

Energy and Utilities  
Oil & Gas

# Energy & Utilities

The Africa Oil & Gas Survey 2010



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# Contents

1.	Foreword	1
2.	Executive summary	2
3.	Developing the business	4
4.	Financing	8
5.	Investment drivers	10
6.	Combating fraud and corruption	14
7.	Renewable energy and the environment	16
8.	Developing local skills and businesses	20
9.	Sustainability	22
10.	Operational planning	26
11.	Refining and marketing	30
12.	Conclusion	32
13.	Demographics	34



# 1. Foreword

Africa currently supplies about 11% of the world's oil and boasts significant untapped reserves estimated at between 9% - 10% of the world's proven reserves.

It is expected that the region will pass North America in 2011 and become the third largest producing area after the Middle East and Central/ Eastern Europe.

Total global oil consumption decreased by around 2% in 2009 yet remained steady in Africa and is expected to grow globally and in African regions by around 2% in 2010.

The African Oil & Gas energy sector was not immune to the global recession and the uncertain oil price which has resulted in cancellation and deferral of projects, layoffs, cost cutting measures and a general re-evaluation of many companies' strategies.

The focus of previous Oil & Gas surveys has been on a global or a country basis and does not provide an African bias. This, the inaugural PwC African Oil & Gas survey focuses on Africa and how companies are dealing with and adapting to the new economic landscape and the improving view of Africa as an area of exploration and development.

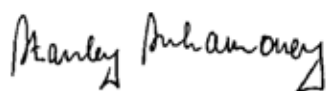
Strategy and long range planning are even more important in today's uncertain environment. Oil & Gas companies must control costs. They will continue to weigh the risks versus benefits of new projects, new products and how much capital to invest. Behind such decisions, there are regulatory, safety and environmental considerations. Balancing the need to supply the world with hydrocarbons, companies are also considering investments in alternative energy sources.

This report contains the results from an on-line survey and interviews conducted by PwC during the second quarter of 2010, to better understand market perceptions and issues currently impacting the Oil & Gas industry in Africa.

At PwC, we are watching the developments in the industry, analysing the changes from the perspective of how they will impact our clients, and how we can best help companies prepare and manage the changes. Our professionals understand the issues that our clients face, and have the knowledge and experience to proactively address these challenges and recommend the best solutions. We examine the issues, and build teams of subject matter specialists who develop appropriate solutions through our assurance, tax and advisory services. For global clients, our experienced teams are on the ground in 31 countries in Africa and 151 countries around the world contributing local insight and understanding.

PwC is working with every segment of the industry — from upstream to midstream to downstream — to provide business solutions tailored to meet your needs. We excel in serving Oil & Gas companies because of our skills, experience and teams of industry specialists. For more than 100 years, we have helped energy companies succeed. We look forward to the opportunity to work with your company.

We would like to take the opportunity to thank the respondents who gave up their valuable time to complete the survey on-line or face-to-face. Your contributions have made this survey possible and we look forward to working with you again on future editions of the survey.



**Stanley Subramoney**  
PwC Africa Energy & Utilities Leader



**Elias Pungong**  
PwC Africa Energy Leader

# 2. Executive summary



Oil prices have reached a degree of stability over the last few months. From an economic perspective this year has on balance been a good year for Africa, with most of Africa's economies continuing to buck the global trend and achieving modest GDP growth.

The energy and enthusiasm surrounding Oil & Gas in Africa is almost palpable at the many industry events and in our conversations with clients across the continent. Recent significant finds in Uganda and Ghana continue to fuel a flurry of exploration activity across Africa.

## Constraints to Growth

### Regulatory uncertainty

The biggest concerns facing our respondents are current and planned developments in the regulatory environments in which they operate.

The industry faces a myriad of regulatory challenges including:

- the proposed Petroleum Industry Bill ("PIB") in Nigeria;
- environmental policy changes such as proposals on zero gas flaring in many countries;
- the dispute between the government of Uganda and Heritage Oil relating to the tax implications of a \$1.5 billion deal between Heritage Oil and Tullow Oil;
- government's commitment to cleaner fuels and reducing emissions in South Africa; and

## Executive summary

- ‘fledgling’ Oil & Gas economies in Uganda and Ghana formulating new policies.

Many participants in the industry have adopted a wait and see approach by either quietly suspending projects or slowing down the rate of investment in existing projects to a trickle.

While participants are justifiably concerned about these developments, some commentators take a more optimistic view and see it as a genuine attempt by African governments to ensure a fairer deal for access to their assets.

### Other constraints

The traditional African limitations of poor infrastructure and corruption still feature heavily as key impediments to growth with no immediate answers on the horizon. Surprisingly, a lack of skilled resources does not feature in the top three key constraints to developing the industry. Respondents do however realise the importance of attracting and retaining key talent with 70% of respondents rating it as critical to long term growth. Many of our respondents have been able to shift more than 50% of the skilled technical jobs and senior and middle management roles in their companies to local citizens. These domains have historically been the preserve of expatriates. Some commentators have identified the greatest need exists in the area of geology, where developing the requisite skills and experience to interpret complex seismic data remain a challenge.

The industry seems to have weathered the recent global recession reasonably well with 65% of respondents reporting no impact on the timing of capital projects over the last year and 72% indicating that the reduced liquidity in the market has had little or no impact on their own liquidity.

### Refining and marketing

Refining and marketing in Africa is undergoing a period of significant upheaval with BP and Royal Dutch Shell both recently announcing exits from the smaller markets in Africa. Some of these assets have been snapped up by competitors and new entrants in this segment, leading to a change in the traditional competitive landscape.

While significant expansion of refining capacity (more than 2-million barrels per day) is under debate across the continent, only one of the proposals has moved beyond the feasibility study phase. Angola announced in late August 2010 that it will proceed with the construction of a 200,000 b/d refinery in the port city of Lobito at a cost of \$8-billion with an expected completion date in 2014. In contrast, the final investment decision on Africa’s largest proposed refinery in Coega, South Africa (400,000 b/d) has been deferred to 2012.

Governments across Africa and other key stakeholders recognise the need for additional refining capacity to attain their strategic need for security of supply and mitigating the risk of ageing refineries, and the complex issues surrounding the debate will take some time to resolve.

# 3. Developing the business



What do you see as the biggest challenges in developing an African Oil & Gas business?

## Top 5 constraints identified by respondents

- 1 Uncertain regulatory framework
- 2 Poor physical infrastructure
- 3 Corruption
- 4 Lack of skilled resources
- 5 Set-up costs

An uncertain regulatory framework was ranked by the respondents as the top constraint in developing their Oil & Gas businesses in Africa.

The prioritisation of regulatory frameworks as the number one challenge has probably been influenced by significant changes in the regulatory environment in Nigeria, and regulatory frameworks still under development in Ghana, Angola and Uganda, amongst others.

The traditional limitations across Africa of limited infrastructure and corruption still feature prominently. Surprisingly, a lack of skilled resources does not feature in the top three constraints. Respondents do however realise the importance of attracting and retaining key talent with 70% rating it as critical to long term growth.

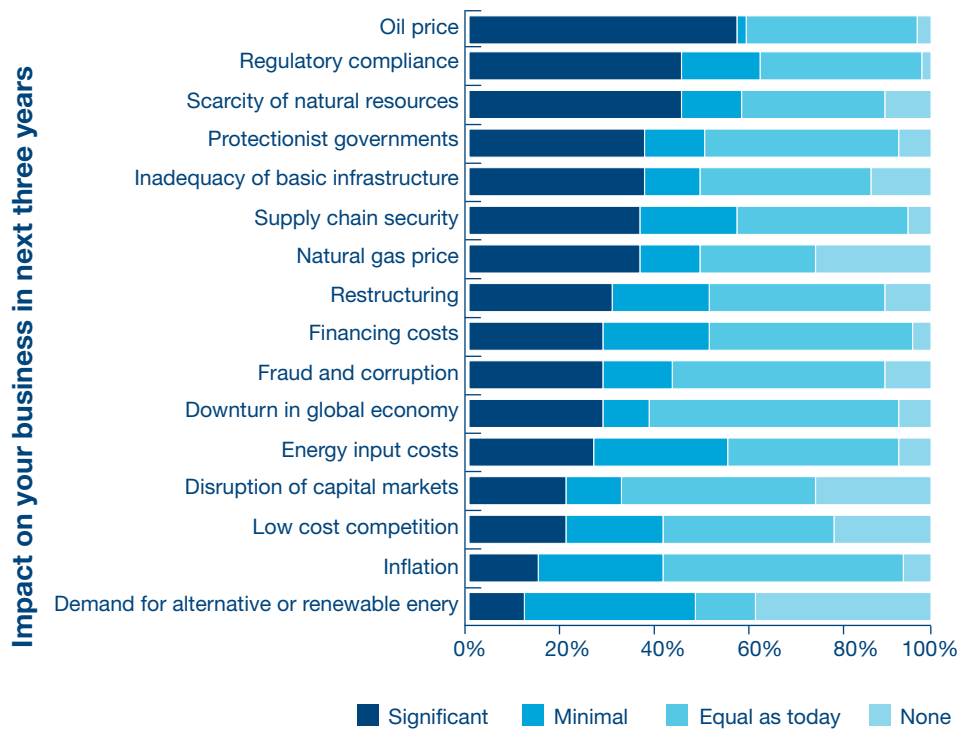
## Developing the business

The results from the Annual PwC CEO survey in 2010 (<http://www.pwc.com/gx/en/ceo-survey>) indicated that the top 5 priorities identified by these CEO's were cost, availability of skills, poor physical infrastructure, exchange volatility and regulations which indicates that many of the concerns in the Oil & Gas industry are mirrored by other businesses in the region and across the globe.

The PwC African Oil & Gas and PwC CEO surveys both confirmed that CEOs in Africa have a range of potential threats to growth and that the perceived severity of these threats to growth is higher than their peers globally.

### To what extent will the following areas have an impact on your business over the next 3 years?

As expected, almost all respondents rated the price of oil and/or natural gas as having a significant impact on their business over the next three years. Looking beyond these obvious drivers, we found that regulatory compliance and scarcity of natural resources weighed heavily on the minds of executives with 46% of our respondents anticipating a significant impact from these areas in the next three years.



Uncertainty in local regulatory frameworks was not only identified as the biggest challenge to growth it is also seen as the second largest factor expected to impact Oil & Gas businesses over the next three years.

## Developing the business

The regulatory compliance requirements governing Oil & Gas companies spans local and international anti-corruption legislation such as the US Foreign Corrupt Practices Act (“FCPA”), Safety, Health, Environment and Quality (SHEQ) legislation governing the entire value chain, environmental policies and legislation, local Production Sharing Agreements (PSA’s) and special Oil & Gas taxes.

Recent changes or proposed regulatory changes in key territories such as Nigeria and Angola as well as new regulatory frameworks being formulated in Ghana, Uganda and other territories seem to be at the heart of respondent’s concerns.

With the UK also recently announcing that their new Bribery Act will come into force in April 2011, forward thinking companies are preparing themselves for the new environment through revising internal policies, introducing and enforcing zero tolerance on bribery, with many appointing compliance officers and establishing compliance functions within their companies.

We have also seen a greater interest in corporate intelligence services focussed on assessing the integrity of existing and new trading partners.

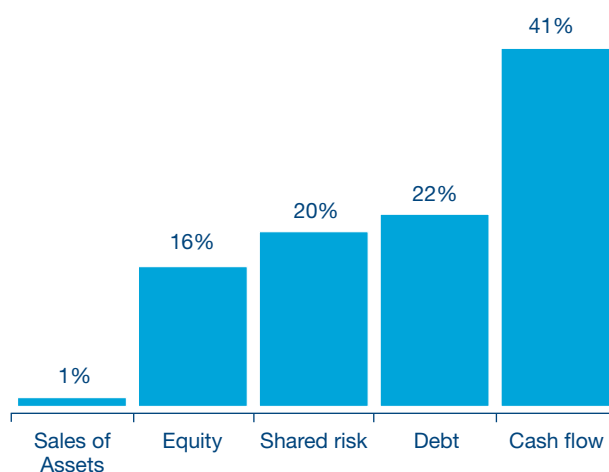


# 4. Financing



In response to our question to identify their primary source(s) of financing for business operations in the next 12 months, respondents indicated that the lingering effect of the financial crisis has reduced access to both debt and equity.

Primary source of financing for business operations



## Financing

The focus on cash preservation and management as a key competency in the downturn and the need to generate cash flow from operations is set to continue, as 41% of our respondents still see own cash flow as their primary funding vehicle.

The remaining 58% who are looking at debt, shared risk or equity need a compelling value proposition and a solid reputation in the market place to access funding in the market place, except where the funding is secured from parent companies.

Surprisingly only 1% of respondents viewed asset divestments as a means to raise cash. None of our respondents saw Venture Capital as a potential source of funding.

With the recent souring of relationships between Oil & Gas companies and their host governments in key territories, debt and equity funding from third parties may be less accessible than it seemed a few months ago.

When asked how accessible they expected their preferred source(s) of funding to be, 31% of the respondents expected it to be very challenging to virtually impossible.

Cash flow was the preferred choice to finance business operations for a number of reasons including companies having improved their cash flow management and anticipating improved market conditions.

Cash flow and debt or equity funding from parent companies were described as a driving factor for many companies as they develop and expand their operations in Africa.

While farm-outs are perceived to be a common vehicle to raise funding, 55% of respondents did not choose farm-outs as a source of funding as they perceived this source of funding to be virtually impossible to access.

Africa has seen a significant resurgence in investment and deal activity over the first 8 months of the year with Oil & Gas enjoying its fair share of activity, such as Tullow Oil's acquisition of Heritage Oil's interests in Uganda for approximately \$1.5billion and the subsequent farm-out to Total and CNOOC.

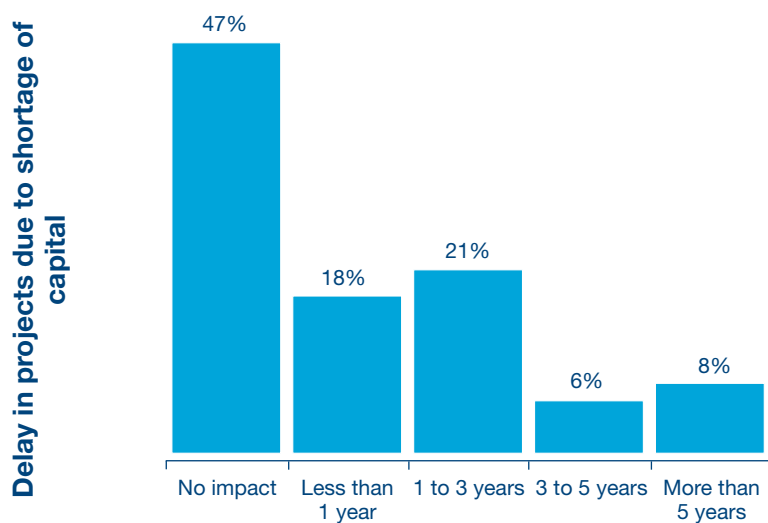
The industry and its dealmakers are watching this transaction with interest as the conclusion of the transaction is still awaiting final Government approval pending the resolution of certain tax issues. Industry commentators have also expressed concerns about Ghana's refusal to allow the sale of Kosmos Energy's stake in the Jubilee field to ExxonMobil since October 2009, resulting in the cancellation of the proposed \$4-billion agreement in August of this year.

# 5. Investment drivers



By what period of time has the shortage of capital delayed large exploration /production or refining projects?

35% of the respondents indicated that the shortage of capital in the market delayed their projects by more than one year.



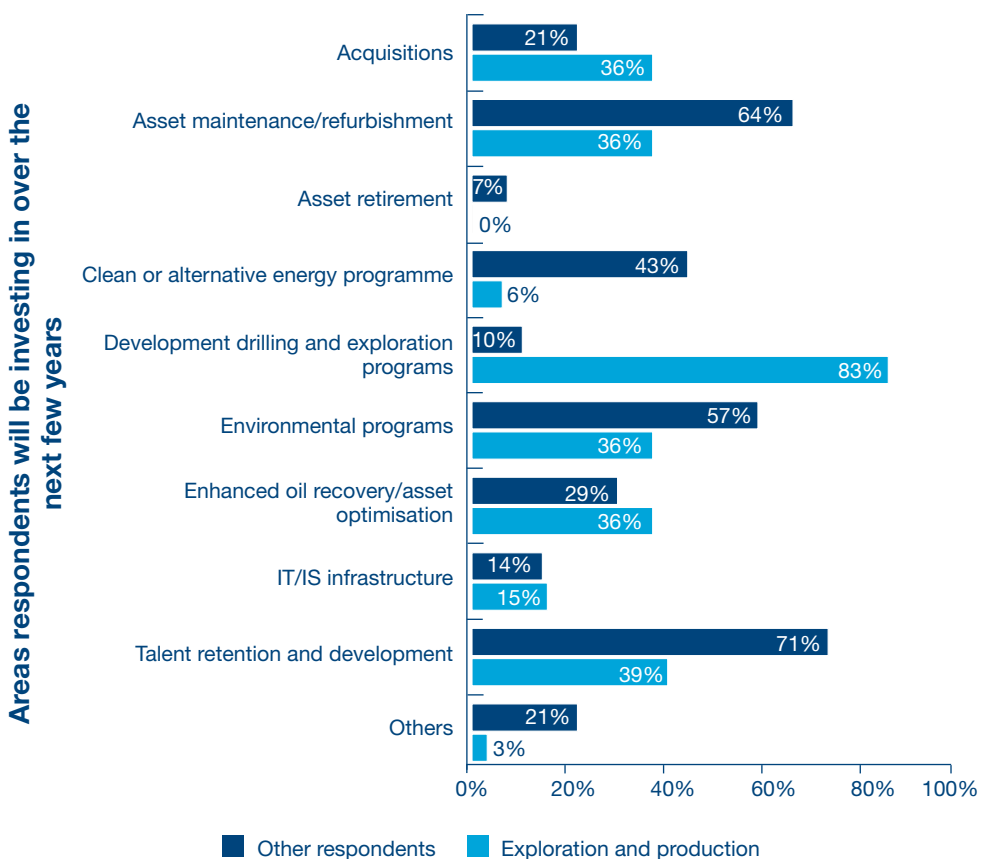
## Investment drivers

28% of the respondents indicated that reduced liquidity in the market place had high or very high impact on their business. The balance indicated that the impact of the liquidity had minimal or no effect on capital projects.

### What areas will you be investing in over the next few years?

The majority of Exploration & Production respondents (83%) indicated that they would be investing in development drilling or exploration programs.

Even though Exploration & Production respondents indicated that one of the highest priorities in long term strategic growth was attracting and retaining key talent, this was not reflected so clearly in their future investment decisions where only 39% were investing in talent retention and development. The respondents not in Exploration & Production indicated that talent retention and development was almost 50% more important to them, with 71% planning to invest in talent retention and development which is in line with the priority given to it by respondents when tackling their future growth strategies. This is attributed to the importance of retention and development of key personnel to the continued expansion of their operations and achievement of their strategic objectives.



Only 6% of the Exploration & Production respondents expect to invest in clean or alternative energy in the next few years which indicates that companies in Africa are concentrating on their core Oil & Gas business rather diversifying into alternative energy.

## Investment drivers

Other than as a watch factor, renewable energy does not feature heavily on the minds of Oil & Gas companies operating in Africa. This seems to be influenced by consistently higher returns from Oil & Gas investments as well as support from African governments encouraging Exploration & Production.

This sentiment is also reflected in the PwC Global CEO survey where CEO's did not expect significant investment growth in this area without government support through incentives or regulatory disincentives such as penalties or fines for non-compliance.

Environmental programmes were deemed an important area where companies will be investing, primarily due to government SHEQ regulations and the likely introduction of stricter SHEQ regulations, cleaner fuel and other similar government initiatives.

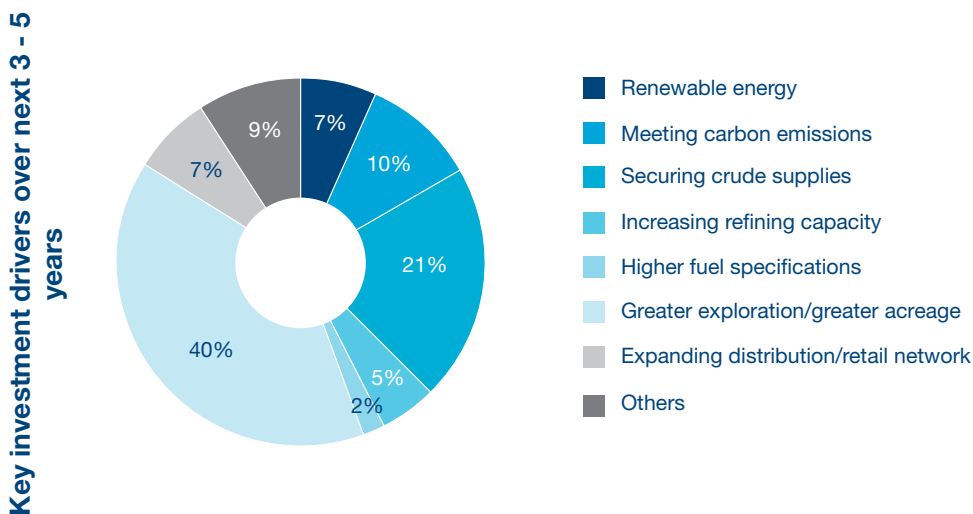
64% of the other respondents are planning to invest in asset maintenance or refurbishment programmes in order to maximise benefits from ageing assets.

### What are the key investment drivers in your business operations over the next three to five years?

Securing crude supplies (21%) and funding more exploration or acquiring greater acreage (40%) were identified as the top two drivers. Based on discussion with respondents most anticipate significant competition for these resources despite significant new finds in all the African regions encompassing countries such as Libya, Uganda, Angola, Ghana and Mozambique.

This is spurred on by increasing competition from China and India who have made significant investments or commitments across Africa to secure access to crude.

10% of the respondents indicated that carbon emissions spend is a key investment driver. This appears to be fuelled by the need to comply with tougher environmental regulations.



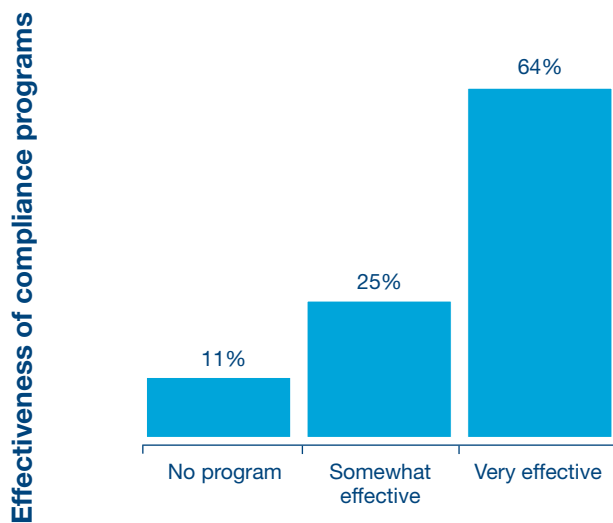


# 6. Combating fraud and corruption

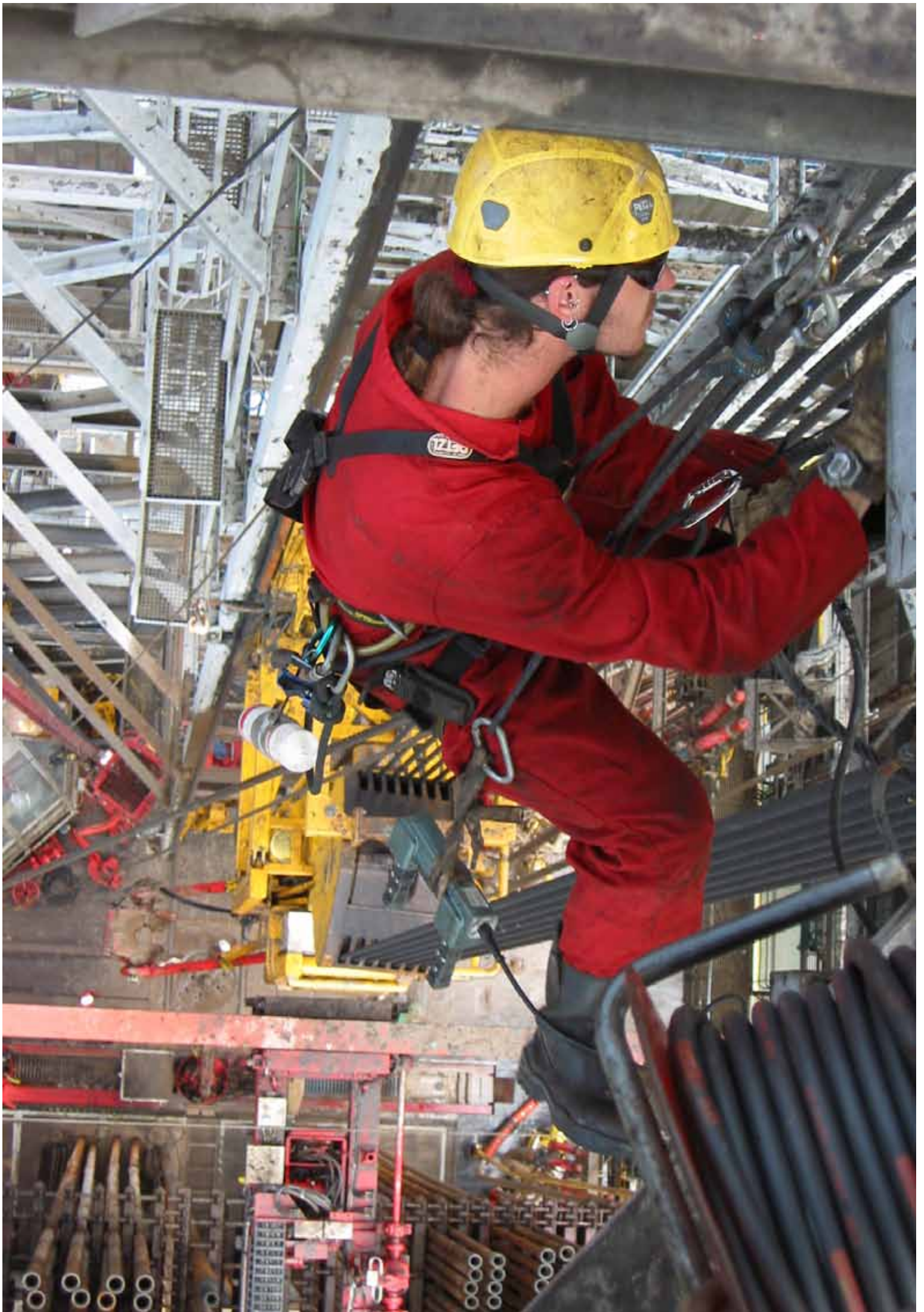


Do you have compliance programs in place to prevent or detect possible instances of fraud and corruption? How effective do you believe these programs are at preventing or detecting fraud and corruption?

89% of respondents indicated that they have an anti-fraud and anti-corruption programme in place. 64% believe that the programme is very effective at preventing or detecting fraud and corruption.



Adding the companies without an anti-corruption programme in place implies that 36% of our respondents believe that their anti-corruption measures still have significant room for improvement.



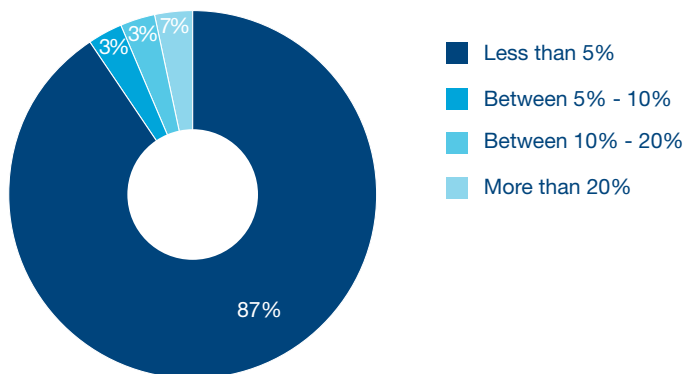
# 7. Renewable energy and the environment



## What % of capital expenditure do you anticipate spending on renewable energy?

Despite rising global awareness of renewable energy sources, 87% of respondents have committed less than 5% of their forecast capital expenditure on renewable energy programs. Only 10% have committed more than 10%, of which 7% of respondents anticipate spending more than 20% of their forecast Capex on renewable sources of energy. We believe the majority of the respondents are applying a wait and see approach on the renewable energy front.

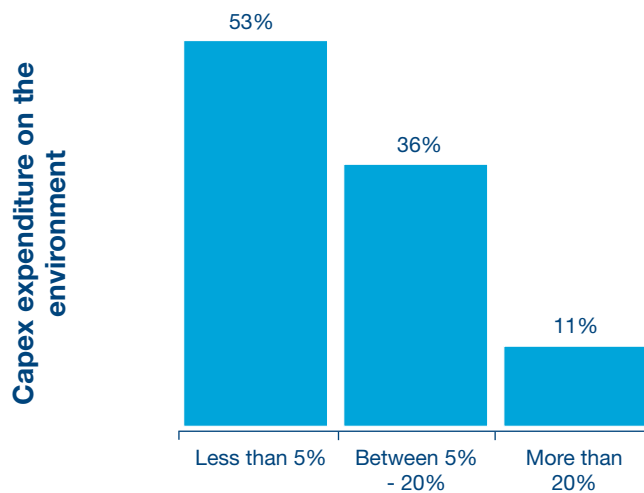
Capex spend on renewables



### What % of capital expenditure do you anticipate spending on environmental issues?

On the environmental expenditure front, the picture looks far more promising with nearly half the respondents (47%) committing more than 5% of their forecast capital expenditure on environmental concerns and 11% of those committing more than 20% of forecast capital expenditure.

We believe that the expenditure is driven by a tightening of environmental legislation in many African countries, with countries such as Nigeria drafting a zero gas flaring policy and others looking to significantly reduce or eliminate gas flaring.

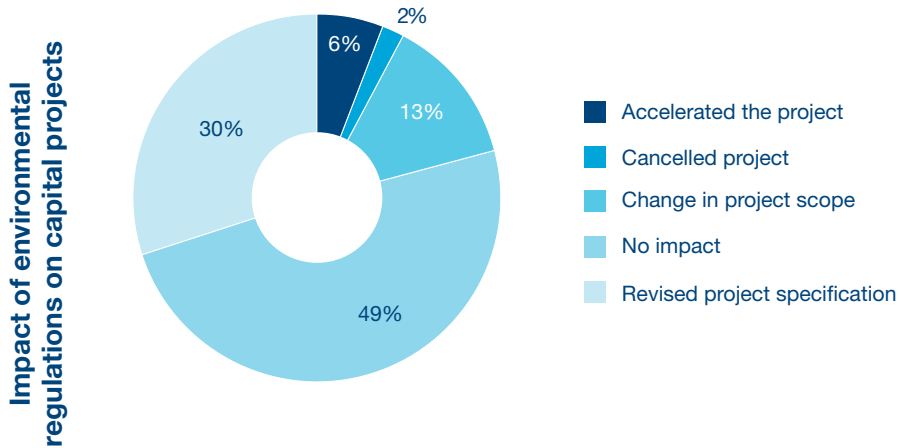


68% of respondents are also planning changes in their business environment in the next 3 years to respond to climate change related issues with the near-term focus on improving compliance with government regulation (39%) and improving engagement with key stakeholders (41%).

Almost 50% of respondents stated that current / proposed environmental regulations did not have any impact on capital project investment decisions. Some respondents indicated that their environmental policies were more restrictive than current regulations.

This clearly contrasts with other investment drivers as most respondents have put capital projects on hold until more certainty is obtained around the regulatory frameworks under which they operate.

How have current/ proposed environmental legislation affected capital project investment decisions?



**Respondent quote: “Stricter Environmental legislation and new cleaner fuels standards will put pressure on the oil and gas industry. The pressure on alternative energy will drive investment strategies and the energy mix will change with diesel, jet fuel and electric cars increasing and the demand for petrol decreasing substantially in a few years.”**

The introduction of new or proposed regulations such as cleaner fuels and stricter government environmental regulations meant that 51% of the companies surveyed either revised their project specification, changed their project scope or accelerated delivery of the project. Only one company cancelled a project due to environmental considerations.



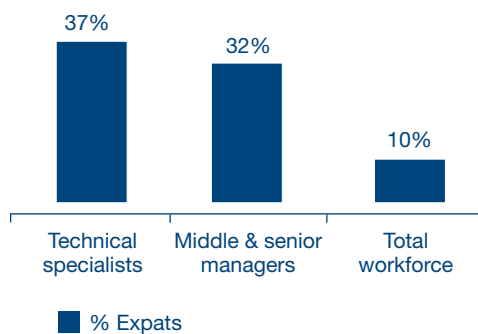
# 8. Developing local skills and businesses



## Approximately what % of your workforce are expatriates

Only 10% of respondents indicated that more than half of their workforce comprises expats. 32% of respondents indicated that the expats occupy more than half of senior and middle management positions, and 37% indicated that expats occupy more than half of specialist technical roles (e.g. drilling supervisor).

% of workforce that are Expats



## Developing local skills and businesses

**Respondent quote: “ There is (a) need for more local participation in the O&G business. We currently have too much dependence on expat(s) both human and technical.**

**The government also need to come out with a framework that is acceptable to all and not change the rules arbitrarily.**

The findings indicate that our respondents are making significant strides in developing the local workforce. We are encouraged that more than 60% of respondents have been able to deploy local staff into the majority of their middle and senior management, and specialist technical roles.

**How compliant are you with the local Industry regulations and charters in respect to nationalisation and local content of your business?**

Approximately 51% of respondents indicate that they are fully compliant with local industry regulations and charters in respect of local content requirements. A further 31% are more than 75% compliant.

While the overall trend appears positive, we believe that the trend may reverse over the next 18 – 24 months as and when new local content policies are implemented in countries like Angola and Ghana. We also await with interest the effect of local content rules contained in the draft Petroleum Industry Bill (“PIB”) under discussion in Nigeria.

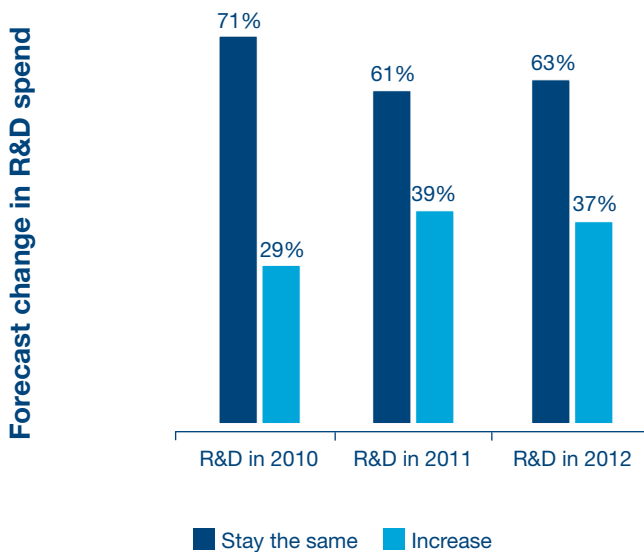
# 9. Sustainability



## Research and development

### How do you expect your investment in Research & Development (R&D) to change in the next three years?

Despite the ongoing global economic pressure points, none of our respondents are planning to decrease Research & Development (R&D) expenditure over the next three years.



## Sustainability

While the majority of respondents are expecting R&D spend to at least stay at current levels for the next three years, there are a few that are planning increases over the same period.

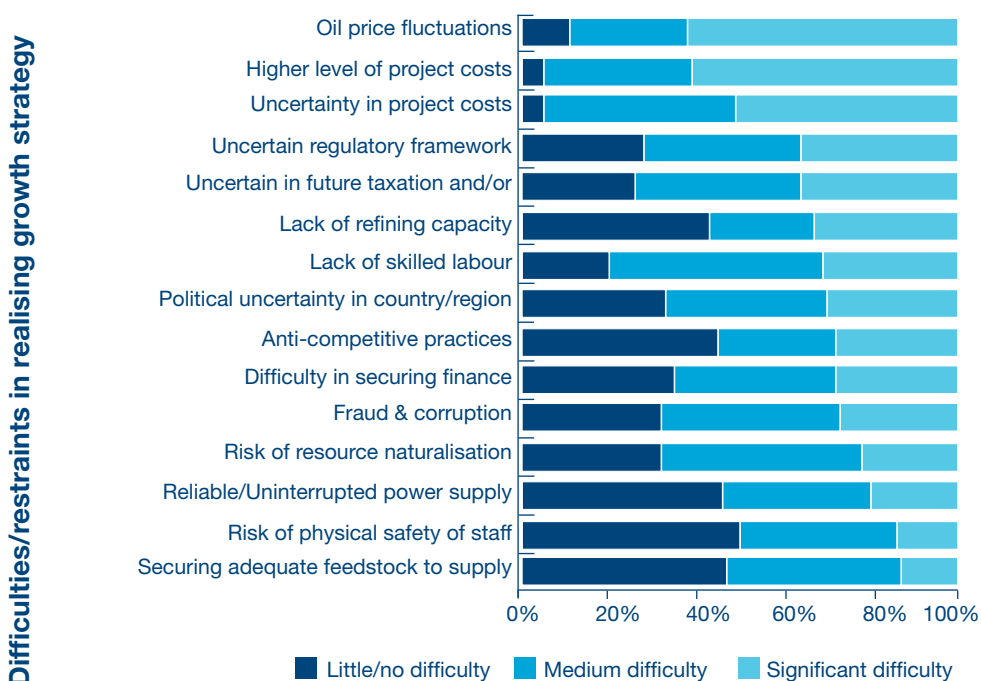
Almost 30% of the respondents expected research and development expenditure to increase in 2010 and a higher number of respondents expecting increases in 2011 and 2012.

### What difficulties or constraints do you anticipate in realizing your growth strategy?

Key constraints to growth include uncertain project costs and increasing project costs, with 95% of the respondents indicating difficulties in these areas. In seeking a sustainable, competitive cost advantage, many large multi-nationals in Oil & Gas and other industries have made significant strides in implementing cost reduction initiatives such as regional sourcing agreements with suppliers and limited or full outsourcing of non-core activities.

While some African Oil & Gas companies have adapted similar strategies from their multi-national parent companies, there may be opportunities for other African Oil & Gas companies to do the same.

African start-ups that have been successful in-country and have multi-national aspirations may benefit from an early adoption from these cost reducing measures.



The respondents indicated that the cost burden is further amplified by the degree of uncertainty on taxes, royalties and regulatory changes all of which will ultimately have a bearing on the bottom line.

Many claim that their African host states view the industry as a relatively easy way of increasing government revenue either through legislation, taxes or PSA contract renegotiation.

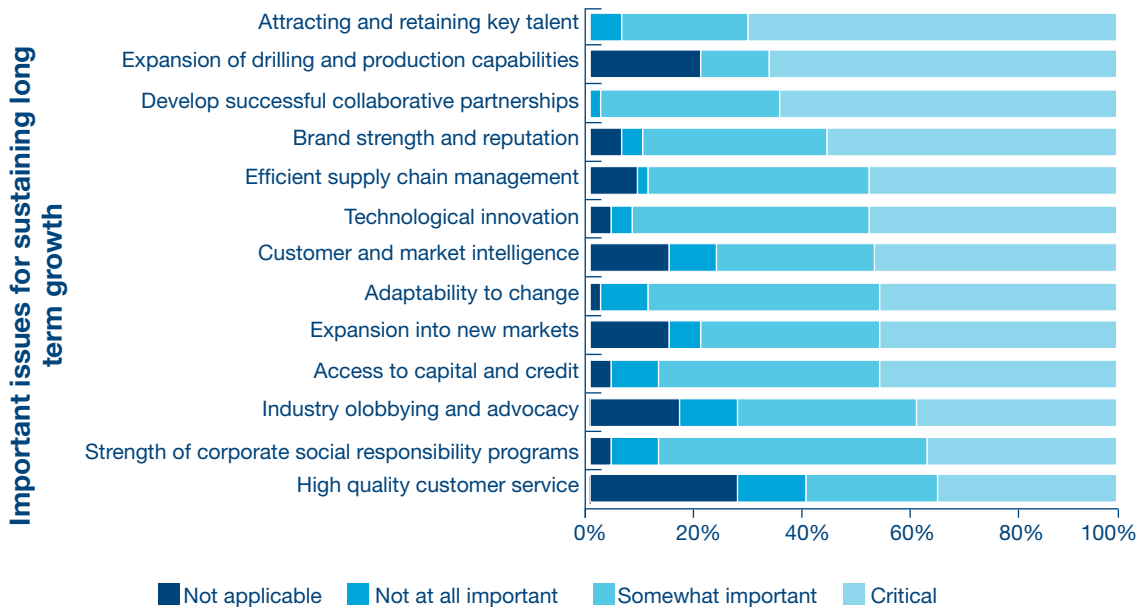
The attractiveness of especially upstream investment opportunities are significantly influenced by current and proposed regulatory frameworks and related taxes. The proposed Petroleum Industry Bill (PIB) in Nigeria as well as the Ugandan government’s stance on the Tullow/ Heritage transaction are causes of concern for many Oil & Gas companies as the possibility of the introduction of multiple taxes, high royalty payments up to 25%, discretionary licence renewals and the removal of incentives could make projects less economical and more risky.

Respondents are also keeping a wary eye on the constantly shifting in-country political landscapes which goes hand-in-hand with a renewed clamour for resource nationalisation as governments and opposition parties aim to harness votes with promises of industry reform and more revenue in the local coffers. 68% of respondents indicated the above as either a significant or medium difficulty in their growth strategy.

With the wealth of Oil & Gas and other mineral resources in Africa, all the multinationals from East and West have to find ways of continuing their operations in African states. The real question is to what extent Africa is limiting its own growth potential in the current environment of uncertainty.

### How important are the following in sustaining your growth over the long term?

To sustain growth the respondents have identified a broad range of factors to be successful. We have limited our comments to the four areas consistently rated as critical by the majority of our respondents.



Even through the recent downturn in the market, the main driving force seen as critical for sustaining growth was maintaining and attracting key talent, which would suggest that the relatively high wages of staff and competition for key personnel would continue into the future.

Companies gearing for growth are already considering ways to strengthen their talent pool so it is encouraging to note that talent is a top priority for African Oil & Gas companies. However, based on our earlier discussions on

## Sustainability

investment priorities, only 39% of Exploration & Production respondents viewed talent as a high priority investment area.

The second most important issue to sustain growth was expansion of drilling and production capabilities with 66% of Exploration & Production respondents selecting this area as critical. Current trends indicate that exploration will expand in the near future as new areas such as Uganda, Mozambique and Ghana develop, and existing areas such as Angola, Egypt, Nigeria and Libya increase their exploration efforts.

The ability to develop successful collaborative business partnerships was deemed the third most important with 64% of respondents deeming partnerships with governments and others in the industry to be critical. This is not surprising in an industry where the majority of assets are owned and operated through joint ventures or other forms of risk sharing and includes a National Oil Company shareholder.

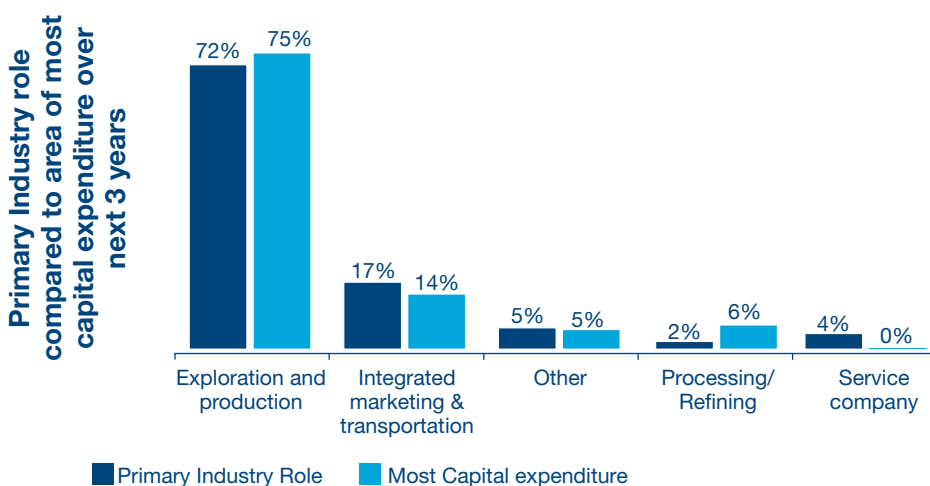
Finally, respondents are also showing increased awareness that brand strength and reputation, in an environment seen as more and more competitive, plays a key role in their ability to access capital and negotiate deals.

### Which of the following areas will receive most of your capital budget over the next three years?

As expected, approximately 75% of respondents indicated that most of the company's capital budget would be spent on exploration and production which corresponds to their primary industry role. Approximately 14% of respondents indicated that most of the company's capital budget would be spent on expansion of distribution and retail networks which also corresponds to their primary role.

The traditional super-majors such as BP and Royal Dutch Shell have already started a program of divestments of non-core (mainly marketing) assets in some African territories and refocusing their efforts on specific African territories with significant upstream potential. This may create opportunities for a greater number of independents and multinational companies entering and establishing themselves in the African arena.

Interestingly enough the divestment of oil super-majors in some of their downstream markets was not identified as an area of investment focus for integrated marketers.

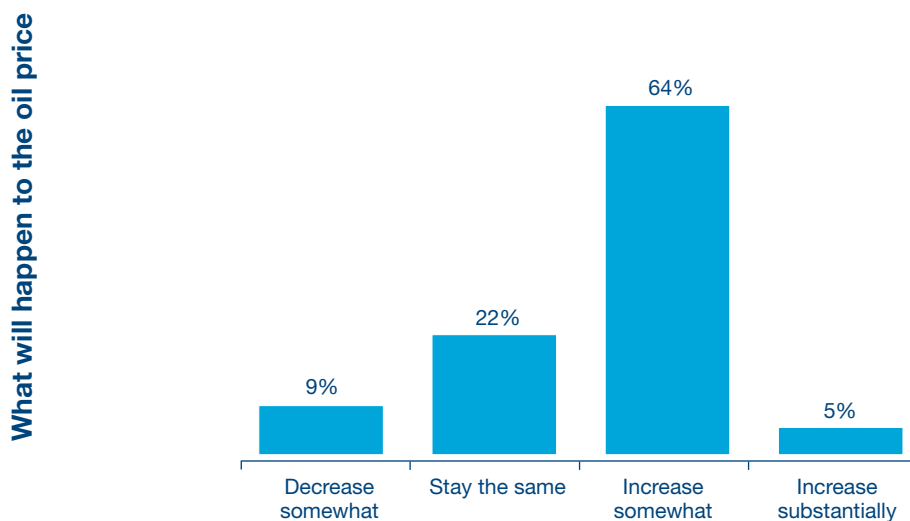


# 10. Operational planning



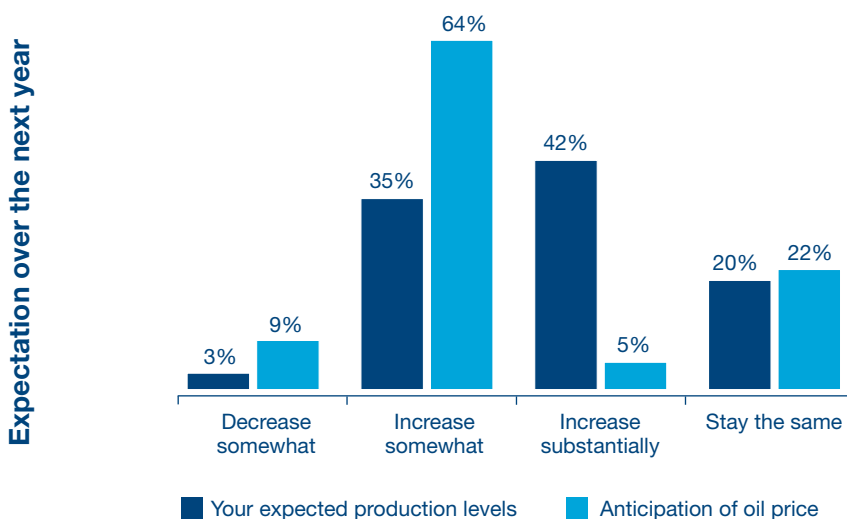
Over the next year, what do you anticipate will happen to the price of oil?

64% of our respondents are anticipating moderate increases in the price of oil (Brent Crude) over the next 12 months. A further 22% are expecting the price to stay broadly the same as the current price range while 9% anticipate a decrease in the Brent crude price. Only 5% expect a substantial increase in oil price.



### What do you expect to happen to your production levels over the next year?

Approximately 77% of the Exploration & Production companies anticipate a moderate increase in production which is in-line with their predictions of the change in oil prices over the same period. The increase in production is related to an increase in expected demand. These factors seem to indicate that our respondents are hopeful that the world economy is recovering and expected to continue to expand in the next year.



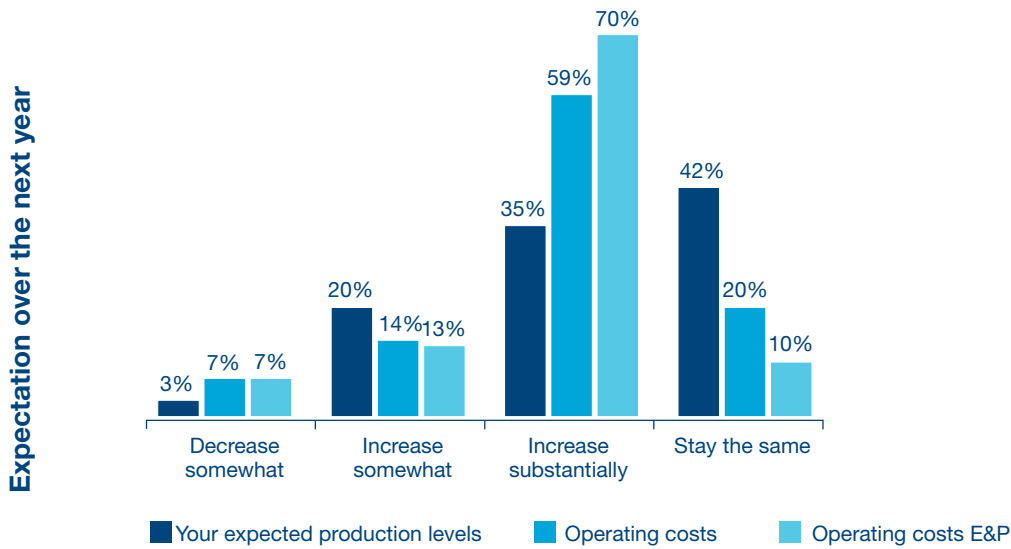
### What do you anticipate will happen to your overall operating costs in the next year?

Approximately 80% of our respondents expected costs to increase somewhat or substantially over the next year.

The integrated marketing companies were the most likely to anticipate a substantial increase in operating costs with more than one in four expecting substantial increases in operating costs, primarily due to cleaner fuel and other new industry regulations.

77% of the Exploration & Production companies expected an increase in production levels over the next year which mirrored the increase in operating costs. However, the production levels were expected to increase significantly in four out of ten cases whereas the costs were only expected to increase significantly in one in ten cases.

The main reasons provided was that the world was coming out of a global recession and that substantially increasing production levels creates economies of scale. Some companies were also anticipating new assets coming on-line for the first time in the next year.



Operating costs for the E&P operations may increase more significantly than expected if more stringent regulations are enacted due to the fall out from the BP spill in the Gulf of Mexico. Companies may also self-impose stricter SHEQ rules to further reduce the likelihood of accidents.

**What do you expect to happen to acreage / license acquisition costs over the next year?**

All our respondents expected acreage/ license acquisition costs to increase over the next year. Over 60% felt the costs would increase over the next year of which 20% thought they would increase significantly. At least half of the respondents from Nigeria, Gabon and Uganda expected acreage costs to increase significantly.

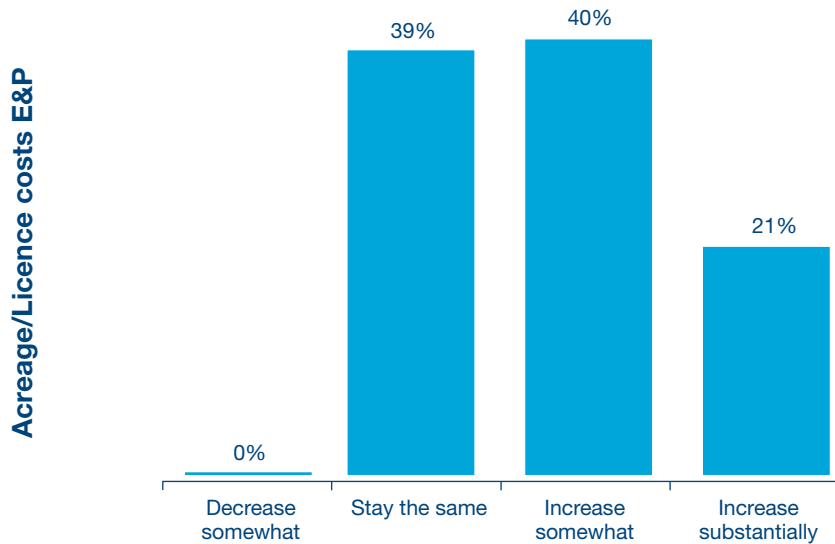
The competition for acreage will increase as more independents and companies from particularly China and India, expand their footprint in Africa. The race to secure sufficient supply for domestic markets is expected to fuel very competitive bidding for the next round of licenses in African markets.

Mozambique and Gabon have or will issue licences in 2010 and others such as Kenya, Algeria, Equatorial Guinea and Uganda are expected to do so in the coming years.

Some exploration companies are also acquiring speculative licences and exploration rights with the sole aim of drilling a few exploratory wells in their block before selling the rights on for a substantial profit.

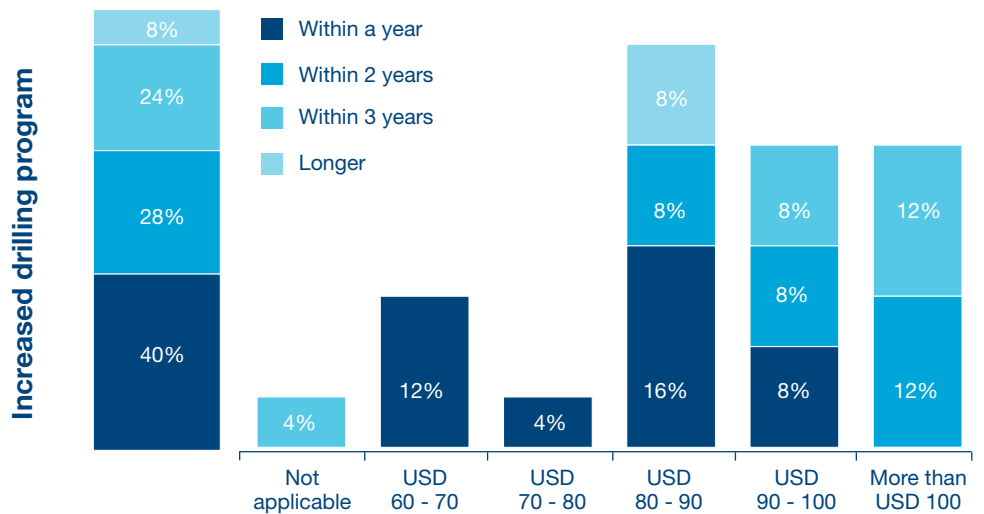
**Respondent quote: "I see further consolidation in the Industry in the next few years as access to resources and capital becomes more and more difficult. The next 3 to 5 years will determine if East Africa has the resources to become an important growth area for oil and gas production over the next 10-30 years."**

When do you expect prices to increase sufficiently to increase your drilling program? At what oil price (Brent Crude in U.S. dollars) would you consider increasing your drilling program?



25% of the upstream respondents indicated that they would not increase their drilling program on account of the oil price. The main reasons given was that expected cost per barrel produced by the company would remain below \$60 (in some cases significantly below), thus the selling price per barrel was not a key consideration unless a consistent downward trend in oil prices starts manifesting. 4% of the upstream respondents indicated that they would expand in three years time irrespective of the oil price.

The remaining 71% of the respondents indicated that they would increase capacity as the price of oil increases with the actual start of their drilling expansion closely linked to their expectation of target oil price ranges.



# 11. Refining and Marketing



Globally, the refining market is in the doldrums with Europe, US and Japan experiencing an over supply. A drop in refining margins, availability of cheaper alternatives, biofuels taking limited market share from petroleum products and improved fuel efficiency in passenger vehicles have all contributed to the strain in the refining market. Some refineries in the above markets have been put up for sale or mothballed.

In stark contrast the Middle East, Asia (excluding Japan), Africa, Russia and Turkey have proposed increased refining capacity.

Many African countries see increased refining capacity as essential to their own national interests as it allows for a greater security of supply as well as a mechanism to reduce foreign exchange outflows.

The reality is that refining capacity in Africa does not meet current demand for product in Africa. Demand is expected to continue growing, albeit more slowly than forecast in 2008. Should all the proposed refineries across Africa reach fruition, total refining capacity would initially exceed the consumption needs in Africa by 1 million barrels per day and continue to exceed consumption needs for the next 10 to 20 years. The reduction in global demand creates an interesting dilemma for refinery proposals in Africa as the export markets initially expected to take up the surplus product from these refineries have shrunk significantly over the last two years.

## Refining and Marketing

Reducing the scale of planned refineries across Africa is not a simple proposition, as the impact on the economies of scale and flexibility that made these planned refineries viable in the first place would be dramatically altered or may disappear in some cases.

The more developed markets in Africa are coming under pressure from governments, environmental groups, car manufacturers (eager to introduce more fuel efficient models from Europe) and others to introduce cleaner fuels and more stringent emissions standards.

South Africa is perhaps the best current example of the complexities influencing the debate around refining capacity in Africa. The NOC has recently concluded the pre-feasibility study of a proposed 400,000 barrels per day refinery. While the refinery would ensure security of supply of product for the foreseeable future (a key part of the NOC's mandate), the anticipated costs of building and commissioning the refinery are currently estimated at between \$10-billion and \$12-billion. Some of the entity's competitors have spoken out vociferously against the proposal arguing that the money could be better spent on upgrading pipeline capacity and/ or upgrading existing refineries.

At the same time, current refining capability in South Africa is stretched to capacity with the country unable to meet its current demand without product imports and most of the refining assets built more than 40 years ago. The South African government, the industry and other interest groups have been debating the need to introduce cleaner fuels for the last several years. The costs, however, of upgrading from Euro II to Euro V fuel standards are expected to approach \$5-billion without a significant increase in refining capacity.

In May 2010, The Nigerian National Petroleum Corporation (NNPC) and China State Construction Engineering Corporation Limited (CSCEC) executed a memorandum of understanding to jointly seek an estimated \$23-Billion in Contractor Financing and Supplier Credits from the China Export & Credit Insurance Corporation, SINOSURE, and a consortium of Chinese Banks, for the establishment of three greenfield refineries and one petrochemical complex at various locations in Nigeria.

July 2010 saw further progress towards the realisation of the above agreement with a deal signed between NNPC, CSCEC and the Lagos state government in relation to the first of the three proposed refineries to be located in the Lekki free trade zone.

Angola has recently announced that it will proceed with the construction of a 200,000 b/d refinery in the port city of Lobito at a cost of \$8-billion with an expected completion date in 2014.

# 12. Conclusion



With growing interest and investment from India and China, IOCs operating in Africa are facing stiffer competition for exploration acreage. As some of the traditional super-majors divest in areas in Africa it will lead to opportunities for new independents thus changing the trading mix and diversity of companies with operations in Africa. The change in mix will cause the existing energy companies to become more agile in order to respond to greater competition and emerging trends.

African nations and consumers are starting to focus more and more on securing adequate supply of crude and/or liquid fuels to satisfy growing local demands.

The pressure on local governments will cause changes to pricing structures and regulatory frameworks as some countries move to a more de-regulated environment. Other countries are enacting regulations to try and increase tax revenue and increase foreign exchange in-flows or reduce foreign exchange outflows.

Although the major upstream power houses in Africa are unlikely to change from Egypt, Nigeria, Libya, Algeria and Angola, certain regional changes and shifts of influence may occur particularly in East Africa with Uganda, Tanzania and Ghana becoming more influential.

In Africa exploration will continue to increase alongside some increases in refining capacity, which is contrary to the trends in the developed world as African countries strive to have a greater security of supply and increased export earnings from the sale of refined products.

## Conclusion

We expect the Africa Oil & Gas industry will continue to flourish over the next few years as the industry provides good local employment opportunities in combination with the industry being the primary source of income and export earnings for many countries. Countries such as Libya and Equatorial Guinea earn 50% of their GDP and 95% of their export revenue from the Oil & Gas industry.

Another significant driving force is the US, which currently imports 18% of its crude oil from the African region. This is expected to increase as the US decreases its reliance on the Middle East. Demand from China and India will also continue to drive the industry in Africa.

The demand in Western Europe, Japan and North America is expected to decrease as new regulations, alternative energies, biofuels and more efficient automobiles affect demand for Oil & Gas. However this will be offset by rapidly declining reserves in these countries as well as strong demand growth in China. World gas exports from Africa stand at around 7% and this is likely to continue to increase especially from Libya, Egypt and Algeria whose substantial reserves supply Western Europe.

The fallout from the BP oil spill in the Gulf of Mexico has yet to fully manifest. It may cause governments to enact stricter regulations especially on deepwater drilling operations. Angola has already started working with companies to improve and adjust existing safety standards and measures on rigs in the wake of the US Gulf of Mexico disaster.

The increased cost of drilling in the Gulf of Mexico and the current moratorium on drilling may lead to greater export opportunities to the US.

Increased activity is likely to continue as more acreage is put up for license and licensing commitments are fulfilled.

It is an exciting time for Africa Oil & Gas as it grapples with new regulations and increased diversity in the mix of oil companies and countries producing on the African continent.

# 13. Demographics



The inaugural PwC Africa Oil & Gas 2010 survey covers 57 respondents from 16 countries across the continent.

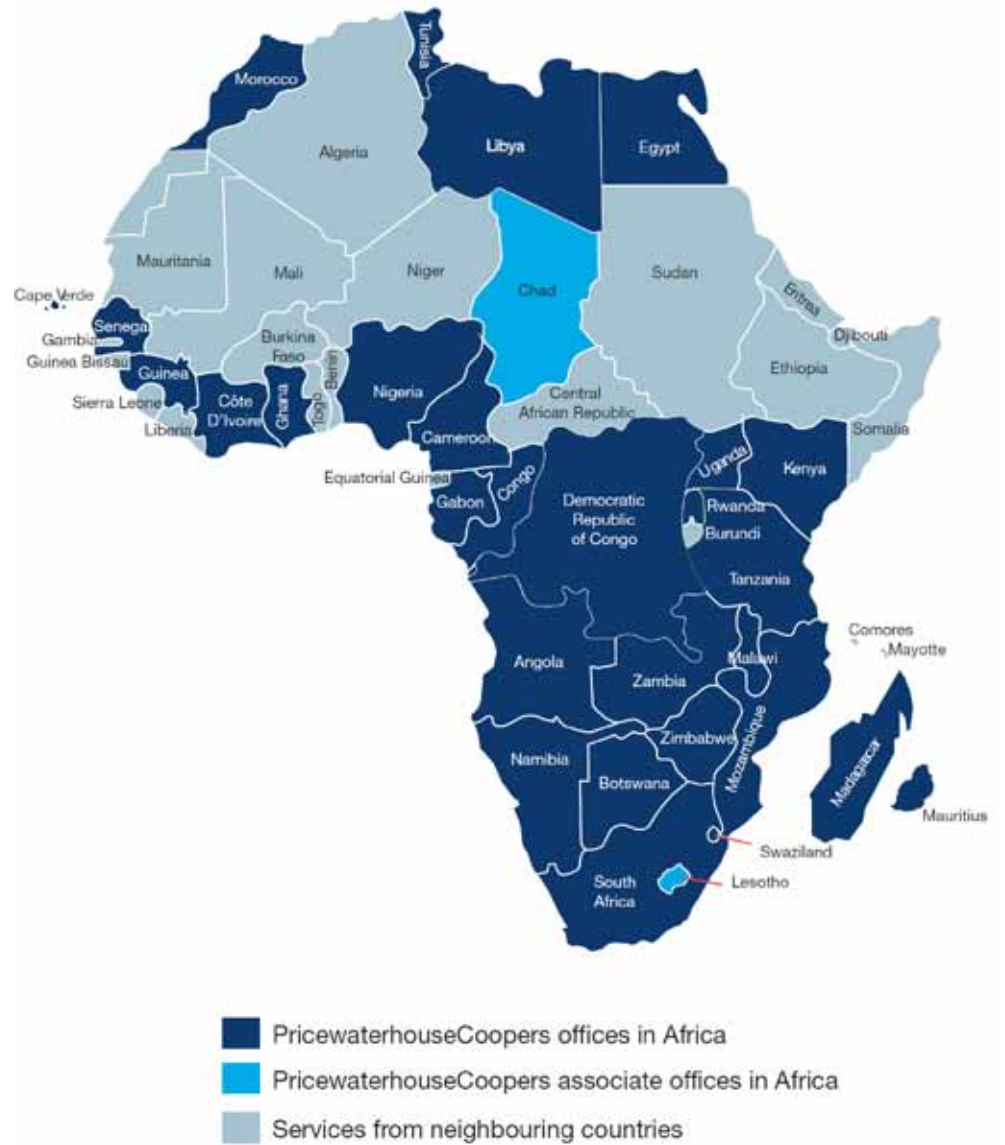
The results represent the views of an array of companies across the entire spectrum:

- 70% focus on Exploration & Production sector and 15% are Integrated Marketing Companies.
- 55% Upstream, 28% Integrated Oil Companies, 17% Downstream or Oilfield services.
- 55% Private Independent Companies, 41% Multinationals and 4% National Oil Companies.

Approximately 91% of the respondents fill either senior leadership or managerial roles, with the balance comprising employees and consultants.

## Our Africa footprint

PwC have 31 offices across Africa with more than 7,360 staff that can assist Oil & Gas companies throughout Africa.



# Key contacts

To have a deeper conversation about how PwC can assist your oil and gas business, please contact your local PwC energy specialist or:



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# Thought Leadership publications

**Result Smarter growth – 13th Annual CEO survey \*** In most countries, chief executives are putting the global economic crisis behind them as recovery takes shape. But the evolution of each nation's recovery is driven by the unique combination of its banking sector, regulatory environment, and consumer behaviours, among other factors. For multinationals, this creates a new growth challenge that is arguably as difficult to solve as the coordinated global downturn was to survive. See how the CEOs of key nations view recovery, and are reshaping their strategies to achieve smarter growth.



**Oil refining – Downstream doldrums March 2010\*** In many parts of the world the oil refining industry is in the doldrums, however this is not the case in all regions. The industry is critically examined to assess the winners and losses with in the refining industry. The assessment touches refinery expansions, who is shutting down, consumption patterns, reasons behind over capacity and regional trends.



## Confronting corruption

The study explored corruption from the private sector's point of view. The report takes an in-depth look at the compelling business case for companies to proactively manage corruption risk and provides a road map for implementing effective anti-corruption programmes.







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