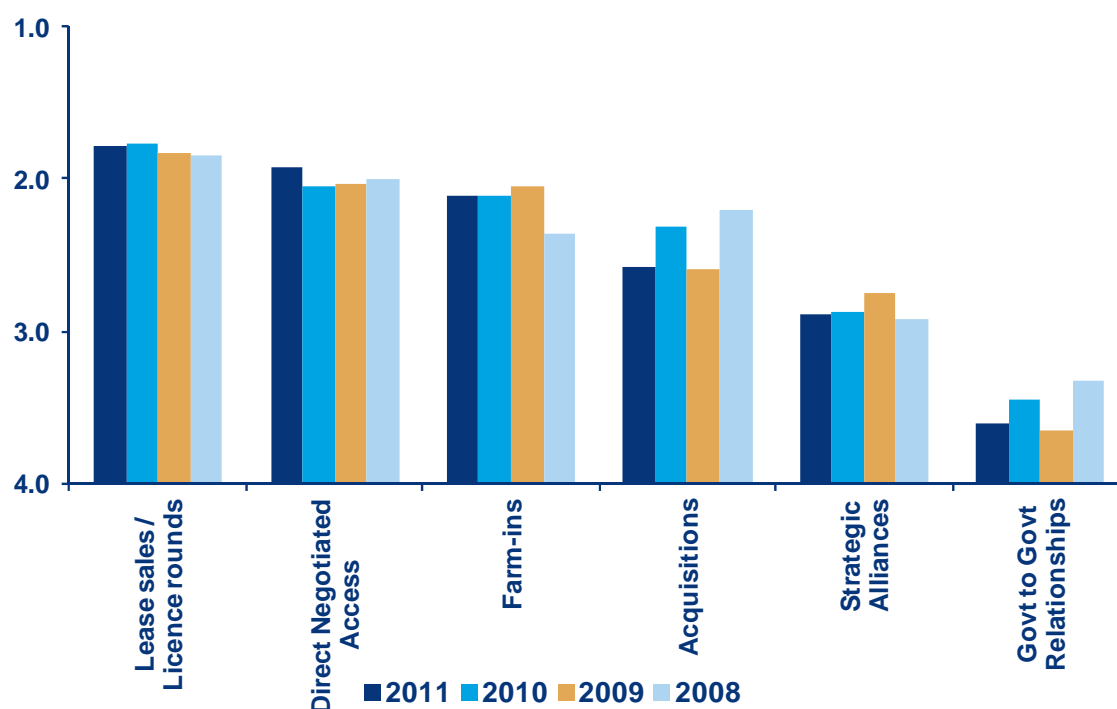
# The Future of Exploration Survey

The review and analysis of responses



## Your Approach to Exploration – Acreage access

“What are the key acreage access mechanisms, in terms of priority, for your company?”  
(1 being high priority, 5 being low priority)



Lease sales and license rounds remain the key acreage access mechanisms. Acquisitions declined in importance during 2011 as did the role of government to government relationships.

### 2011 Comments

Acreage swaps

Hostile acquisitions continue to be off the table

All mechanisms pursued

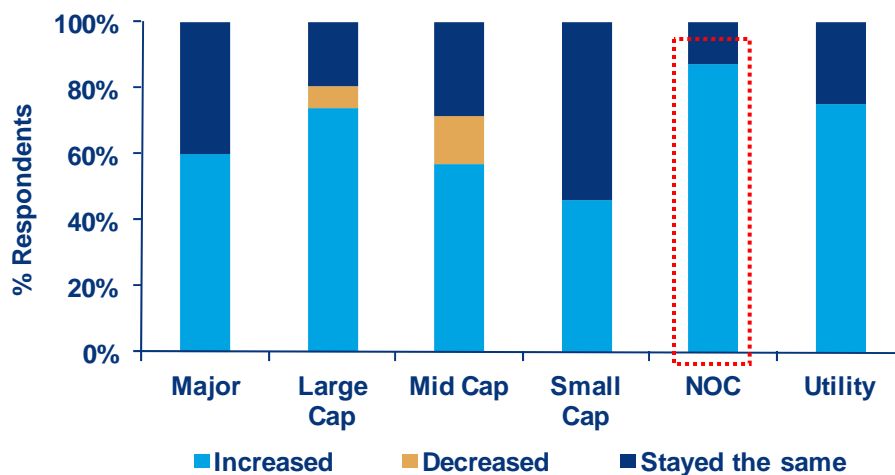
# The Future of Exploration Survey

The review and analysis of responses



## Your Approach to Exploration – Role of partnering

“Has the importance of partnering increased in importance in the exploration business?”



The importance of partnering in the exploration business has increased for all companies although mid to small cap companies see a lesser role for partnering. NOCs have seen the largest increase in the role of partnering, reflecting their requirement to increase opportunity access and capability.

### 2011 Comments

Increased - more risks and more costs

...the emergence of small and mid size E&Ps capturing and holding onto acreage longer...consequently, large companies/supermajors are forced to partner to gain access into frontier opportunities

The market place for acreage...is so much more competitive now that alignment and advantages brought about by appropriately connected partners can make a big difference to the opportunity

...but favourable conditions/complementarity of relative strengths and weaknesses are rare

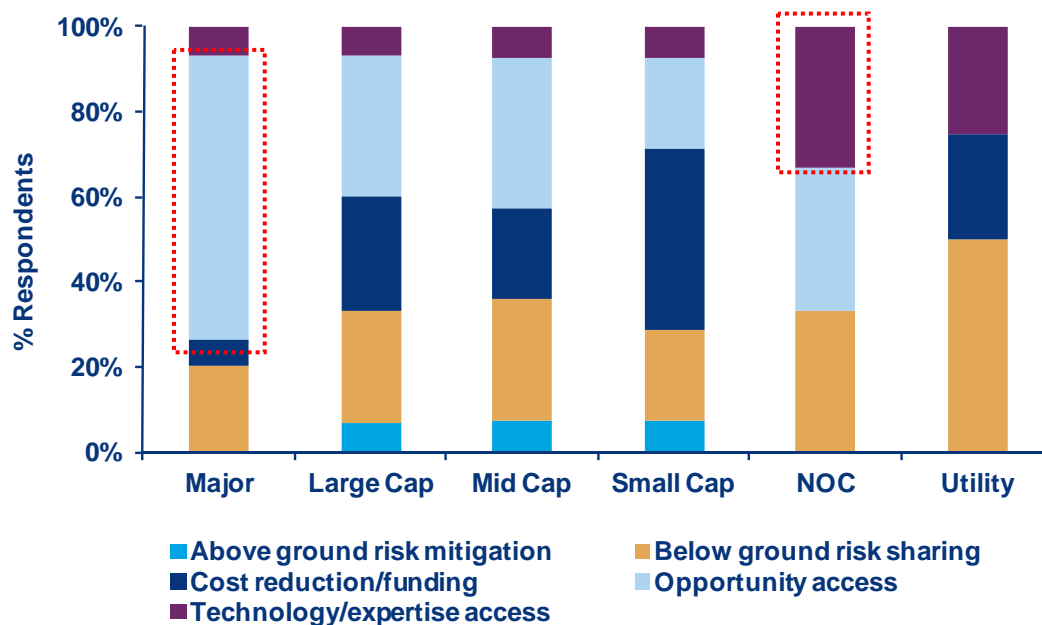
# The Future of Exploration Survey

The review and analysis of responses



## Your Approach to Exploration – Reasons to partner

“What do you perceive as the principal role of partnering in the Exploration business?”



- › For the Majors, partnering is driven by opportunity access, more with NOCs today rather than IOCs;
- › Below ground risk sharing, cost reduction/funding and opportunity access are the main drivers for the large to small caps; and
- › For NOCs and utilities, technology/expertise access becomes more important.



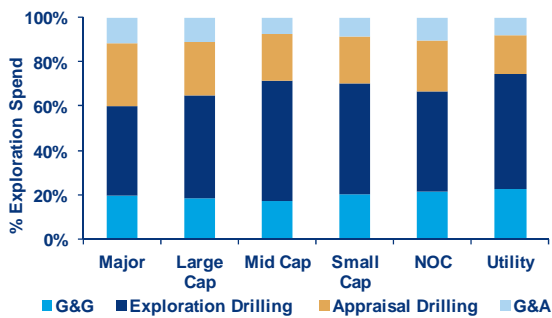
# The Future of Exploration Survey

The review and analysis of responses

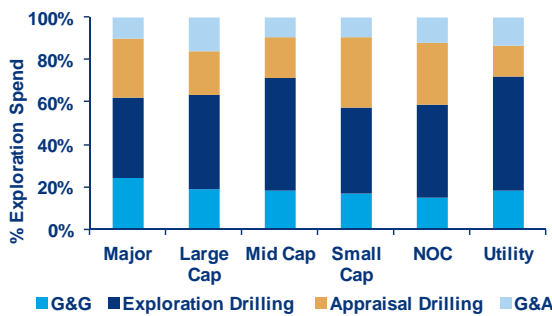


## Your Approach to Exploration – Exploration spend breakdown

“What is the approximate percentage breakdown of your exploration spend in the following areas?”

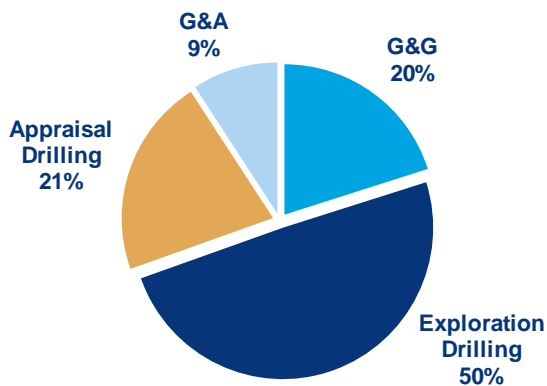


2011

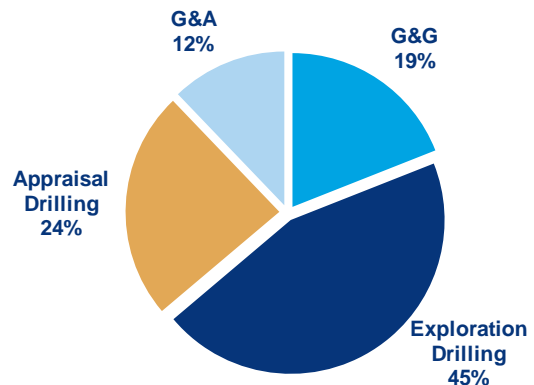


2010

Exploration drilling continues to take up the majority of exploration spend, with a drop in appraisal drilling spend and G&G between 2010 and 2011.



2011



2010

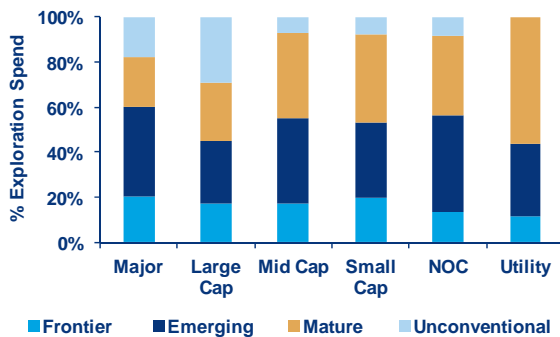
# The Future of Exploration Survey

The review and analysis of responses

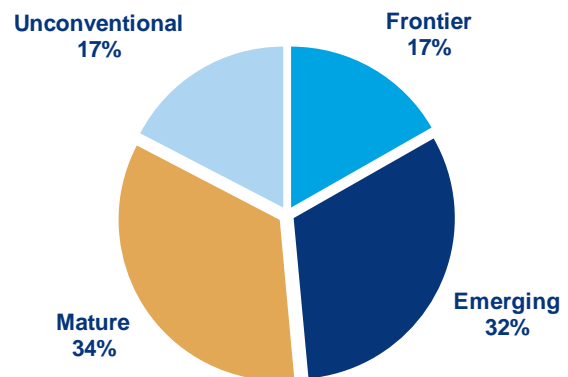
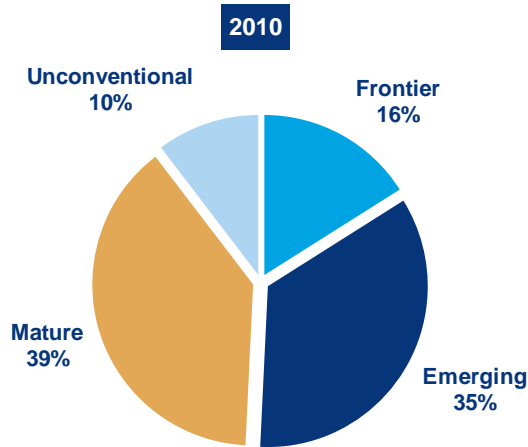
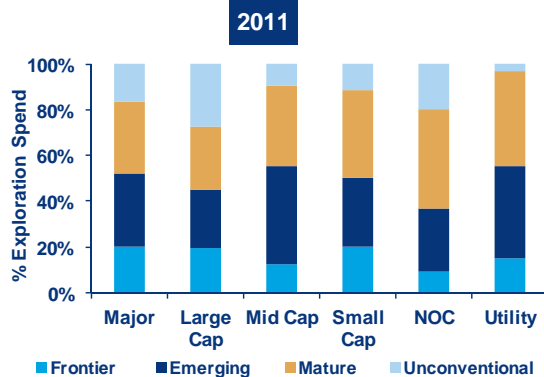


## Your Approach to Exploration – Exploration spend focus

“What is the approximate percentage breakdown of your Exploration spend in the following areas?”



Between 2010 and 2011 there has been a slight shift towards spend in emerging and mature areas away from the unconventional. Surprisingly, there has been no increase in spend seen in frontier areas, although this is expected to increase in coming years due to the high level of recent licensing activity.



2011

2010

# The Future of Exploration Survey

The review and analysis of responses



## Key Conclusions

- › Overall, the survey confirms that there is currently a resurgence of interest in exploration within the oil and gas business, with West Africa and South America offshore remaining the most attractive areas for the industry.
- › Exploration still ranks as the number one resource capture option followed by unconventional, although the industry still struggles to objectively compare conventional and unconventional opportunities.
- › Tullow Oil remains the most admired exploration company, followed by Anadarko and Noble Energy. Petrobras is the most admired NOC explorer.
- › Overall, companies see an increasing need to partner, with opportunity access the primary driver for the Majors. For NOCs, technology/expertise access becomes more important.
- › Unlike 2010, where there was a significant shift in spend towards unconventional, the proportion of spend targeting unconventional in 2011 declined.

# The Future of Exploration Survey

The review and analysis of responses



**We would like to thank you for taking the time to complete the Wood Mackenzie Future of Exploration Survey.**

**David Parkinson**  
**Lead Exploration Consultant**  
**+65 6518 0861**  
**[david.parkinson@woodmac.com](mailto:david.parkinson@woodmac.com)**

**Andrew Latham**  
**VP Exploration Service**  
**+44 131 243 4408**  
**[andrew.latham@woodmac.com](mailto:andrew.latham@woodmac.com)**

**[www.woodmac.com/consulting](http://www.woodmac.com/consulting)**

#### Global Contact Details

**Europe** +44 (0)131 2434400  
**Americas** +1 713 470 1600  
**Asia Pacific** +65 6518 0800  
**Email** [energy@woodmac.com](mailto:energy@woodmac.com)  
**Website** [www.woodmac.com](http://www.woodmac.com)

#### Global Offices

Australia	Indonesia	South Korea
Brazil	Japan	United Arab Emirates
Canada	Malaysia	United Kingdom
China	Russia	United States
India	Singapore	



Wood Mackenzie is the most comprehensive source of knowledge about the world's energy and metals industries. We analyse and advise on every stage along the value chain - from discovery to delivery and beyond - to provide clients with the commercial insight that makes them stronger. For more information visit: [www.woodmac.com](http://www.woodmac.com)