



On the brink of a boom

Africa oil & gas review



*Report on current developments in the oil & gas industry in Africa.
July 2014*





Methodology

The project team based primarily in Cape Town, South Africa, developed a standard questionnaire that was used across the PwC Africa network to conduct interviews with industry players including upstream, midstream, downstream and oilfield service companies, among other industry stakeholders.

Where possible, interviews were conducted in-person so that meaningful conversations could take place regarding responses to the questions. This project team used this information together with the knowledge they have from working with clients throughout the oil & gas value chain and other research that they conducted.

Acknowledgements

PwC Africa thanks all of the participants who contributed to the process by responding to our survey questionnaire. We would also like to say a special thank you to the South African Oil & Gas Alliance who endorsed our survey amongst its members.

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Foreword

About PwC's energy industry group

PwC is one of the world's leading advisor to the energy industry and has been helping energy companies succeed for more than 100 years. Working with every segment of the business — from upstream to midstream and downstream — we provide business solutions tailored to meet clients' needs. Because of our skills, experience and teams of industry specialists, we excel in serving oil & gas companies wherever they may operate. In Africa, PwC has a greater presence than any other professional services firm, with offices in 31 countries and more than 8 000 staff on the ground.

This analysis of developments in the African oil & gas industry is our fourth in a series of reviews of the sector.

It draws upon the valuable experience and views of industry players across the African continent, including international oil companies operating in Africa, national oil companies, oilfield service companies, independent oil companies and industry commentators, to provide insight into the latest developments impacting the industry on the continent.

In this edition, we take a look at what has happened in the last 12 months in the major and emerging African oil & gas markets, and where appropriate we drew comparisons between the current Review and the 2013 Review. Note that the data published in the 2013 Review was actually collected in 2012; therefore, all comparative charts and graphs will show the year as 2012 and not 2013.

As with our 2013 edition, we have included a selection of country profiles to highlight developments in a number of locations. Some of them are updates to last year's profiles; some of them are new additions. We hope that they will provide readers with a helpful synopsis of the key happenings in these markets.

The sector continues to experience significant growth, with East Africa ramping up in its discoveries and market potential, Angola LNG coming online and new pre-salt discoveries in offshore West Africa. The potential continues to attract and excite investors from around the globe.

At PwC, we constantly monitor key developments in the industry, analysing the potential impact that they will have on our clients and generating solutions to assist companies in managing these ever-changing dynamics. Our industry specialists understand the issues that our clients face and have the experience and expertise needed to proactively address the challenges and recommend sustainable solutions.

Uyi Akpata

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Oil & gas in Africa

Oil reserves

130.3 billion barrels

7.7% of the world's proven reserves

Gas reserves

501.7Tcf

7.6% of the world's proven reserves

Shale oil potential

Libya **5th** globally

26 billion barrels

Shale gas potential

Algeria **3rd** globally

707Tcf

Shale gas potential

South Africa **8th** globally

390Tcf

Africa production as % of

global: **10.1%**

Africa consumption:

4.1%

Africa consumption to

increase by **50%** over the next 20 years

Global consumption only by **20%**

Refinery capacity as % of

global **3.7%** (actual

throughput **2.9%**
2.2 million bbl/d)

LNG exports from Nigeria, Algeria, Angola, Egypt and Equatorial Guinea was

46.6BCM. **14.3%** of the world exports in 2013

National gas pipeline

exports were 36.6 billion

metres³ **5.2%** of the world's exports in 2013

LNG existing capacity:

75.7 BCM

Planned/proposed /under construction

101.2 BCM

Potential industry

investment in Ghana, Mozambique and Tanzania

estimated at USD **4** billion per annum over the next few years

Six of the top **10**

discoveries in 2013 were in Africa

33 national oil companies

Deals: A new deal every 4 days

Total value of deals:

USD **22.2** billion

That's USD1 billion every 17 days

Numerous bidding rounds

in **2014**

Angola, Algeria, Egypt, Tanzania, Equatorial Guinea, Cameroon, Mozambique and Madagascar

Unexplored offshore oil reserves could increase by

50%

PwC has offices in

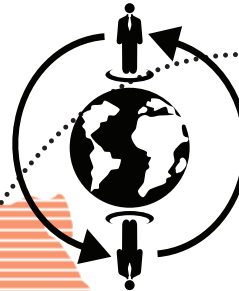
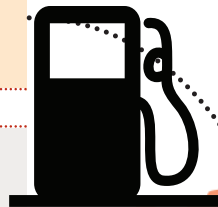
31 African countries

158 countries worldwide

PwC staff

More than 8 000 in Africa

More than 180 000 worldwide





Executive summary

Executive summary

Reserves and production

Africa's share of global oil production has dropped slightly since last year, moving it from 12% to 10% of the world's total. Untapped proven oil reserves on the continent are estimated to be around 8% of the global total, and these reserves continue to increase as appraisal on new discoveries continues. In 2013 alone, six of the top 10 global discoveries by size were made in Africa!

From proven oil reserve totalling 130 billion barrels, Africa produced nearly nine million barrels of crude oil per day (bbl/d) in 2013. Nearly 84% of this oil production came from Nigeria, Libya, Algeria, Egypt and Angola.

The political unrest in North Africa has stabilised somewhat, but production levels did decline by nearly 35% in 2013 as compared to 2012. Sudan and South Sudan have started to rebound in their production levels post the independence of South Sudan in 2011, though fighting continues to threaten oil & gas installations in the south. Hopes are high that the majority of production in South Sudan will be back online by early 2015.

Africa has proven natural gas reserves of 502 trillion cubic feet (Tcf) with 90% of the continent's annual natural gas production of 6.5Tcf coming from Nigeria, Libya, Algeria and Egypt. Africa as a continent has nearly 70 years of natural gas production available given current production rates. What's even more exciting is that the East African gas reserves have not yet been fully appraised and will likely add a significant amount to the proven reserves total for the region.

Growth and development

Overall, the industry has continued to prosper in all African regions, though some discoveries are so recent that adequate appraisal has yet to be completed. This suggests that we will soon see a surge in proven reserves figures for many emerging players.

As of late the focus seems to be back on the new players on the east coast, including the likes of Mozambique, Tanzania, Kenya and Uganda.

More than 500 companies are currently exploring for natural resources on the African continent.

Africa continues to grow, and new hydrocarbon provinces are developing at an incredible pace. Significant gas finds in Mozambique and Tanzania have caused the world to take note of East Africa as an emerging player in the global industry.

Mozambique alone has some of the largest reserves discovered in the last decade, and liquefied natural gas (LNG) exports are expected to begin by 2020. When this occurs, they will be competing with other new entrants such as Australia, the United States and Papua New Guinea in selling gas into the Asian markets. This could have significant economic benefits for the East Africa region, but the governments will need to enact favourable legislation to ensure that projects do not experience unnecessary delays to first cargo.

Pioneering in the pre-salt plays of West Africa has continued to be successful. Cobalt has drilled six wells offshore Angola, and one well in the deepwater region offshore Gabon. All of these wells have been successful. Eni also made a significant discovery in a pre-salt play in offshore Republic of Congo (Brazzaville). This level of activity is expected to attract more attention and investment to the already lucrative West African market.

There are many opportunities within Africa due to:

- New exploration blocks on offer through competitive bidding rounds;
- Port development, potential industrial development zones and the management thereof;
- Pipeline engineering and construction (helping to monetise discoveries);
- Onshore and offshore maintenance needs;
- LNG plant engineering and construction;
- Potential activity in unconventional gas plays;
- CO₂ reduction and gas-fired electricity generation;
- Other gas monetisation projects for local use (methanol, fertilisers, urea);
- Stability of supply and security of supply with a reduction in exports;
- Foreign exchange inflows;
- Distribution of wealth – a benefit for all citizens;
- Infrastructure development mega projects; and
- New refinery developments or upgrades.

The challenges

The challenges facing oil & gas companies operating in Africa continue to be diverse and numerous. Examples include fraud, corruption, theft, limited infrastructure, protectionist governments and lack of skilled resources among others.

Regulatory uncertainty and delays in passing laws are severely inhibiting sector development in many countries around the continent. Some key players have delayed or cancelled projects until further clarity can be obtained in their respective territories as they simply cannot move forward with doubts given the long-term nature of the needed investments.

Due to the number of challenges in the market, meticulous planning is paramount to success in the region. Operational excellence has become an increasingly important topic as smaller players who know the market well must operate in a lean and efficient manner to avoid unnecessary cash outlays that they simply cannot afford.

Cost control continues to be a focus for most exploration and production (E&P) players globally, and Africa is no exception. This has led to a careful process of weighing risks and benefits for new project decisions and may explain the high level of success that recent drilling programmes have managed to achieve in the region.

While drilling successes are nice, oil & gas companies must also look at the opportunity costs of being in Africa. Given the host of regulatory, safety, environmental and political stability considerations, they may decide that the potential is not worth the risk. Despite this, many African governments continue to implement new policies that attempt to increase their share in proceeds and thus take away from the potential investor's share.

Will host governments manage to provide clear regulation and provision in order to continue attracting the investment needed to develop the industry in Africa? This is the key question that industry players around the continent and indeed around the globe are asking themselves.

Natural gas has also taken a place on the main stage in the African market. Environmental considerations mean that many governments are implementing or considering policies to reduce or eliminate gas flaring. This means that the industry is actively looking at other ways to utilise the natural gas. In Angola, the answer is LNG, and this will likely be the path taken by Mozambique as well as Tanzania.

Electricity shortages around the continent mean that governments and industry players are also looking at ways of supplying gas as an energy feedstock for local power generation. This would be a local beneficiation of hydrocarbon resources – a key initiative for most host governments in Africa!

However, requirements to reduce flaring and utilise natural gas by-products in otherwise oil-centric areas could lead to longer lead times and higher project costs.

A shortage of trained oil & gas workers continues to be a serious concern around the continent. Donors like the World Bank have appropriated funds to several governments to undertake capability development programmes throughout the continent.

Equally challenging is the fact that many host governments are implementing strict local content regulations. This, in effect, means that oil & gas companies must contract with local companies, procure from local suppliers and hire locals to work within their businesses. These initiatives are geared at transferring knowledge to local communities but may also lead to high costs as additional individuals must be hired to fulfil functions while local hires are upskilled.

Refined exports of oil from Africa to the US and Europe has greatly reduced – some estimate up to 90%. Will this trend continue? Africa must begin looking to the growing markets in the East for potential uptake of its oil as well as its LNG production.



Developing the business

Uncertainty has also arisen as a result of political interference and a lack of transparency about procedures particularly with regard to the awarding licences and production agreements.

Figure 1: Top six constraints to development identified by respondents

Q: What do you see as the biggest challenges in developing an African oil & gas business?

	2014 Position	Movement	2012 Position	Movement	2010 Position
Uncertain regulatory framework	1	▲	3	▼	1
Corruption/ethics	2	►	2	▲	3
Poor physical infrastructure/supply chain	3	▼	1	▲	2
Access to funding	4	▲	12	▼	7
Lack of skill resources	5	▼	4	►	4
Taxation requirements	6	▲	16	►	*

Rank: 1 High, 6 Low
Base: 55
Source: PwC analysis

The major challenges identified by respondents in our conversation with the oil & gas industry have remained largely unchanged with the top three issues, uncertain regulatory framework, corruption and poor physical infrastructure also identified as the biggest challenges in 2010 and 2012.

While uncertain regulatory frameworks remain a concern across the industry, Nigeria was one of the few countries where respondents did not consider it was to be of the top three challenges to developing the industry. This suggests that companies have accepted the lack of ratification of the Petroleum Industry Bill (PIB), which has been in the process of implementation for six years.

In other countries where uncertainty exists concerning the development or revision of energy policies, such as South Africa, DRC and Tanzania, respondents indicated that the uncertain regulatory framework was a significant impediment to developing an African oil & gas business

Although access to funding and financing was perceived to be relatively easy by respondents in Nigeria, those in Cameroon recognised it as the biggest restraint holding back development of the African oil & gas industry. Individual companies, however, did not generally believe it was an issue for them.

Concerns about corruption remain a significant issue with more and more countries implementing or signing up to the global Extractive Industries Transparency Initiative (EITI), which promotes transparency, good governance and accountability in the resources sector.

The EITI and development of new and amended policies and regulations as well as the commitment of governments to entrenching openness and accountability in the oil & gas sector has not changed the perception that corruption exists across Africa:

- In Nigeria, theft and corruption has been calculated at 300 000bbl/d or USD11 billion per annum.
- Major oil companies have been implicated in paying USD1.1 billion that was diverted by the Nigerian Government to local oil & gas companies.
- Algeria has had a number of corruption cases under investigation with USD265 million allegedly being paid in bribes to officials in Algeria to secure contracts between 2007 and 2010.

Being successful in the industry requires the ability to cope in an environment that offers diverse and numerous challenges.

It is clear that corruption needs to be dealt with in a tough manner, with a zero-tolerance policy and the prosecution of individuals to rid Africa of this problem. Certain types of bribes are not seen as corruption but more of a way to facilitate and expedite transactions.

Africa's untapped proven oil reserves are estimated to be around 8% of the global total. These reserves continue to increase as appraisal of new discoveries continues. In 2013 alone, 11 of the top 20 global discoveries by size were made in Africa. Furthermore, East Africa gas reserves have not yet been fully appraised and will likely add a significant amount to the proven reserves total for the continent.

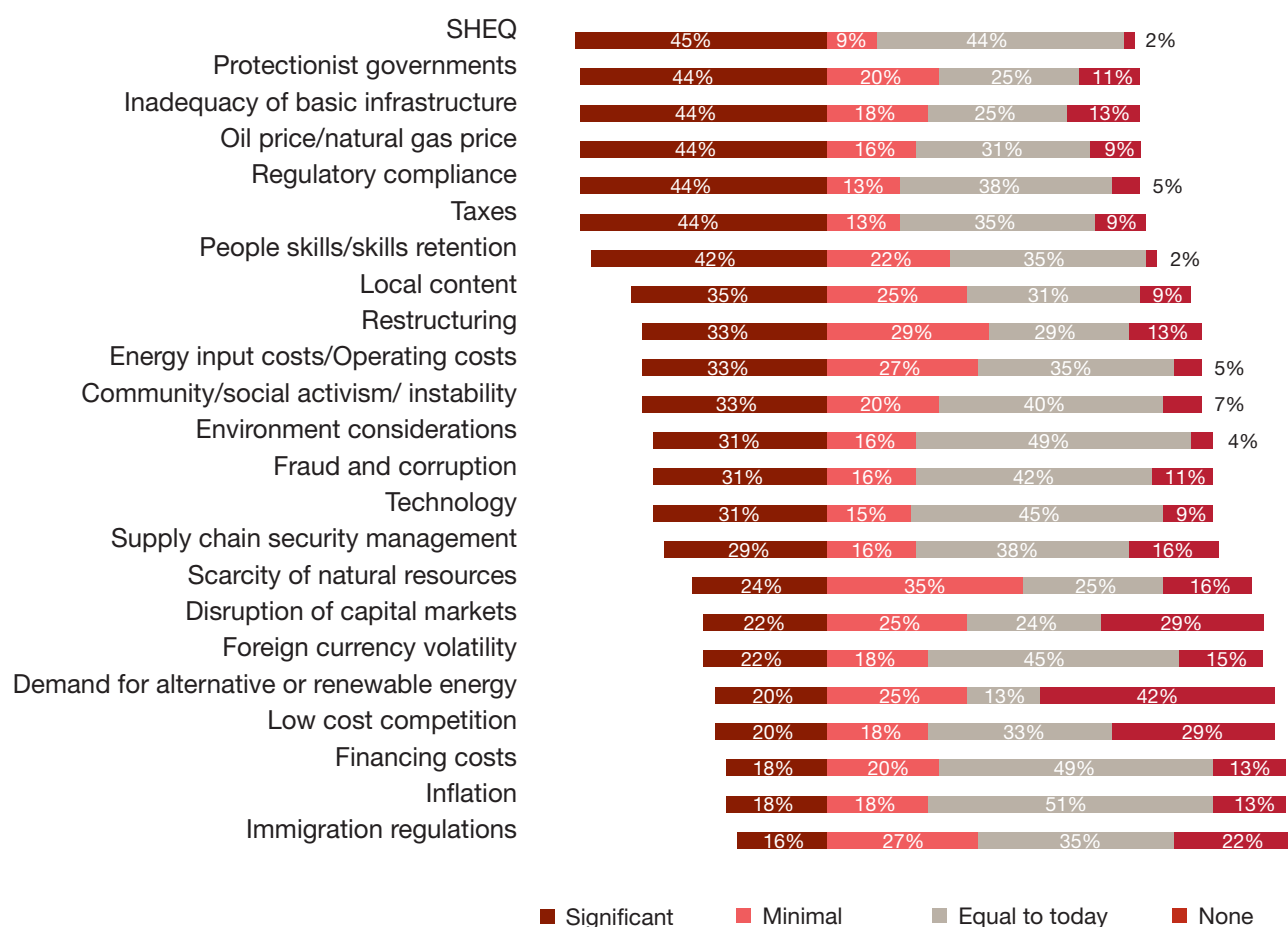
With proven oil reserves in the region of 130 billion barrels and proven natural gas reserves of 502Tcf, it is no wonder that Africa is becoming a sought-after destination for many multinational oil & gas companies wanting to capitalise on the availability of rich natural resources.

Succeeding in a challenging environment

Being successful in the industry requires the ability to cope in an environment that offers diverse and numerous challenges. Companies need to think hard about their core business focus, must continuously evaluate their business model to ensure it supports its long-term strategy and continuity of operations over the long haul, while still remaining flexible and agile in order to meet the challenges of the future.

We asked participants to share their thoughts about the African environment, and what will affect their business' ability to operate successfully into the foreseeable future.

Figure 2: Factors most likely to impact business in the next three years



Base: 55
Source: PwC analysis

Safety, health, environment and quality (SHEQ) is expected to have the most significant impact on respondents' businesses over the next three years. This has moved up on the agenda since our previous survey, having taken the number one spot away from concerns about the impact of the price of oil & gas, which has been relatively stable over the last few years. This is not surprising given the rising concerns about health and safety as well as an increased awareness of environmental issues.

The Deepwater Horizon disaster in the Gulf of Mexico in April 2010 caused the largest accidental marine oil spill in the world and remains one of the darkest reminders of what can happen when things go wrong. Together with a growing number of industry players and expansion of E&P activity in Africa, especially offshore drilling, health and safety should naturally be embedded into daily business management and operations.

Multinational oil companies are well aware of the requirement to develop formal health and safety measures for any major oil & gas facility because of their many years' experience operating in highly-regulated environments in Europe and North America.

Figure 3: Ranking of factors most likely to impact business

	Rank 2014	Rank 2012
SHEQ	1	8
Protectionist governments	2	6
Inadequacy of basic infrastructure	3	9
Oil price/natural gas price	4	1
Regulatory compliance	5	14
Taxes	6	New
People skills/skill retention	7	3
Local content	8	2
Restructuring	9	19
Energy input costs/operating costs	10	4
Community/social activism/instability	11	16
Environment considerations	12	7
Fraud and corruption	13	12
Technology	14	13
Supply chain security management	15	17
Scarcity of natural resources	16	New
Disruption of capital markets	17	15
Foreign currency volatility	18	New
Demand for alternative or renewable energy	19	20
Low cost competition	20	18
Inflation	21	21
Financing costs	22	10
Immigration regulations	23	11

Growing regulatory compliance requirements in many developing countries is forcing companies to recognise SHEQ as a serious area of business focus or face the consequences of non-compliance by way of significant fines and penalties. Multinational oil companies are also driving SHEQ requirements within their own companies as they require their business units around the world to implement their stringent policies no matter where they are.

Respondents from 10 different African countries rated protectionist governments as the second most significant concern on our list of factors likely to impact business in Africa. This goes hand in hand with the fifth-highest ranked factor, **regulatory compliance**.

Implementing stringent policies, regulations and local content requirements to protect local businesses and workers while restricting trade with foreign nations could affect foreign companies with local business interests. While in principle, limiting free trade may provide better economic and social development opportunities for locals, governments should be cautious in implementing such stringent regulations and restrictions on business. Doing so (especially in developing countries) may have an adverse effect and hamper growth and development in the region.

Inadequacy of basic infrastructure ranked much higher in the current review than in our previous survey. Respondents are clearly concerned about the lack of infrastructure in developing countries and the negative consequences this may have for their businesses, especially those operating in Nigeria, Namibia, Madagascar and South Africa.

“Africa has the greatest opportunities, but it’s a minefield to realise those opportunities...”

– Executive at an international oil company operating in South Africa

Infrastructure improvements are desperately needed if African countries are to achieve higher participation in global value chains. Indeed, poor infrastructure is likely to hold back economic progress significantly. Africa’s largest economy, Nigeria, for example, has the largest natural gas reserves in Africa, but it presently cannot take full advantage of this resource due to its limited infrastructure.

Infrastructure costs remain high as E&P companies fund many infrastructure projects especially onshore where roads and other infrastructure developments are required when starting up exploration activities.

Taxation issues have become a greater concern to companies across Africa as uncertain taxation as well as new taxation laws have created an additional financial burden for companies. Respondents from Namibia, Madagascar, Cameroon and the Democratic Republic of Congo (DRC), in particular, stated that taxation would have a significant impact on their business.

While the training and recruitment of local talent required by legislation remains a concern for companies, the majority of respondents say they are proactively addressing the issue and have actively recruited local staff and significantly improved the filling of senior positions in the last couple of years. Whether local candidates have the required industry knowledge and experience to perform effectively in senior positions is debatable, and companies may have switched to using more contractors as they aim to increase their local content percentage.

Strategic priorities

Strategy plays an important role in the establishment, operations and longevity of a business, especially in developing markets where there is much competition. A well thought out strategy can provide a competitive advantage if it focuses on the right areas.

Figure 4: Top strategic focus areas over the next three years



Base: 55

Source: PwC analysis

Asset management and optimisation remains the top strategic focus for oil & gas companies. This came to our attention in the previous Review, and in this edition we have dedicated a section to operational excellence to provide further insight into why one in five respondents share this concern and why getting the very best out of operational activities has become vital for oil & gas companies.

Exploration and finding new resources also retained its second place since the previous Review. Undoubtedly, recent onshore and offshore discoveries and developments in the region have provided hope for additional discoveries being made by companies willing to do business in Africa but also willing to invest more in the region as part of their long-term strategy.

The oil & gas industry faces difficulties because of the shortage of skilled workers. Getting the best out of the talent you have is vital in this context and makes **skill and people training and development** rank highly on the list of strategic priorities. It has also moved up one place since our previous Review.

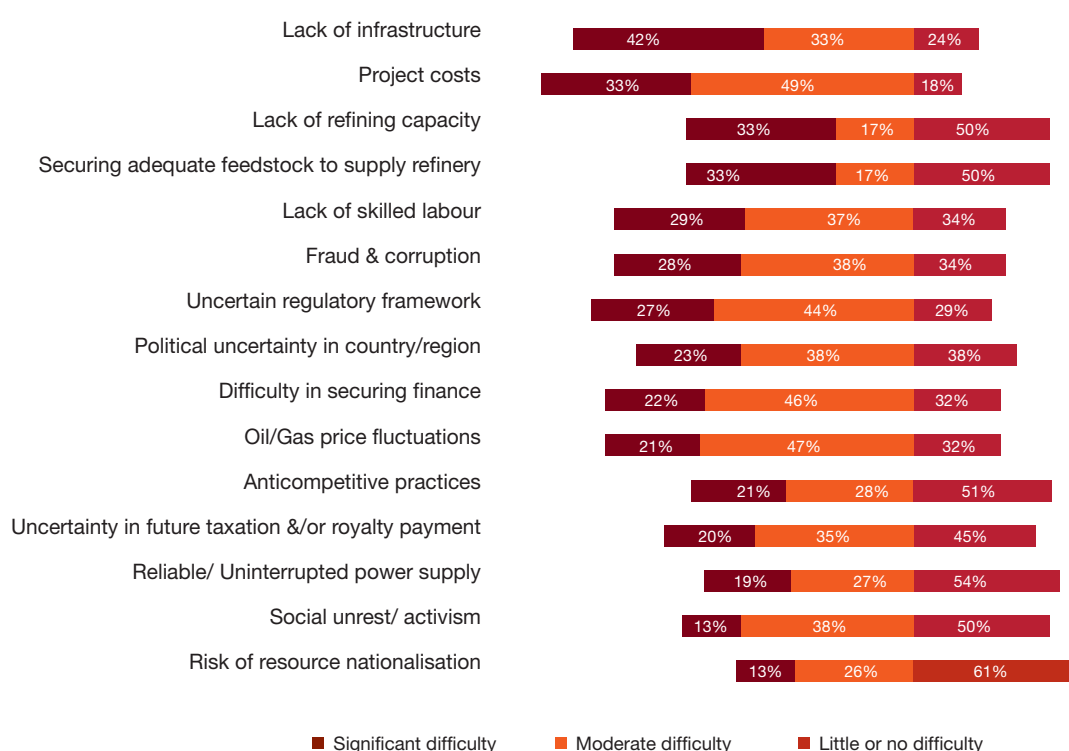
More and more companies are recognising the need for and benefit of investing in their people in order to create a foundation for success and longevity. The lack of a growing skilled and experienced workforce may negatively impact national competitiveness and opportunities to attract investment.

Technology infrastructure ranked much lower than expected. With the rapid pace at which technology is changing the energy landscape as well as the impact such change will have on day-to-day operations, one would expect it to be quite an important area of strategic focus.

However, one needs to remember that most of the key players in the region's oil & gas market are large multinationals with head offices located outside of Africa. It is the norm for areas like technology and research and development to have a strategic focus at head-office level and not at subsidiary level.

Advances in technology should provide significant opportunities for companies operating in Africa to enhance E&P activities at lower cost; therefore, investment in technological infrastructure is vital for business management and continuity and for gaining a competitive edge.

Figure 5: Difficulties or constraints in realising growth strategy



When asked what difficulties or constraints they anticipated in realising their growth strategies, participants again indicated that overcoming the lack of infrastructure poses a significant challenge for their business and growth aspirations.

Project costs are also a significant challenge for companies. Projects become more costly because exploration and development of fields in deeper offshore acreage is more expensive, while some conventional fields are also becoming depleted.

The need to venture into higher-cost sources such as deepwater fields, high-viscosity oil and oil from tight reservoirs will increase costs in the long term.

In our view, growth strategy is all about achieving business continuity – companies will achieve growth if they can meet the needs of the industry and are geared to cope with changing needs as and when they knock at the door. This means taking a long-term look at the industry and trying to predict market behaviour and then aligning the business model and strategy to fit the market.

Over the next 20 to 30 years, companies should plan to engage two conflicting trends:

- A decline in the use of oil & gas as more and more renewable alternative sources of energy become available; and
- It is expected that the demand for oil in Africa will continue to rise significantly over the next 20 years due to population growth, urbanisation and the emergence of a burgeoning middle class with significant disposable income.

It is expected that unconventional oil & gas fields will become more important as Libya with the fifth-largest shale oil reserves and Algeria and South Africa with the third and eighth recoverable gas reserves as well as other North African countries begin to develop these resources.

The shift from non-renewable to renewable energy sources over time will have a significant impact on companies' operations and their ability to continue doing business in Africa or around the globe for that matter.

With the Energy Information Administration (EIA) expecting oil production to peak in 2020, if technological advances in the oil & gas industry continue at the current pace, it may still be a very long time before we see renewable energy taking preference over oil & gas as a source of energy. Oil & gas production in Africa is, however, expected to continue to rise well past 2020.

Financing and investing



“It is an exciting region of high potential that needs far better investment attractiveness to allow the oil & gas industry to play a more productive role in its development...”

– BD Manager at an international oilfield service company operating in South Africa

When asked to identify their primary source(s) of financing for business operations in the next 12 months, respondents indicated that they will predominantly be relying on their own cash flows to fund their businesses.

The biggest shift in sourcing funding has been that companies are now financing their operations more through cash flow either from their local or global operations.

When delving deeper into the numbers, it can be seen that E&P companies are funding their operations differently from the other industry players with less than 40% of funding coming from cash flow. This can be attributed to blocks and regions yet to come into production. For E&P companies, farm-outs are the second most common form of financing in Africa, with around 100 farm-out deals being made across the continent during 2013.

After production sharing agreements (PSAs)/production sharing contracts (PSCs) with governments through bidding rounds and direct negotiations, farm-outs are the second most common form of negotiation in the African oil & gas industry. Respondents noted many positive reasons for this, including:

- Obtaining production;
- Increasing their portfolios;
- Gaining acreage diversification;
- Spreading the company risk;
- Ability to share costs; and
- Allowance for increased capital expenditure.

All of this comes with the expectation of higher costs, but proven reserves allow the original licensee to recoup costs, utilise unutilised personnel and utilise other companies' experience and expertise (such as when partners perform the drilling operations).

Smaller companies can also afford to take a percentage of a block; whereas, the cost of an entire block may be prohibitive. Large multinationals look at farm-out or complete asset sell-off as a good way to reduce their exposure to small and marginal assets as they follow their strategic goals and focus resources on key assets.

Farm-out activity in Africa continues to be driven with national oil companies (NOCs) continuing to farm-in to blocks and exercise their pre-emption rights to acquire a percentage in blocks and developments across Africa.

NOCs have been active in the last year through farm-ins and exercising of rights with Sonangol (Angola), Sonatrach (Algeria), Statoil (Norway), ONGC (India), PetroSA (Ghana), CNPC and Sinopec (China) having acquired acreage. This is set to continue with Statoil, Gazprom (Russia) and CNOOC (China) having bid in the recent Tanzanian bidding round.

Farm-out activity is expected to continue with Shell waiting on the Nigerian Government for authorisation to farm-out its Taveveras and Aiteo assets to Eni and Total. Acreage in Southern, Western, Eastern and Northern Africa is also likely to be farmed out.

E&P company respondents noted that equity funding was more difficult in 2012 and 2013; however, they believe that it has started to pick up as investors again look to Africa as a good place to invest despite a difficult year in the market when the regions failed to deliver and promulgate regulations.

Investors are factoring in the country and resource risk combined with the regulatory framework and other factors when considering investments into Africa. After farm-outs, equity is still seen as an excellent way to allow companies to have cash on hand to finance their expansion plans without having to take up more costly debt.

Trading companies continue to enter the African market with Glencore having moved into the oil & gas arena in Cameroon.

We believe the industry can look forward to an exciting and dynamic future in Africa with an ever-changing competitive landscape and new market entrants seeking a share of Africa's significant growth potential, with large acquisitions being driven by foreign NOCs willing to take risks and secure reserves for their economies.

Figure 6: Oil & gas farm-in/out investment in Africa

Country	Original Owner	Investor
Cameroon	Bowleven	Africa Fortesa Group
Cameroon	Bowleven	Lukoil
Cameroon	Bowleven	New Age
Chad	Caracal Energy	Glencore
Chad	Caracal Energy	SHT – Government of Chad
Tanzania	Beach Energy	Woodside Petroleum
Tanzania	Petrobras	Shell
Tanzania	Petrobras	Statoil
Tanzania	Ophir	Pavilion Energy
Nigeria	ConocoPhillips Nigeria	Oanda Energy Resources
Kenya	Taipan Resources	Tower resources
Mozambique	Eni	CNPC
Mozambique	Eni	ONGC and Videcom
Mozambique	Anadarko	ONGC
Mozambique	Eni	CNPC
South Africa	Forest Oil	Sunbird Energy
South Africa	Sasol	Eni
Angola	Statoil	Sonangol
Angola	Marathon	Sonangol
Angola	Marathon	Sinopec
Algeria	Petroceltic	Sonatrach
Egypt	Apache Corporation Egypt	Sinopec
South Africa	Anadarko	PetroSA
Morocco	Fastnet oil and gas	SK Innovate
Madagascar	Tullow	OMV
Madagascar	Niko Resources	OMV

Source: PwC analysis

Figure 7: Bidding rounds

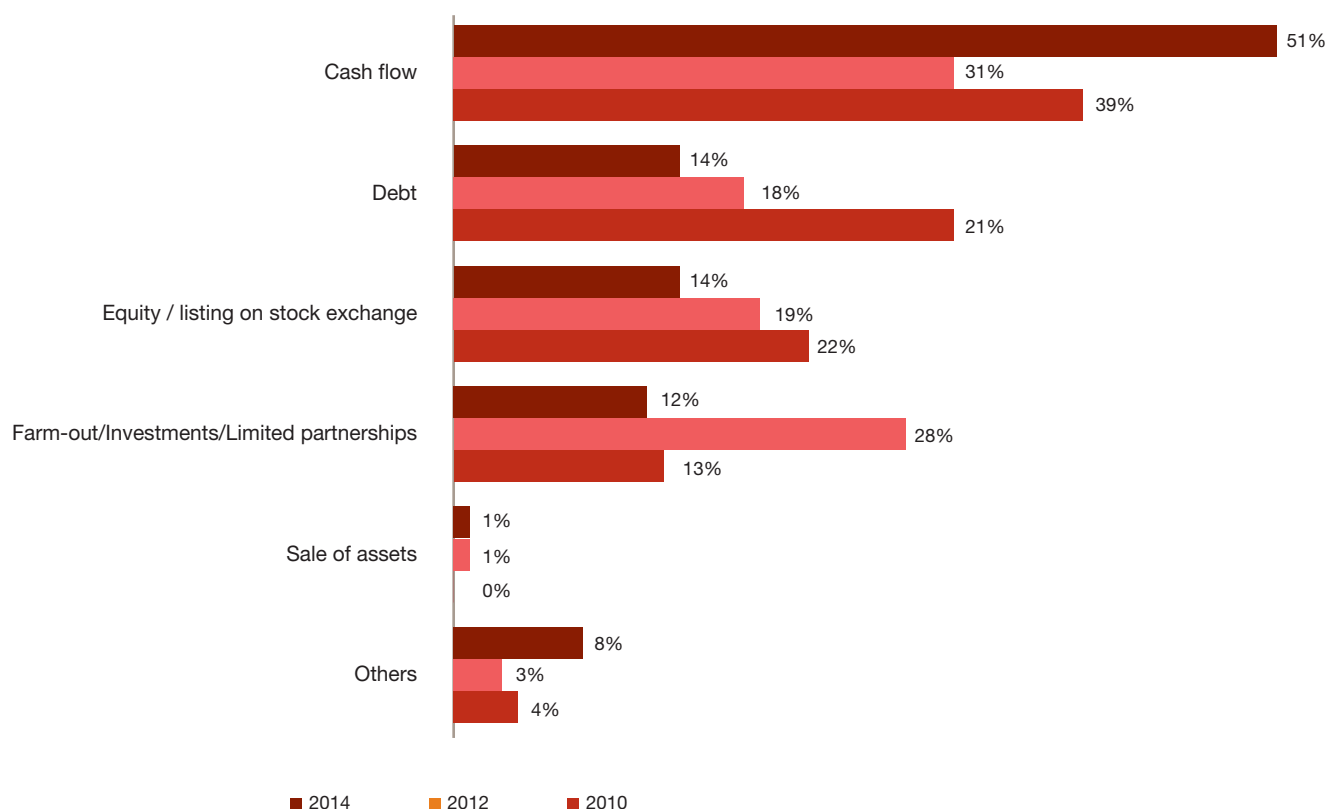
Countries	Expected bidding rounds
Angola	May 2014
Algeria	January 2014
Egypt	May extended into July 2014
Uganda	Q4 2014 possibly into Q2 2015 depending on ratification of laws
Equatorial Guinea	July 2014
Tanzania	May 2014
Mozambique	Q3 2014 or later depending on ratification of Petroleum Law
Cameroon	January 2014
Nigeria	December 2013 (Marginal fields to promote indigenous participation)
Liberia	Q3 2014
Republic of Congo	2015
Madagascar	July 2014
Namibia	Expected bidding rounds to be announced

Source: PwC analysis

Other governments have continued to issue licences to companies on a first-come, bid-by-bid approach with Red Rio successful in Western Sahara and Savannah Petroleum in Niger an example of transactions that occurred in 2014.

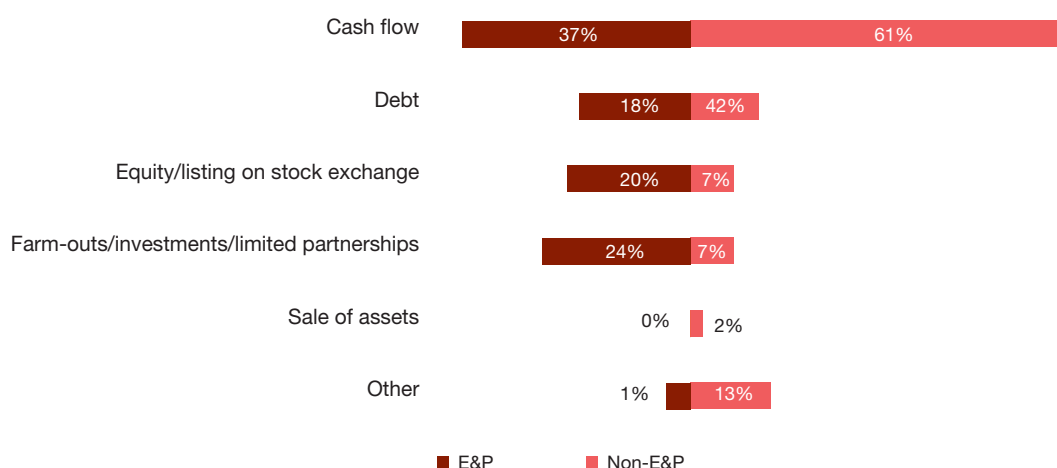
A number of respondents indicated that they will farm-out more areas in 2014 and 2015 in order to meet their strategic goals.

Figure 8: Primary source(s) of financing for business operations in the next 12 months



Base: 55
Source: PwC analysis

Figure 9: Primary source(s) of financing: E&P vs. non-E&P companies



Base: 55
Source: PwC analysis

The challenge of securing finance

The vast majority of respondents expect sourcing funding from cash flow and debt finance to be either ‘not challenging’ or only ‘somewhat challenging’. In contrast, ‘farming-out/investments and limited partnerships’ and equity listing were recognised as being far more challenging, with more than 30% of respondents predicting that securing such finance would be ‘very challenging’.

Companies are now financing their operations more through cash flow.

While the perceived degree of difficulty in executing farm-outs remains fairly high compared to other funding methods, the outlook has improved with it dropping from 55% in 2010 and 44% in 2012 down to 30% in 2014.

This bodes well for the industry as companies have confidence in Africa and want to diversify and take part in the African revolution. An area of concern is that the difficulty in financing operations through equity almost tripled with 13% indicating it was ‘very challenging’ getting equity finance in 2012; whereas, it increased to 35% in 2014.

While this percentage is high and remains a concern for the industry, a number of respondents noted that the markets were starting to look at the African oil & gas market more favourably again in the second quarter of 2014.

It is hoped that the temporary blip is over, but for this recovery to continue, African governments must promulgate and ratify oil & gas regulations, encourage the monetisation of assets and eliminate policy uncertainties and overly restrictive legislation when developing the industry.

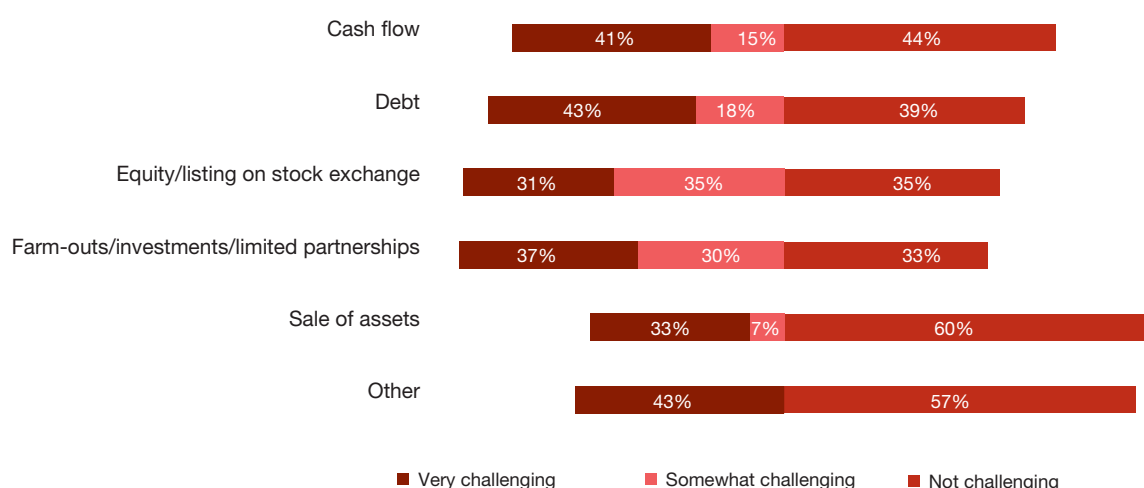
Developments in Nigeria may also have a significant impact on the funding environment for Africa as a whole. Indications are that political and industry pressure could cause Nigeria’s Petroleum Industry Bill (PIB) to be only partly ratified.

This may be bad for Nigeria as international oil companies and financiers will look at funding other capital projects and shift more investment into the ‘new frontier’ countries that have emerging or fledgling oil & gas industries. These include other countries in the Gulf of Guinea and those on Africa’s east coast. It has been estimated that USD50 billion has been lost in oil & gas capital investment in Africa’s biggest economy and most populous country.

Investment in South Africa has stalled with lawmakers approving amendments to the Mineral and Petroleum Resources Development Act (MPRDA). Some oil companies have expressed concerns and are reconsidering their capital plans until there is clarity on the Act, which includes a new clause entitling the State to a 20% free carry in exploration and production rights and an ‘uncapped’ further participation clause enabling the State to acquire up to a further 80% at an agreed price or under a production sharing agreement. The new minister of mineral resources indicated that the amendments are likely to be reviewed soon, and the oil & gas players are positive it will be more favourable to them.

Recent incidents of factional conflict, border unrest, community and fundamental activism in countries such as Nigeria, Uganda, DRC, Mozambique, Kenya and Ethiopia (among others) has focused attention on Africa for the wrong reasons and will have an effect on countries’ abilities to secure financing.

Figure 10: Level of difficulty expected in securing financing



Base: 55
Source: PwC analysis

Africa has seen continued investment and deal activity over the last year or two, with particular interest in the emerging oil & gas markets of West and East Africa. Figure 6 provides a summary of some of the countries and players involved in deal activity and demonstrates the extensive interest being shown in exploration across Africa.

It should also be noted that there is significant focus on emerging exploration areas such as Kenya, Tanzania and Mozambique, where offshore blocks and deepwater acreage will continue to drive exploration. On the west coast, Total and its partners are to spend a massive USD16 billion on the deepwater Kaombo oil development off Angola. On the other hand, Uganda and Kenya’s onshore blocks still appear to be the new frontier for onshore development.

Farm-in/out activity is also being driven in part by the need for risk-sharing and funding of continued exploration and development activities. This has made the industry one of the biggest sectors for merger and acquisition activities in Africa.

On average, transactions worth USD1 billion occurred every 17 days in the oil & gas sector during 2013. More deal activity can be expected as new licence rounds are opened up and as regulatory and policy uncertainty is removed.

Other large areas of investment will continue to be in LNG processing plants with the consortia led by Eni and Anadarko having agreed to jointly develop an onshore LNG plant at Afungi in Mozambique's Cabo Delgado province. The cost will be about USD20 billion for the first four trains (by 2018), which will have a total capacity of 20 million tonnes a year.

We believe it is likely that other multinationals and NOCs will farm into the project/venture so that these huge amounts of capital can be invested into the country's infrastructure. The possible plan for 50 million tonnes a year production capacity by 2030 would mean that investment of USD50 billion might be required.

The BG, Statoil consortium has submitted proposals to build an onshore LNG processing plant for two trains (by 2020) in Tanzania's southern region of Lindi. The cost has been estimated at USD15 billion and will have a total capacity of 10 million tonnes a year.

The oil & gas industry has been used by governments as a way of strengthening their financial markets and banking institutions with other countries looking to follow Angola in drafting legislation requiring oil firms to open accounts with domestic banking institutions from which all payments related to their oil operations must be processed.

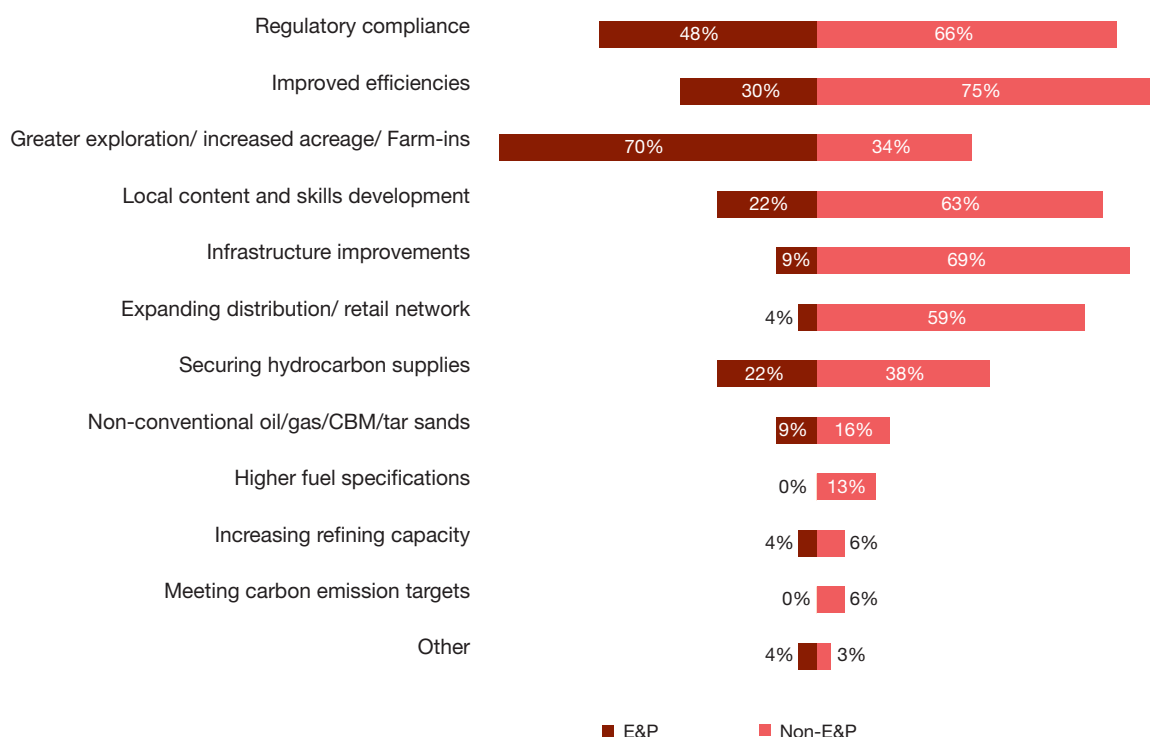
Likewise, countries such as Mozambique are considering requiring all oil & gas companies currently operating, or those wishing to extract gas and oil, to be listed on Mozambique's stock exchange. The objective is to strengthen their economies against foreign currencies and to get companies to raise capital in local markets.

A huge obstacle to growth in Tanzania and Mozambique is the cost of the infrastructure required, which neither country can afford without help from foreign investors who have their eyes on other global projects.

Both countries are introducing new energy policies and regulations with the express aim of attracting foreign capital by establishing a transparent regulatory and taxation environment. The decision by the consortia in Tanzania and Mozambique to invest in LNG projects is significant as no new greenfield investment decision outside the US has occurred for some years.

On average, transactions worth USD1 billion took place every 17 days in the oil & gas sector during 2013.

Figure 11: Strategic focus over the next few years



Base: 55
Source: PwC analysis

E&P and non-E&P respondents (which includes service companies, downstream operators and refiners) indicated that three of their top four areas for strategic focus would be regulatory compliance, improved efficiencies and local content and skills development.

Non-E&P respondents indicated that their top priority was improved efficiencies as they seek to extend the life of their assets through upgrades and maintenance, utilise new assets and concentrate on their core business.

Improved infrastructure was considered important as respondents noted that to operate in Africa it is necessary to invest in local infrastructure if they intended to develop their business in the country, especially in remote areas.

As would be expected, 70% of E&P respondents said that they would be investing in development drilling or exploration programmes.

Overall, local content and skills development was still considered a significant focus area in which companies would be investing; however, a number of respondents commented that they had already implemented programmes and policies for skills development and as such the focus would be less than in previous years. This correlates to the factors expected to impact business in the next three years depicted in Figure 2, where local content and people skills were now identified as the seventh and eighth most important factors affecting oil & gas businesses in 2014. This is down from second and third place respectively in 2012.

It is noteworthy that relatively low levels of investment in unconventional oil & gas plays are expected in the next few years; however, three times more respondents than in our previous (3%) have indicated that they will be focusing on this segment of the industry. We expect to see an increase in investment, led initially by shale gas developments and exploration in South Africa as well as North Africa in countries such as Algeria, Morocco and Egypt.

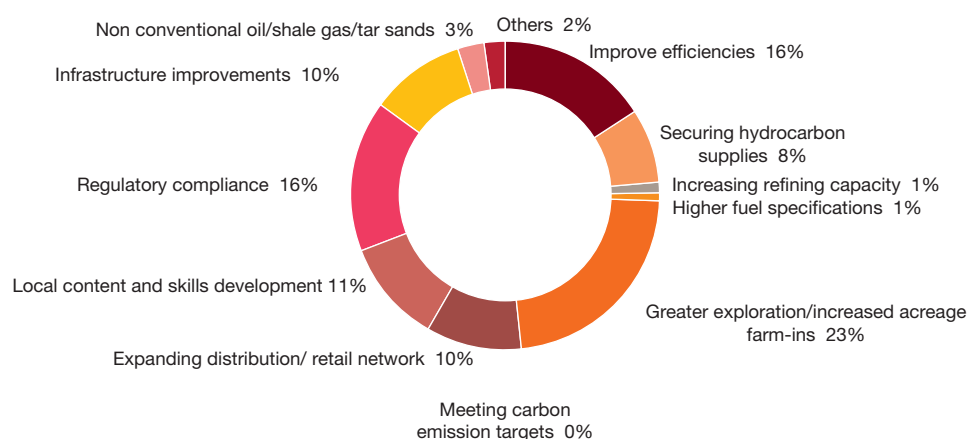
The two key investment drivers over the next three to five years were identified as ‘improving efficiencies’ (16%) and ‘greater exploration or acquiring greater acreage’ (23%). Discussions with respondents revealed that most anticipate a high level of competition for acreage. This seems to be being spurred by new finds across all regions of Africa. Further acreage has also been made available during recent bidding rounds, and more will be up for grabs in other bidding rounds expected in the next year as noted in Figure 7.

Figure 12: Most significant oil & gas discoveries in 2013

Ranking of discoveries in 2013	Discovery	Country	Company	Estimate by Tudor, Pickering (BOEs)
1	Agulha & Coral gas discoveries	Mozambique	Eni	1 400 million
2	Lontra oil discovery	Angola	Cobalt International Energy	900 million
4	Ogo oil discovery	Nigeria	Afren/Lekoil	850 million
5	Nene Marine oil and gas discovery	Congo	Eni	700 million
6	Tangawizi gas discovery	Tanzania	Statoil	575 million
8	Salamat gas discovery	Egypt	BP	500 million


Source: “The 10 Biggest Oil And Gas Discoveries Of 2013,” Forbes, <http://www.forbes.com/sites/christopherhelman/2014/01/08/the-10-biggest-oil-and-gas-discoveries-of-2013/>

Figure 13: Key investment drivers over the next 3-5 years



Base: 55
Source: PwC analysis

Combating fraud & corruption



No less than 91% of respondents indicated that their companies have anti-fraud and anti-corruption programmes in place. Of these, only 54% believe that the programme is very effective at preventing or detecting fraud and corruption.

Six percent of respondents indicated that their anti-fraud and anti-corruption programmes were ineffective, the same level as our 2012 research. More worrying is that 9% of the companies indicated that they had no programmes in place at all.

All E&P companies noted that they had programmes in place, and NOCs were most likely to indicate that their anti-fraud and anti-corruption programmes were ineffective or only somewhat effective. This is not unexpected as in recent years government officials have been implicated in a number of corrupt activities in countries ranging from South Africa to Nigeria and Algeria.

It was noted that respondents were less likely to have anti-corruption programmes in place in 2014 than at the time of our previous surveys in 2010 and 2012. The effectiveness of these programmes has also declined, and greater management effort and interventions are needed to make anti-corruption programmes become more effective.

PwC's 2014 Global Economic Crime Survey, 'Confronting the changing face of economic crime', also found anti-corruption/fraud programmes to be largely ineffective. The report noted that African economies were more likely to have experienced economic crime than was the case globally.

The survey noted that formal fraud risk management programmes have become the most effective fraud detection method. Despite this, a significant portion of the organisations do not carry out fraud risk assessments.

Only about one third of respondents indicated that fraud and corruption would have a severe effect on their businesses. However, when asked to identify the biggest challenges and constraints to developing a business in Africa, it was ranked second highest.

Fraud and corruption was also ranked third highest by respondents as an impediment to their companies achieving operational excellence. The perception of the oil & gas industry is that it is one of the sectors where companies are more likely to have corrupt activities.

Some of the reasons given for paying bribes/facilitation fees is to bypass customs bureaucracy inefficiencies and the related cost of delays to companies. Others include mismanagement, lack of skills, dealing with public institutions, government employees who are often poorly paid, a belief bribes are required to do business in certain areas, difficulty with monitoring in remote locations, huge tender and bid profit possibilities,

"The O&G business in Africa has the greatest potential. The upstream business is changing the game. If we can prevent corruption, Africa has a bright future..."

— Manager at an international oil company based in South Africa

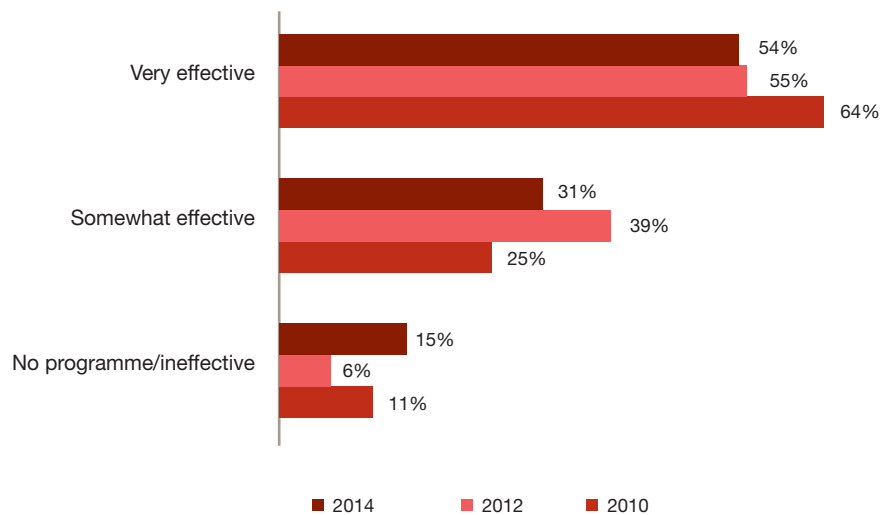
supplier kickbacks, procurement schemes, government nepotism to promote their own political agendas and the need to bribe high-ranking officials if they are to compete with other unethical companies.

A positive sign is that some respondents indicated that they are prioritising and spending money on prevention of fraud and corruption with more ethics training and senior management locally and globally encouraging companies to be legally compliant in all countries where they operate.

In the most recent Transparency International survey, 90% of the African countries had an indexation below 50%. This indicates an African corruption problem, suggesting a lack of transparency and trust in public institutions.

Against this backdrop, however, the Extractive Industries Transparency Initiative (EITI), which promotes transparency, good governance, and accountability in the use of oil, gas and mining resources, has more African country participants by number and percentage than the rest of the world. It would appear that African governments are aiming to become compliant so that they can attract more foreign investment.

Figure 14: *Compliance programme effectiveness*



Base: 55
Source: PwC analysis



Safety, health, environment & quality

Respondents identified safety, health, environment & quality (SHEQ) as the most significant factor that would affect their companies' businesses over the next three years. This is not a surprise as companies recognise the environment and human health and security as a pressing issue which, when viewed in conjunction with regulatory changes and poor infrastructure, will have resulted in their carefully assessing the risk and financial burden of working in certain areas.

Since our last survey, the impact of SHEQ regulations has had a greater impact on projects, with 62% of the respondents noting that SHEQ regulations and policies would cause project scope to change, modify, be delayed, accelerated, cancelled or relocated from their original investment decisions as both local and international standards created extra costs and responsibilities.

Respondents indicated that SHEQ is the number one risk to their companies as they could be levied with huge fines and clean-up costs in the event of an accident. Also significant is the potential reputational damage such an event might cause and the fact that tarnishing the company's image could be irreparable as investors, stakeholders, governments and the public would shun them if they gained the impression that the company was uncaring, complacent and negligent.

The industry has had to respond to a number of operational safety incidents and issues in Africa in the last couple of years with the deadly attacks in Amena, Algeria, leaks in the Niger Delta, fundamentalist attacks in Kenya and Nigeria, factional conflict and local community activism in Uganda, Kenya and Ethiopia having caused E&P operations to be suspended for a period of time.

Terror attacks and community activism have created added financial burden for companies as they respond to greater real and perceived risks of operating in certain regions and at the same time tighten up on their SHEQ regulation.

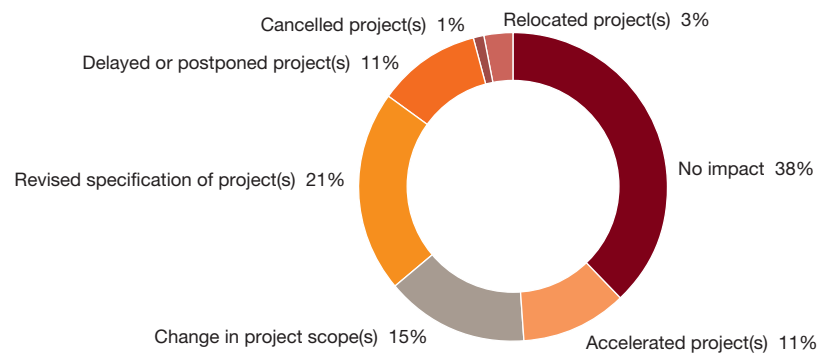
Many oil & gas companies prioritise SHEQ issues with all meetings and many hours being spent on dealing with the issue of protecting their employees, local communities and the environment. Many of the international oil companies (IOCs) and other players in the industry have a zero-tolerance policy to environmental damage and, as such, have programmes in place to mitigate risk and return areas where they have operations back to pristine conditions after operations have ceased.

Respondents indicated that their companies' SHEQ policies were often more restrictive than current regulations in the African countries where they operate. They are basing their decisions on the interpretation of laws and regulations both locally and globally on the most stringent regulatory policies and then implementing them across their operations worldwide.

That is not to say that stricter government regulations and more stringent terms in the companies' operating licenses has not also played a significant role in influencing the additional focus on SHEQ.

The cost of clean ups and compensation to local communities is not only restricted to the developed world but also to Africa where local communities are reported to have received more than USD100 million for the loss of livelihood from the Niger Delta spill in 2008.

Figure 15: Effect of SHEQ regulations on capital project investment



Base: 55

Source: PwC analysis

The introduction of new or proposed regulations as well as companies imposing strict SHEQ policies over all their global operations (including those in remote locations) has meant that 36% of the companies surveyed either revised or anticipate revising their project specification and scope.

Only 1% of the companies in the survey indicated that they would cancel a project, while 3% said they would be relocating project(s) due to environmental, health or safety considerations. Project delays were noted in South Africa as the implementation of cleaner fuels regulations were delayed further while government engages with the industry.

SHEQ costs

Between 50% and 60% of respondents expect their SHEQ costs to increase over the next three years, but they do not expect these costs to increase substantially at any point in time. The anticipated increase in SHEQ costs was over 20% lower than in the previous study as companies indicated that they had been spending heavily on protection of staff and environmental considerations over the last few years.

The increase in priority given to SHEQ and decline in cost increases suggests that the attention and focus that oil companies have placed on SHEQ is paying off and that the costs to continue with these programmes is increasing at a slower rate than in prior years.

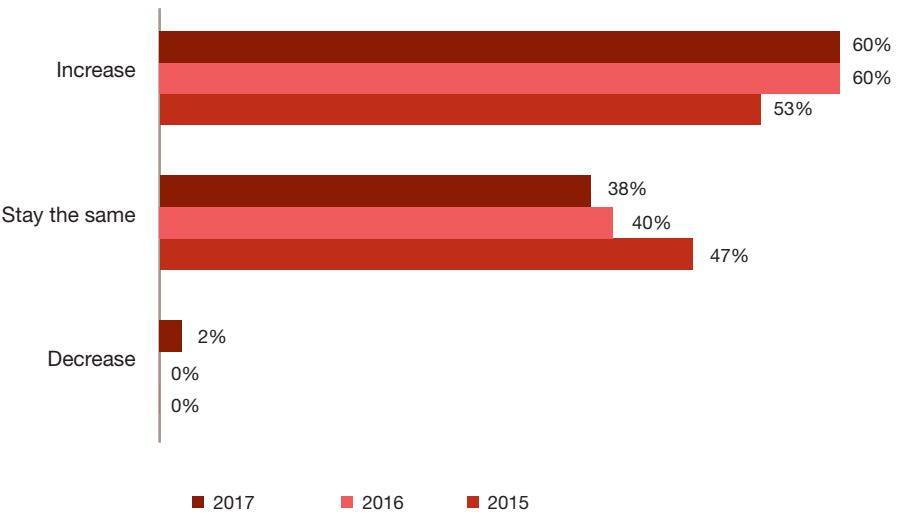
For example, in Nigeria gas flaring has reduced from 30% in 2010 to 12% in 2014. It has been estimated that Nigeria's loss in revenue due to gas flaring was USD2.5 billion per annum; however, this has reduced to less than USD1 billion per annum as gas utilisation projects come on-stream.

In May 2014, the Ghanaian Government indicated that it would temporarily allow the flaring of gas until October to boost oil production, while a gas processing facility is being completed onshore.

The need to boost oil production and to reduce current account and budget deficits prior to the completion of a gas processing plant is a quandary that has and will continue to effect governments in the future as they endeavour to balance the needs of the broader economy with the need to enforce SHEQ regulations to protect the country.

Shale gas and hydraulic fracturing projects in South Africa have been delayed as the Government regulates and continues to debate their merits. However, the Government has indicated that fracking of the Karoo is likely to happen in the future. The SHEQ debate and the need for legislation is likely to surface in more countries as unconventional resources of oil & gas are evaluated and potentially developed.

Figure 16: SHEQ cost expectations over the next three years

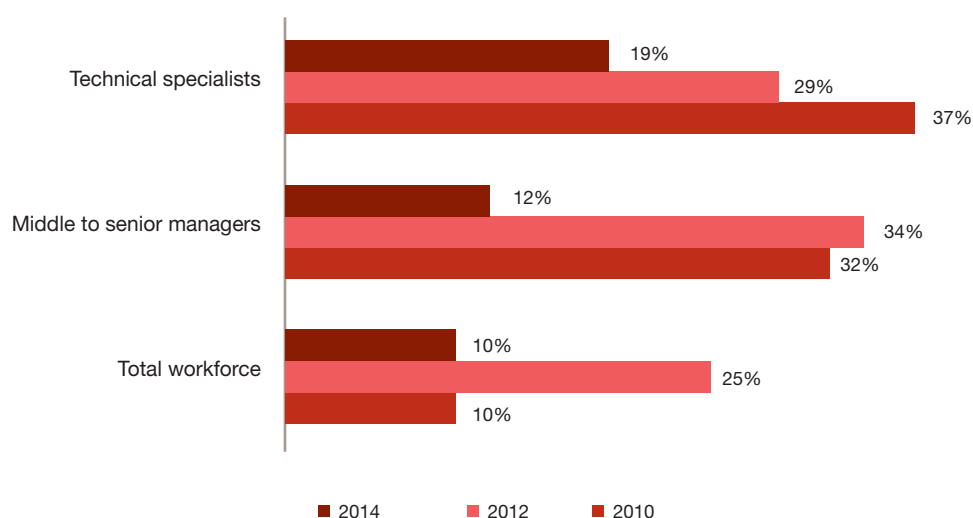


Base: 55
Source: PwC analysis

Developing local skills and socio-economic growth

Local content policies have come to the forefront of decision-makers' minds.

Figure 17: Percentage of expats in different roles



Base: 55

Source: PwC analysis

Local content has become a significant issue for the oil & gas industry, especially across Africa. Given the drive by governments to enable locals within the energy sector, we would expect to see the percentage of expatriates employed by oil & gas players go down.

In 2012, we found that 25% of the total workforce at respondents' companies was made up of expatriates. This year, we see that proportion has dropped significantly – down to a mere 10.6% of the total workforce surveyed. This figure is representative of a comprehensive cross section of companies and countries, including those in more mature areas such as Nigeria and Ghana as well as frontier territories like Tanzania and Namibia.

With just over one in 10 members of the workforce being expatriates, respondents indicated that on average 12.4% of those were in senior and middle management positions and a tiny 10.4% in specialist technical roles such as drilling supervisors.

Among the service companies surveyed, only 9% of the total workforce were expatriates.

The mandate for local skills development is a concern for businesses operating throughout the oil & gas value chain in Africa, as reflected by their identification of people and skills and local content among the leading factors likely to impact their business in the next three years (refer to **Figure 2**).

Several countries, including Nigeria, Ghana, Gabon and Egypt, are pursuing policies that make it possible for locals to invest, provide services, supply goods, create employment opportunities, generate income and thereby create wealth, making it possible to lift them out of poverty. This is commonly referred to as local content policy (LCP) and was first introduced in the North Sea in the early 1970s.

Another method of enhancing in-country value is through knowledge transfer from international oil companies to local citizens. This is often addressed through legislation in the form of mandatory training fees payable by the investing oil company to the government. If not covered by the country's legislation, localisation of the industry may also be part of production sharing agreements, where applicable.

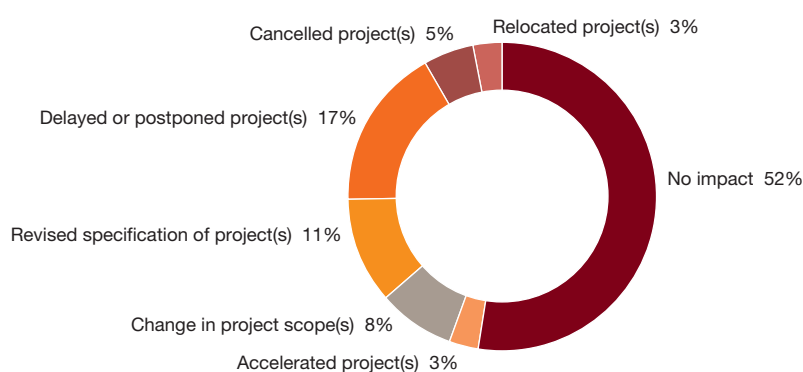
The DRC, Gabon, Madagascar, Mauritius and Morocco all had expatriate figures below 10% in all categories; whereas, Tanzania and Ghana reported higher average values of for all categories of workers – with up to 100% for middle to senior managers in some cases.

Impact of local content and regulatory policies on project investment

While regulatory policies and uncertainty surrounding them have long been an issue for oil & gas businesses in Africa, local content policies have recently come to the forefront of decision-makers' minds.

Developing a local workforce has been a significant hurdle in certain parts of the continent – especially when coupled with a lack of available infrastructure. We do, however, note that most companies have been able to fill middle to senior management as well as specialist technical roles with locals from their host nations.

Figure 18: *Effect of local content and regulatory policies on capital project investment decisions*



Base: 55

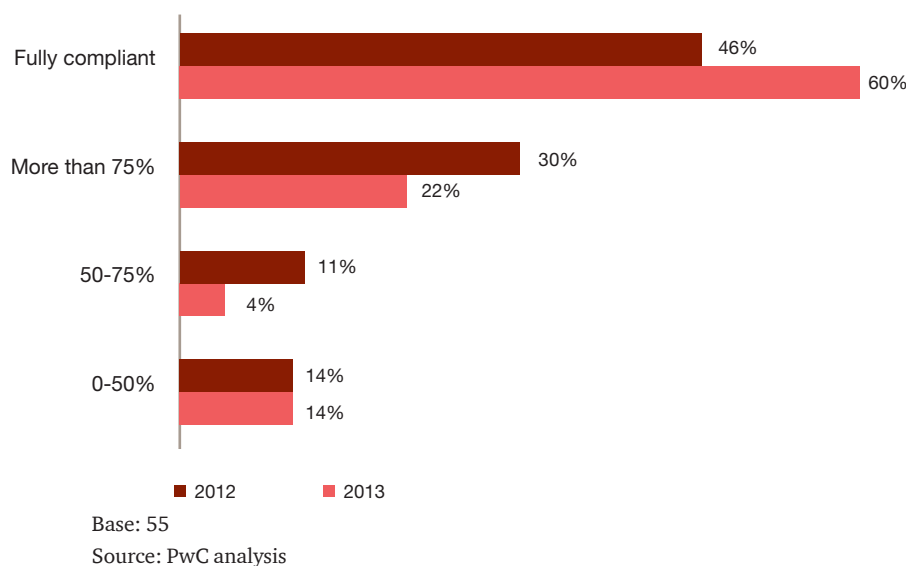
Source: PwC analysis

When it comes to the effects that local content requirements and regulation have had on projects, we found that it can be significant with 22% of respondents reporting that it had delayed, postponed or cancelled projects and 19% confirming that this has either caused a change in project scope or specifications.

Over 70% of respondents acknowledged that skills, people training and development are among their top five strategic priorities over the next three years. This demonstrates the importance that the industry is placing on local content initiatives and the significance that skills development has on executive-level agendas.

Compliance with local content regulations

Figure 19: Level of compliance with local content regulations



Even though local content is a significant issue in the industry, the majority of respondents said that they were fully compliant with local content regulations. No less than 82% of respondents indicated that they met at least 75% of the local content requirements, with 60% confident that they are fully compliant.

Looking broadly across Africa, we have seen that many countries are receiving donor funding from organisations such as the World Bank to facilitate oil & gas industry capability development, especially within government regulatory bodies and energy ministries.

The 2013 Hays Oil & Gas Global Salary Survey indicates that the highest average salary for expats in Africa was still in Nigeria at USD140 800, followed closely by Ghana at USD121 600 and then Egypt at USD118 500. The survey's overall numbers for Africa indicate that 35.6% of the workforce in Africa consists of imported labour. Skill shortages are overwhelmingly the biggest concern for employers globally as well with 37.3% of employers concerned about this in the current employment market.

International oil companies continue to contract out significant portions of their in-country activities, and this is having a positive impact on local content development in Africa. This will continue to be a focus over the next three years. In addition, 45% of companies interviewed report that they are also investing in local content development and skills development to realise their growth strategies over the next three to five years.

The World Bank released a study in 2013 on local content policies in the oil & gas sector that highlights the arguments for and against these initiatives as well as the various structures, mechanisms and implementation tools used by policy-makers around the globe.

To understand local content implications better, the study highlighted that the potential for local content enhancement along the oil & gas value chain differs based on the activity being undertaken. This has to do with technology and equipment that may be more difficult to source locally dependent on the activities being carried out.

Specifically, the study highlights three key subsectors of the oil & gas value chain and the propensity for local content advancements in each:

- Exploration activity is a highly specialised portion of the value chain with little domestic supply normally available to supply the inputs, especially in countries where oil and/or gas has been newly or recently discovered.
- The development phase is commonly small in scale and highly specialised, so it is another area where local content is likely to be very limited. With both of these phases, the search for hydrocarbons can prove uneconomic, so any local content created could be short-lived. This suggests that local firms may be hesitant to invest in E&P activities until they are proven commercially viable and technically recoverable.
- When assets move into the production phase, the scale of the operation increases, and the inputs are required for a more sustained period. The inputs required are also likely to be less specialised in nature, on average. This makes room for local firms to supply goods, components and less specialised skills.
- Oil & gas treatment and LNG pose similar opportunities for local content as the production phase above. LNG, in particular, may provide a lot of local content drive in Angola, Mozambique and Tanzania.
- Transport and storage, by its very nature, can create a number of local jobs from construction workers for pipelines (though only temporary), drivers for road transport and port workers for import terminals.
- Primary distribution provides a significant opportunity to involve local skills as the requirements are usually less specialised.

Overall, local content aims to provide broad-based economic development and socio-economic growth as a result of a country's own natural resources. Examples and results of local content programmes include:

- **Angola**

According to case studies released by the World Bank in 2013, Angola has been following a two-tiered approach in efforts to achieve its local content objectives: Angolanisation of the work force; and

- Sourcing of goods and services locally.
- A series of governmental decrees provide the legislative framework for these initiatives. Under the local content policies, the workforce for any oil & gas company should consist of 70% Angolan nationals. Companies must submit their Angolanisation plan, detailing how they plan to achieve their targets, to the Minister of Energy on an annual basis.

Certain products and services that do not require a high amount of capital or technical expertise must also be sourced from Angolan-owned companies. Overall, preference must be given to local suppliers as long as their prices are not more than 10% above those of international suppliers. For more specific information on Angola's local content guidelines, please refer to the Angola country profile on page 47.

- **Nigeria**

The Nigerian content implementation framework has largely been a success for the country. This is good to see as it has been a focus of the national economic agenda for quite some time now with the Nigerian Oil and Gas Industry Content Development Act (NOGICDA) being passed in 2010. It is also a relatively mature oil-producing country when compared to the rest of the continent, which means that locals have had more opportunities to get involved.

Other forces that have had a significant impact on the policy's success include the Nigerian Content Development and Monitoring Board – an enforcement and implementation body. To demonstrate the success to date, its Executive Secretary, Edward Nwapa, stated that “The participation of Nigerians in the industry has grown to a good extent which today, engineering in the oil & gas industry is done 90 per cent in-country, fabrication of all the field development facilities now has 50 per cent of the tonnage done in Nigeria but the major issue is in manufacturing which is where the knowledge and technology is.”

- **Ghana**

In Ghana, the local content and local participation in petroleum-related activities policy framework was first put into place by the Ministry of Energy in 2011. It stipulates the following:

- Every oil & gas project, operation, activity or transaction must have an Annual Local Content Plan which will be assessed and revised annually;
- A Ghanaian citizen must have an interest in any Ghana exploration, production and/or development and first consideration given to Ghanaian independent operators;
- Goods and services should be provided by Ghanaian entrepreneurs, where possible;
- Citizens of Ghana must be employed and trained in the industry; and
- A National Local Content Committee must be created to oversee the local content implementation.

In November 2013, the Ghanaian Parliament passed the Ghana Local Content & Local Participation Bill which further regulates local content policy. One key aspect of the legislation is the requirement that “there shall be at least a five percent equity participation of an indigenous Ghanaian company other than the Corporation to be qualified to enter into petroleum agreement or a petroleum licence.”

To assist with the implementation of the new legislation, the government also created the Enterprise Development Centre (EDC) along with the Jubilee partner – Tullow Oil, Kosmos Ghana, PetroSA, Anadarko and GNPC. The EDC is responsible for supporting local small and medium enterprises to position themselves to take advantage of opportunities in the oil & gas sector.

Sustaining growth and development



Sustaining growth and development in Africa hinges on the ability of developing countries to monetise their natural resource reserves.

Africa's oil and natural gas sector has in recent years played a crucial role in the economic growth and development of the continent, particularly in those developing countries where recent onshore and offshore discoveries and developments, especially in West and East Africa, has significantly contributed towards making the continent more commercially attractive to a wide range of investors around the globe.

Africa certainly still holds the promise of exciting opportunities for growth and investment. Some discoveries in the region are so recent that adequate appraisal of proven reserves has yet to be completed, an indication that we will soon see a surge in proven reserves figures for many emerging players, making Africa an ideal destination for growth through investment.

Significant gas finds in Mozambique and Tanzania have caused the world to take note of East Africa as an emerging player in the global industry. The growth of natural gas is changing the landscape of the world's energy mix, with new technologies providing many developing countries increasing capabilities to capitalise on the economic opportunities associated with developing this natural resource, including shale gas, further. The development of natural gas therefore holds tremendous growth potential for Africa, as the industry is actively looking at ways to utilise natural gas and now has the technology to do so.

Sustaining growth and development in Africa hinges on the ability of developing countries to monetise their natural resource reserves. For companies operating in developing countries, establishing and maintaining a robust business model and long-term strategy for capitalising on the economic opportunities associated with developing oil & gas resources is vital for sustaining growth and development and creating a sense of lucrative investment potential within each country.

To maximise growth potential, strategic long-term planning is important. Oil & gas companies will need to cater for adequate investment in exploration and production activities, technology and infrastructure, while at the same time implementing measures for streamlining operations and controlling operating costs. Operating in a lean and efficient manner gives companies a competitive edge, and operational excellence has become an increasingly important factor contributing to growth and development.

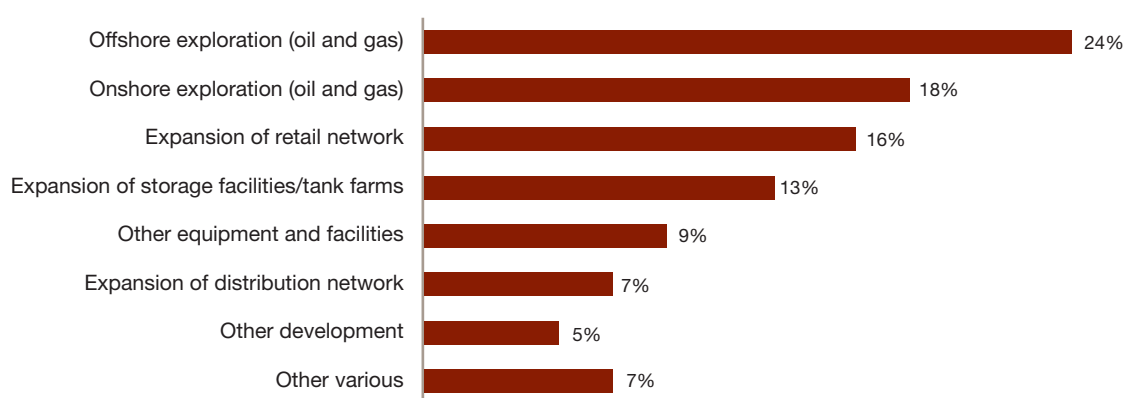
Governments and national oil companies play a significant role in sustaining growth and development in Africa's oil & gas sector. Regulatory uncertainty and delays in passing laws are severely hampering growth and development in the sector. Many African countries have a host of stringent laws, regulations and local content requirements that create challenges for companies and international investors to overcome – do these laws and regulations stimulate or inhibit Africa's growth and development?

Operational planning therefore needs to be carefully thought out, taking into account demand growth, infrastructure requirements, investment needs and potential, long-term strategies and the role of government if companies and countries want to sustain growth and development in Africa.

Area to receive most capital budget over the next three years

Oil & gas companies need to closely evaluate risks and benefits when deciding how much capital to invest in new projects or expansion of existing exploration and production activities, infrastructure and technology. The outcome of such evaluations normally guides companies in selecting which areas receive the most capital investment in the hope of achieving a balance between sustainable growth and maximum returns.

Figure 20: ***Area to receive most capital budget over the next three years***



Base: 55
Source: PwC analysis

Offshore exploration ranks highest in terms of areas that will receive the most capital budget over the next three years, especially in the Southern and Western African countries, with 24% of respondents highlighting this as an area of focus. Onshore exploration is the next highest area of focus, followed closely by expansion of the retail network with 18% and 16% of respondents sharing this view respectively.

Higher focus on offshore rather than onshore exploration makes sense, given that traditional land-based reserves are slowly diminishing while the demand for oil & gas keeps rising. Among the West African countries, recent offshore discoveries by key players in the industry have sparked an interest in developing oil & gas fields further, and we expect this to attract new entrants and investment into those countries.

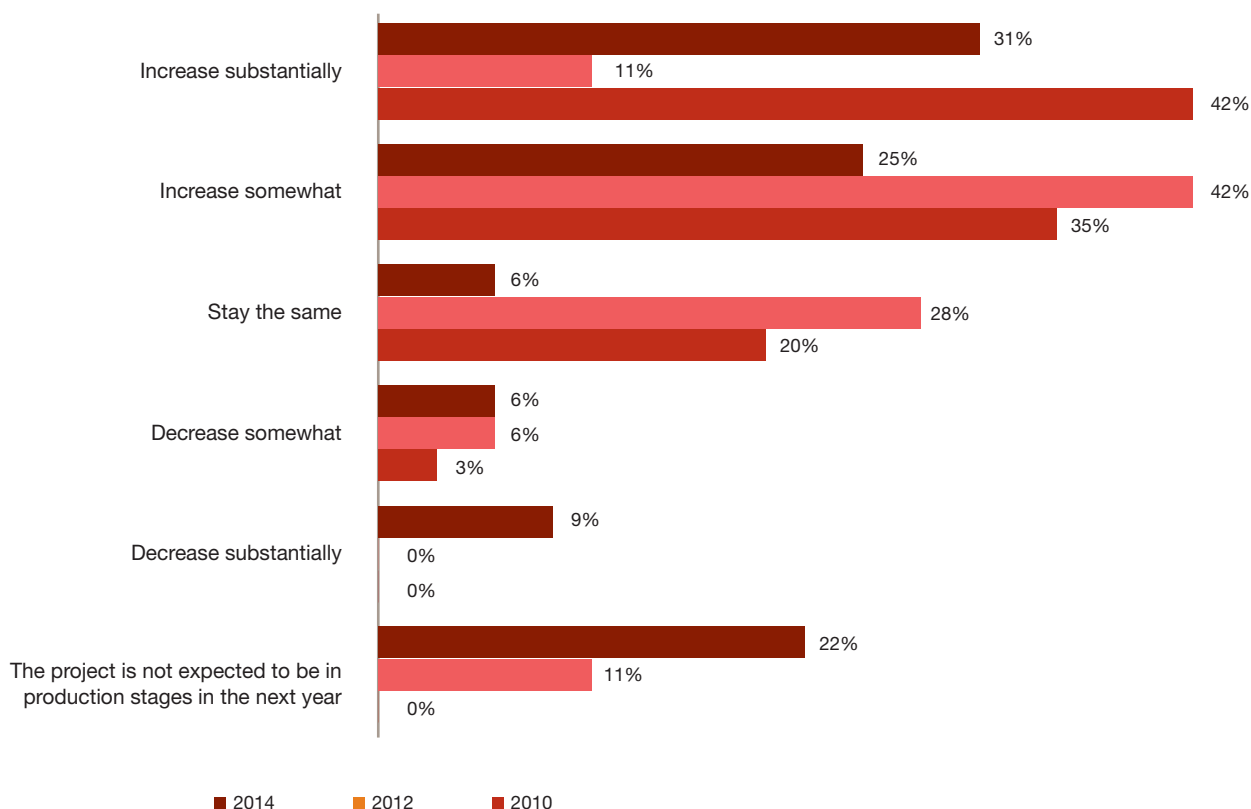
Responses indicated that capital expenditure for onshore exploration is favoured in East Africa, especially in Madagascar and Kenya. A number of companies are conducting exploration activities in the sedimentary basins of Madagascar, including Vanco Energy Co, Sterling Energy, Exxon Mobil, Tullow Oil, Total and Madagascar Oil.

Recent discoveries of oil deposits in Kenya have also sparked an increase in petroleum exploration. First commercial oil was found in 2013, and initial production is expected in 2016. International oil companies are also turning to Kenya as a country for investment in acreage.

Several respondents from South Africa and Nigeria indicated that their capital budget for the next three years focuses less on exploration initiatives and more on expansion of retail and distribution networks.

Expected changes in production levels

Figure 21: E&P companies' expected production trends



Base: 32 E&P companies
Source: PwC analysis

Just over half (56%) of E&P companies responding to the survey expect production levels to increase over the next year, which is similar to expectations in the 2013 Review. A fifth (21%) expect production levels to decrease or remain the same as current levels. The remaining respondents told us that their projects are not expected to be in production stages within the next year.

Increasing operating costs

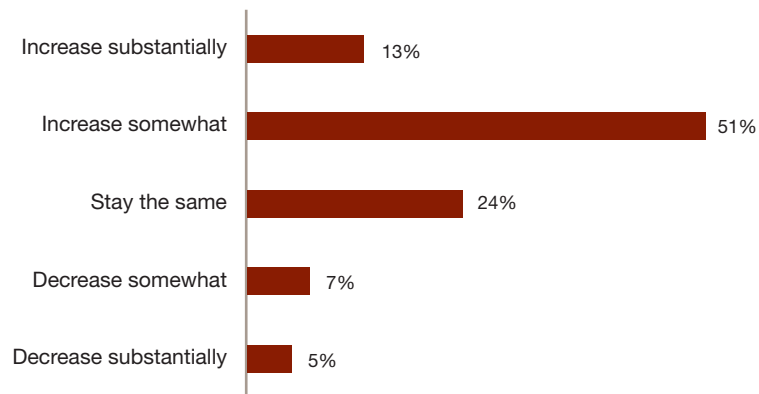
The expected increase in production levels is naturally matched by the expected increase in operating costs over the next year.

According to a study of global gas trends in oil & gas markets by Lukoil, the rapid growth in exploration and production costs in recent years can to some extent be attributed to the depletion of the conventional oil resource base. The study suggests that the growing demand for hydrocarbons is a key driver for companies needing to develop unconventional and very costly reserves.

In Africa, however, the global trend is unlikely to filter through in the near future since the majority of exploration and production opportunities lie in conventional reserves, with the exception of South Africa.

Producing oil & gas from deepwater shelves, tight reservoirs, mature fields and shale carries high cost implications due to the complex nature of the operational activities, infrastructure and advanced technology required. Many African countries do not have the financial or technical resources to venture into monetising less conventional reserves.

Figure 22: *Anticipated change in overall operating costs over the next year*



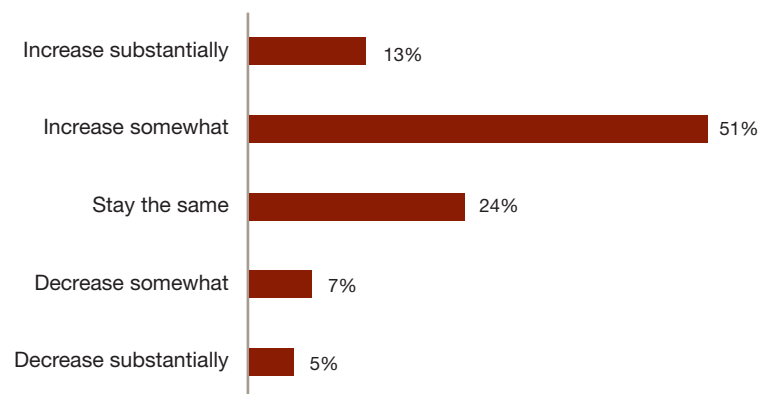
Base: 55
Source: PwC analysis

Respondents did indicate that SHEQ and the inadequacy of basic infrastructure are among the top five significant factors that would affect their businesses over the next three years. Both are likely to contribute significantly towards increasing operating costs. Many companies are reviewing their mechanisms for improving health and safety standards in the work environment, given the significant regulatory requirements within the oil & gas sector as well as seeking ways to limit environmental impact as well as on-the-job accidents.

Acreage/licence acquisition costs

Most respondents expect acreage/licence acquisition costs to remain the same over the next year while only 33% believed acreage costs would increase. We had a similar response in our previous Review, which highlighted the fact that the price of acreage has already increased substantially over the last few years and has already been factored into recent bidding rounds and farm-ins.

Figure 23: *E&P companies' expected movement in acreage/licence costs*

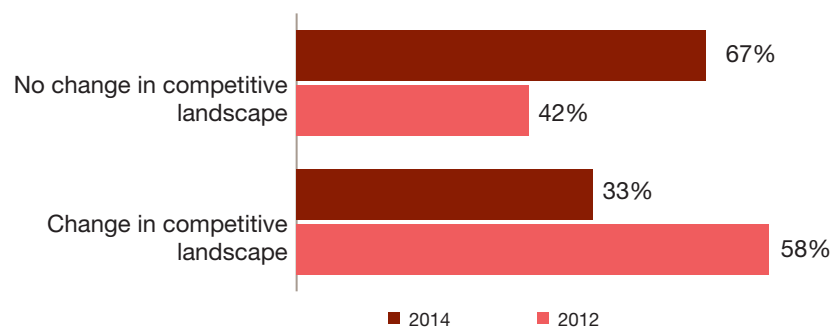


Base: 32 E&P companies
Source: PwC analysis

Changes in the competitive environment

Africa's growing commercial attractiveness is fast becoming the focus for international oil companies wanting to do business on the continent. The results of the survey clearly show that there is an expectation that the competitive landscape is going to change, with 67% of respondents sharing this view. The threat of new entrants into the oil & gas market is imminent, and companies currently operating in Africa need to take appropriate steps to defend their market share in their efforts to achieving sustainable growth and development.

Figure 24: Expected change in the competitive landscape



Base: 55

Source: PwC analysis

The threat of new entrants into the oil & gas market is imminent.

Attaining and/or maintaining a competitive edge depends on a combination of factors that all need to work hand-in-hand. Some noteworthy elements include:

- The size of the company;
- Its economic footprint on the continent;
- Robustness of strategy;
- Agility of business model;
- Access to financial resources;
- Well-maintained infrastructure and equipment;
- Leadership and people skills;
- Utilisation of advanced technology;
- Research and development capability;
- Innovation; and
- Operational excellence.

Smaller oil & gas players in Africa generally find it hard to compete with larger players engaged in E&P activities because they lack strength in one or more of the above factors. Depending where in the value chain they operate, entry into the industry may or may not be difficult.

For example, smaller E&P companies may find it hard to compete with large multinationals whose activities are usually geographically and vertically integrated, whilst oilfield service companies and companies engaged in ancillary activities along the value chain could more easily move into Africa and establish a competitive business.



National oil companies

Africa has more than 30 national oil companies (NOCs), with Sonatrach (Algeria) the only NOC in Africa that is among the top 10 largest oil companies by reserves globally with 39 trillion BOE.

The NOCs in Africa not only play a significant role in the upstream sector, they are also continuing to play a significant role in the downstream value chain. The majority of the companies that have delved into the downstream industry have faced problems ranging from too broad a mandate and inefficiencies to financial issues including investments and lack of technical capacity.

In the African downstream sector, one of the key bottlenecks is the lack of infrastructure to meet current growing consumption demands within countries. NOCs over the last decade have taken a greater stake in the downstream sectors as many international oil companies have divested due to low profit margins.

The lack of profit is expected to continue even with higher local oil consumption and continued rising demand if reform does not occur within many countries. The major oil companies have divested and pulled out of a number of countries taking with them the technical know-how as well as the finance required to maintain and upgrade facilities and develop infrastructure.

Their withdrawal has meant that a number of NOCs have either had to manage the market themselves or bring in private companies to assist in the retail, marketing and refining sectors. A number of NOCs have set up public-private partnerships with non-traditional oil & gas players such as oil & gas trading houses who are willing to invest in the downstream industry.

Sonangol, for example, developed a symbiotic partnership with Puma Energy where the companies benefited from Puma's parent company's position as the main marketer of Angolan crude and the importer of petroleum products into the market as a platform to develop storage facilities and distribute products. The benefit to Puma is that Sonangol guarantees the supply of crude.

We believe other NOCs are likely to follow the same strategy as traders look at opportunities to lock-in crude markets and supply oil products to the local market as a good solution for both parties. It has yet to be seen if more than a handful of countries such as Mozambique and Gabon will follow suit with governments providing clear, realistic and attractive policies and regulations that can encourage investment and allow NOCs to concentrate on their core business.

It may require further failure of NOCs to manage the downstream and midstream sectors before their mandates and reform of legislation and policies can lead to improved efficiencies and a better-run downstream sector. Some NOCs have been unsuccessful in the marketing and distributing sectors of the market

Other major developments include state-owned institutions and NOCs focusing on developing infrastructure to assist and develop the industry and supply local markets. For example, the governments of South Sudan, Uganda and Kenya signed a memorandum of understanding (MOU) on a partnership to invest and coordinate in the development of the 1300-km LAPSSET pipeline at an estimated cost of USD25.5-30 billion. This indicates the forethought of the industry to guarantee supply and encourage economic development. High development costs, civil strife and terror attacks near Lamu and its proximity to Somalia, where incidents of piracy persist, may still hamper the project.

We believe that African NOCs, similarly to global NOCs, will continue to grow their portfolios with the acquisition of acreage at home and abroad through farm-ins, governmental cooperation, free carry and acquisition by exercising the rights within PSA/PSCs.

A lack of success in the upstream sector and unreasonable government mandates have meant that NOCs have often moved unsuccessfully into the downstream and midstream markets in recent years. A number of NOCs therefore have significant marketing and refining assets that are not performing, and we believe that reforms are required so that NOCs focus on their key mandates and operate with excellence, managing their upstream role according to legislation.

NOCs and other government institutions within the oil & gas sector should play a meaningful part in encouraging socio-economic development, job creation and supply within countries. However, clear mandates, good regulations and well-thought-out and developed master plans are essential for countries to successfully plan and develop their oil & gas sectors.

Oilfield services



In 2013, 11 out of the top 20 oil & gas discoveries made in the world occurred in Africa.

Oilfield services (OFS) have become increasingly present on the African continent. Today, the global OFS market is worth USD750 billion per year. OFS companies want to ensure that they are as close to their clients as possible.

When asked about the challenges they face, they take a similar view to that of their clients. For example, in markets where regulatory uncertainty is a concern for E&P companies, it also tends to be a concern for OFS companies. They realise that anything deterring E&P companies from exploration activity will also impact on their businesses.

At the moment, we see that OFS companies globally have tight cost control measures in place. Again, this is in line with the E&P players who have very focused capex programmes, including those for drilling.

When asked to rate the projected impact of a number of factors on their business over the next three years, most OFS companies answered in line with E&P companies. To illustrate, over the next three years, respondents expect the following:

- 42% of OFS companies anticipate inadequacy of basic infrastructure will have a significant impact on their businesses; 39% of E&P companies agree.
- 43% of OFS companies believe oil and natural gas prices (commodity prices) will have a significant potential impact on their businesses; 43% of E&P companies agree.
- 58% of OFS companies think protectionist governments will have a significant potential impact on their businesses; 39% of E&P companies agree.
- 58% of OFS companies expect safety, health, environment and quality (SHEQ) regulations to have a significant potential impact on their businesses; 39% of E&P companies agree.

We also found that 42% of OFS companies are concerned that communities, social activism and general instability will have a significant potential impact on their businesses over the next three years. Interestingly, four out of five companies that gave this response are based in Nigeria. This confirms that social unrest in local Nigerian communities continues to be a key concern for companies operating there.

When it comes to the overall challenges of building an African oil & gas business, OFS companies seem to be most focused on corruption and uncertain regulatory frameworks with two-thirds of companies putting both of these challenges among their top five for the continent. Despite these challenges, many of the major OFS companies are looking to expand their African footprint in an effort to get people and equipment closer to the new exploration plays in West and East Africa.

There is generally optimism amongst OFS players, driven mainly by sustained crude oil prices, a positive demand outlook for oil & gas as well as the potential for national oil companies to become major customers. Some of the biggest causes of concern for major OFS players in the African market pertain to project delays, which may be influenced by a variety of factors.

The global OFS market is worth USD750 billion per year.



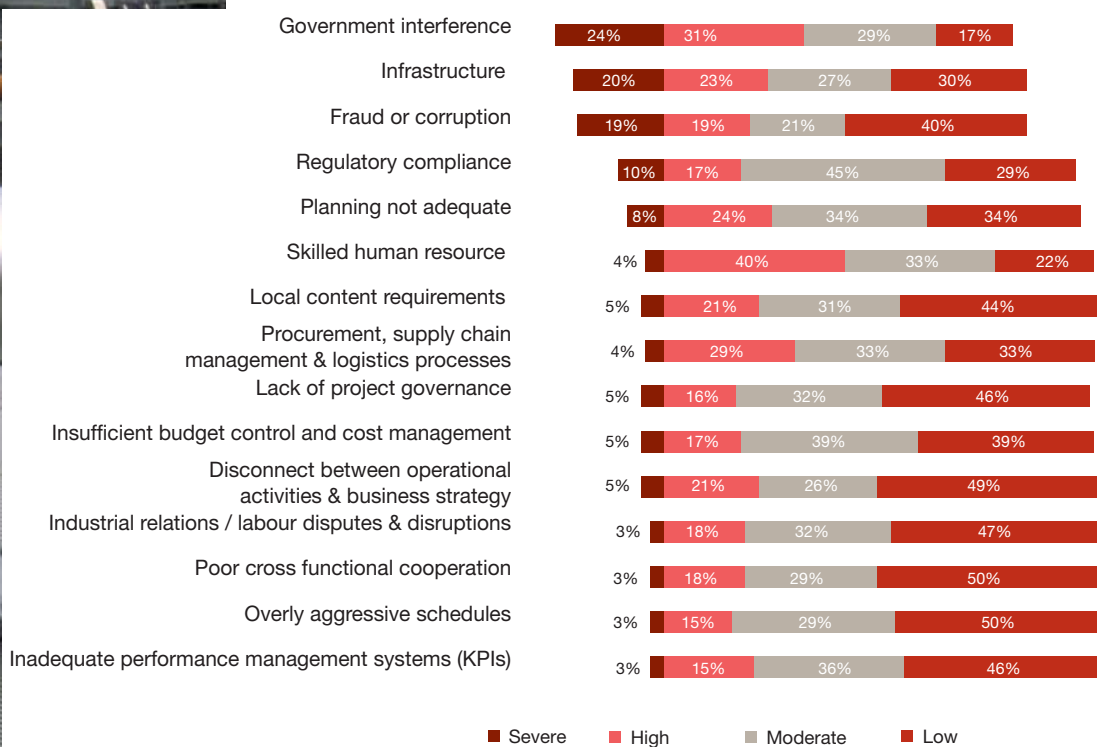
Operational excellence

Only 500 wells have been drilled in East Africa to date, while some 15 000 wells have already been drilled in West Africa.

Government interference is the factor respondents believe most severely hinders their companies' attainment of operational excellence. Respondents in four countries, specifically Nigeria, DRC, Côte d'Ivoire and Madagascar, identified it as the single most important reason for underperformance.

Besides government interference, other issues identified that severely hamper operational excellence relate to factors that are also not in their control such as lack of infrastructure, fraud and corruption and regulatory compliance. Local content regulation ranked seventh.

Figure 25: Severity of factors hindering operational excellence



Base: 55
Source: PwC analysis

The other factors identified all relate to internal organisational development areas, which all companies can continually strive to improve upon. The most prominent of these were inadequate planning, lack of skills, lack of project governance and the disconnect between operational activities and business strategies.

Respondents recognised that a lack of skills could severely hinder their operations, especially in technological areas where it is difficult to find the quality of staff required.

It is not surprising that planning is a challenge given the large number of variables that can affect the planning of operations in Africa, where regulatory uncertainty, poor infrastructure, corruption, bureaucratic and political hold ups, skill shortages, project governance issues will result in planning difficulties. With well-defined strategies and business models, however, the oil & gas industry can take steps to improve and become more streamlined.

Our research found that many oil & gas companies can improve their African operations in all areas across the value chain since more than half registered moderate to severe ratings.

It is essential for companies to recognise that not all projects or areas are equal and that different challenges exist across African regions, thus business models should be designed to be flexible and to serve as roadmaps rather than rules when executing projects.

New, small and agile E&P, service and other companies, together with large multinationals, should continue to find opportunities to operate more efficiently and effectively, reduce cost and create stakeholder value through operational excellence.

Insufficient planning was noted as the most important internal factor hindering operational excellence for a business in the oil & gas industry. In Africa the reduction in the number of surprises, the need for good governance and realistic schedules were deemed necessary for cost management and improved operational efficiencies.

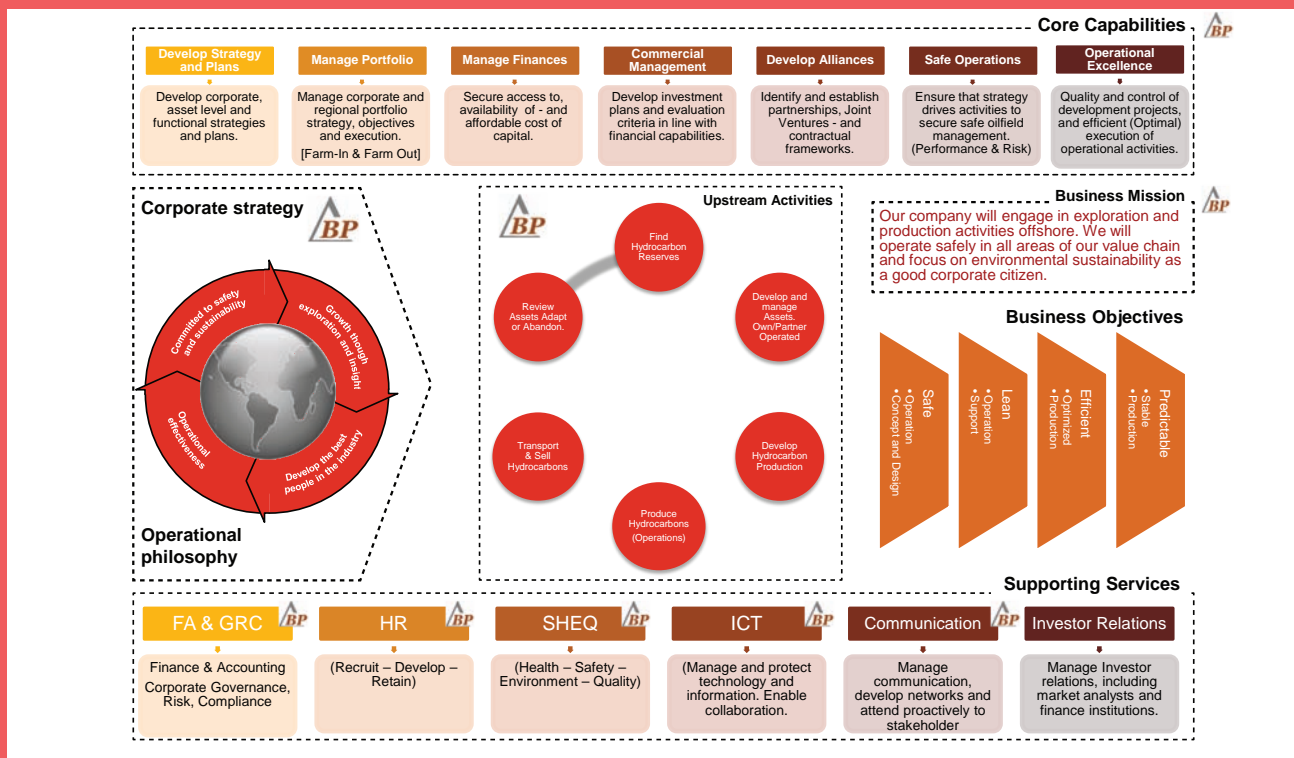
E&P process operating models

E&P process operating models should provide a single unified picture of the organisation, vision, objectives, activities and responsibility. These can be used to drive:

- Alignment and consistency between the planning, development and delivery of projects taking into account local conditions such as regulations and infrastructure;
- Alignment between organisational and asset facility development;
- Accelerated end-to-end project execution – reducing time to operational readiness;
- Input and alignment with organisation and team development projects; and
- Capturing, documenting and sharing best practices from prior or future projects.

PwC has developed a number of E&P models and blueprints to assist businesses achieve strategic value creation.

E&P model



A common challenge is transferring and implementing the corporate strategy in the operational team that makes decisions and operates the assets. Applying a business model framework helps align the strategy with operations through activities (work processes), people, information and technology.

Developing a lean operational business model based on the operation strategy starts by identifying the key goals and objectives. The second step is to map all activities and roles needed to achieve them, i.e. who does what, when. An understanding on mutual dependencies and where to focus will reduce the risk of misunderstanding, ambiguity and unrealistic expectations.

To improve operational excellence, companies working in Africa must continually strive for improvement and address key questions when setting up operations and projects, including:

- How to integrate the activities into a coherent operational activity to enable the operational goals and ambitions;
- How to integrate work processes with partners to govern according to regulations and operator's 'duty to ensure';
- How to align activities and roles of internal business lines and external business partners to enable and support the need for collaboration; and
- How to integrate project governance and information flow to support decision-making at the right time.

Operational excellence is complex for any business with a number of implications and potential areas for realising benefits. Some benefits are measurable and tangible and can be tracked throughout and after the project. Other benefits are intangible, but of no less importance. They

may represent the most important achievements of the organisation and may include the alignment and linkages of strategies to measurable goals and activities, the prioritisation of activities, good governance, risk and compliance creating accountability and a reduction in the number of surprises.

For all projects and development of new capabilities, the headroom to plan, innovate and evaluate is always the biggest at the start of a project. As the milestones or final deliveries are approaching, the headroom for change drops fast, while the cost and risk increases dramatically.

Insufficient planning was noted as the most important internal factor hindering operational excellence for businesses in the oil & gas industry. In Africa the reduction in the number of surprises, the need for good governance and realistic schedules were deemed necessary for cost management and improved operational efficiencies.

Conclusion



With exciting new discoveries being made in many parts of the African continent, the region continues to be a beacon for investors from all over the globe looking to participate in the next frontier of oil & gas activity. The competition is fierce, and the increasing exploration acreage on offer in bid rounds never seems to satisfy the ravenous appetite of those wanting to enter these markets.

Some of the bigger players continue to divest from marginal opportunities as they cut costs and focus on the 'bigger fish'. This is making way for smaller independents that have started looking at ways in which they can achieve operational excellence with their newly-acquired assets. Lean, efficient and agile operations are now key to any player in this now global game.

Local demand and security of national supply continues to rank high on government agendas as can be seen with protectionist policies and the increasing participation of NOCs in all spheres of the upstream and downstream sectors.

The onus sits with governments to ensure that they continue or begin to provide acceptable regulatory environments with attractive fiscal systems. While some countries are ratifying changes that increase tax revenues, the main difficulty that investors have is the risk associated with uncertainty. Should uncertain regulations persist in these nations, they will find it difficult to remain attractive, no matter how attractive their seismology.

East Africa continues to be a serious focus for those looking for a first-mover advantage, and it appears this play will pay off should the challenges be dealt with properly. This includes Mozambique, Tanzania, Uganda as well as Kenya.

Huge capital investments will be required from capital markets to fund the required infrastructure in Mozambique and Tanzania. It is unlikely that LNG production will start before 2018 and 2020 respectively, and the advantage these countries have over West Africa, Australia and other LNG producers, such as price and location, may have been lost if investment and development continues at its present pace.

E&P companies in Africa, like the rest of the world, will have an impact on overall industry activity with their focused capex spend and targeted drilling programmes. This will likely prove to make Africa more attractive, as targeted drilling would be expected to yield higher success rates. In the meantime, investment spend on infrastructure will be critical if resources are to be monetised.

To quote a well-known African fable, "Every morning in Africa, a gazelle wakes up. It knows it must run faster than the fastest lion, or it will be killed. Every morning a lion wakes up. It knows it must outrun the slowest gazelle, or it will starve to death. It doesn't matter whether you are a lion or a gazelle...when the sun comes up, you'd better be running". The African oil & gas business is no different.

Country profiles



Angola



Demographics

Size

1 246 700km²

Population

22.1 million

OPEC member

Yes

GDP

USD124 billion (43rd in the world)

Proven reserves

Oil: 10 470mmbbls

Gas: 12.93Tcf

PwC office

Luanda

Partners

6

Staff

123

National oil company Sociedade Nacional de Combustiveis de Angola (Sonangol)

Key players

BP	ExxonMobil	Repsol
Chevron	Falcon Oil	Somol
China Sonangol International	Galp Energia	Sonangol
Cobalt International Energy	Maersk	Sonangol Sinopec International (SSI)
Cubapetroleo	Marathon	Statoil
Eni	Petrobras	Total

Highlights

- As of 2013, Angola's daily production was 1.6mmbbl/d.
- Angola was the first country in Africa to license deepwater oil exploration.
- Oil production has increased by 400% over the last 20 years.
- Gas use and flaring has become an increasingly important issue for the country, and the Government is offering incentives to companies to explore and exploit gas commercially.
- By 2020, Angola plans to produce 3.5mmbbl/d.

Recent developments

- Angola became an LNG exporter in 2013 with the commissioning of the Angola LNG plant in Soyo. The plant has a capacity of 5.2 million tonnes per year.
- Total has started up production on the offshore CLOV field, increasing Block 17 production to 700 000bbl/d.
- Statoil has farmed out a 5% interest in a deepwater Angola block to Sonangol for USD200 million.
- In May 2014, Cobalt International tested and confirmed substantial reserves in its Orca-1 pre-salt block well, its fifth consecutive deepwater discovery in Angola's Kwanza Basin which it discovered in February 2014.
- Local content concessions are believed to have facilitated Total's Kaombo final investment decision (FID)
- In mid-2014, Sonangol launched a bidding round for 10 onshore blocks in the Kwanza and Congo basins.
- The 200 000bbl/d Sonaref refinery project at Lobito is expected to come online by 2016. Since local demand for refined products is relatively low, this will likely add to Angola's export capacity, which primarily goes to the US and China.
- Entry into Angola by new companies has become difficult as the Government seems to prefer major companies with superior finances and technical ability.

Angola

Regulatory environment

- Three types of contract systems are applicable in Angola, each with different tax regimes:
 - Production sharing agreements (PSAs) – the most common;
 - Concession/ Joint ventures– applicable only to certain arrangements set up in the 1960s and 1970s; and
 - Risk service contracts (RSCs).
- There are strict local content rules in place regarding the hiring of contractors by oil & gas companies. They fall into three regimes:
 - Limited free trade regime in which certain services should only be provided by local companies;
 - Semi-free trade regime in which certain services may only be provided by local companies or foreign contractors when partnered with local partners; and
 - Free trade regimes in which all services related to oil & gas activity that are not covered by the other two regimes (and that require a high level of industry expertise) may be provided by local companies or by foreign contractors.
- A law regulating foreign exchange, which encourages energy companies to use local banks, went into effect in 2013. The new rules stipulate that all foreign-exchange transactions be carried out by Angolan banks. Furthermore, bank accounts must be opened by oil & gas companies in Angola and funded adequately to satisfy tax obligations and the purchase of all goods and services from local and foreign companies by specified target dates.

Mozambique



Demographics

Size

799 380km²

Population

26.5 million

OPEC member

No

GDP

USD28.15 billion (116th in the world)

Proven reserves

Oil: 0

Gas: 4.5Tcf

PwC office

Maputo

Partners

3

Staff

126

National oil company Empresa Nacional de Hidrocarbonetos (ENH)

Key players

Anadarko	Inpex	PTTEP
Bharat Petroleum	Kogas	Statoil
CNPC	Maurel & Prom	Total
Energi Mega Persada	Mitsui	Tullow Oil
ENH	Oil India Ltd	Videocon
Eni	ONGC Videsh Ltd	Wentworth Resources
Galp Energia	Petronas	Sasol

Highlights

- Africa's new giant in natural gas.
- Domestic revenue from coal and gas will grow gradually, only exceeding current aid flows of USD1.2 billion in a decade's time (IMF 2013).
- If gas reserves are commercially proven, the cumulative gas reserves could rank Mozambique fourth in the world, behind the three giants, Russia, Iran and Qatar.

Recent developments

- General elections are scheduled to take place on 15 October 2014.
- In May 2014, Eni successfully appraised the Agulha discovery, estimated at approximately 85Tcf of gas, in the Area 4 offshore block.
- The start-up date for LNG exports from Mozambique remains ambiguous, and many industry players say that uncertain regulations are to blame.
- Eni is expected to invite bidders for the front-end engineering design (FEED) of a floating LNG vessel to be moored at Area 4 in the Strait of Mozambique.
- The Government recently resumed negotiations with the armed opposition group, Renamo. Renamo wants a share of the economic benefits from natural gas production and exports and therefore poses a threat to project security if agreement cannot be reached. Tensions have been high, and Renamo has mounted armed attacks on civilians and military targets.
- Despite the uncertain regulatory framework around LNG, the Petroleum Authority of Thailand (PTT) has reportedly signed an agreement with Anadarko to receive cargoes from the planned joint Anadarko-Eni LNG project.
- In December 2012, an agreement was reached between Anadarko and Eni to facilitate a work programme in which the two operators will jointly plan and construct.

Mozambique

Regulatory environment

- The fifth upstream licensing round has still not taken place and is not yet scheduled. It has been placed on hold pending ratification of the new Petroleum Law.
- A review of Mozambique's petroleum law has been completed and is now awaiting approval by parliament. The new Petroleum Law is likely to address obligations for operators related to environmental criteria, local-content requirements and financial disclosure issues. In addition, it is expected that LNG and midstream fiscal terms will be enacted as only upstream terms have currently been devised.
- Mozambique has numerous laws that affect the industry from the Petroleum Law, regulations on petroleum operations, laws on public-private partnerships, petroleum tax laws, income tax legislation, regulations on expatriate employment and VAT regulations.
- Joint operating agreements (JOAs) are common but require regulatory approval.
- The national oil company has 10-15% free participation in all blocks.

South Sudan



Demographics

Size

644 329km²

Population

11.7 million

OPEC member

No

GDP

USD14.71 billion (114th in the world)

Proven reserves

Oil: 3 500mmbbls

Gas: 3.0Tcf

PwC office

Served by PwC's Nairobi office

National oil company Nile Petroleum Corporation (Nilepet)

Key players

CNPC	Kufpec	Sinopec
Dar Petroleum Operating Company (DPOC)	Nilepet	Sudd Petroleum Operating Company (SPOC)
ExxonMobil	ONGC	Total
Greater Nile Petroleum Operating Company (GNPOC)	Petronas	Tri-Ocean Energy

Highlights

- Most of the oil in South Sudan has already been produced, but being landlocked, it remains dependent on Sudan for its export pipelines and processing facilities.
- Under normal circumstances, oil exports account for nearly 90% of the South Sudanese government revenue.
- South Sudan represents the largest equity production source for Chinese oil & gas companies outside of China.

Recent developments

- Oil production in the country has been disrupted significantly by hostilities between different southern factions. In January 2012, South Sudan voluntarily shut in all of its oil production due to a dispute with Sudan over oil transport tariffs. Many oil & gas companies evacuated their expatriate and local workers from various parts of the country until the situation stabilises.
- Despite a recent ceasefire, fighting continues to disrupt the oil sector in South Sudan, especially in the Unity state where operations have been shut in. The fighting has caused damage to infrastructure, meaning that repairs will be required to return to previous production levels in Blocks 1 and 4 of Unity state, which produces Nile Blend crude.
- The Upper Nile fields have been largely unaffected by the violence, but they could become targets for rebels as the fields and their pipeline infrastructure are the only high-value assets remaining vulnerable in the country.
- Regardless of the violence, oil production in the country is declining as fields are becoming more mature. The Government has ambitions to grow production and increase recoverability, but this has not yet been realised.
- The country is also experiencing a lack of investment as well as a shortage of skilled workers.

South Sudan

Regulatory environment

- South Sudan became an independent state in 2011. For this reason much of the tax legislation and regulation is still being adopted subject to interpretations by the revenue authority.
- The Petroleum Act 2012, recently enacted, introduced general petroleum regulations, including fiscal provisions. Supplementary legislation, including a model production sharing contract (PSC), is currently under development.
- Indicative terms for production sharing agreements (PSAs) were released in mid-June 2014 but have not yet been finalised.
- For tax purposes, exploration costs are immediately deductible based on costs actually incurred.
- The Investment Promotion Act provides a number of incentives, including:
 - Capital allowances ranging from 20% to 100% of eligible expenses;
 - Deductible annual allowances ranging from 20% to 40%; and
 - Depreciation allowances ranging from 8% to 10%.
- Any investor in the oil & gas sector is required to set up a community development fund to be used for the construction of infrastructure such as roads, schools and hospitals in the contracted area. Investors are also required to organise industry training for South Sudanese nationals.
- Gas flaring is prohibited, unless specifically authorised by the authorities or in the case of emergency. It is, therefore, necessary for companies to invest in facilities to utilise any gas produced by their operations.

Egypt



Demographics

Size

1 001 450km²

Population

83.3 million

OPEC member

No

GDP

USD551.4 billion (28th in the world)

Proven reserves

Oil: 4 400mmbbls

Gas: 77.2Tcf

PwC offices

Cairo and Alexandria

Partners

15

Staff

300

National oil company Egyptian General Petroleum Corporation (EGPC)

Key players

Apache	Caracal Energy	Kuwait Energy
BG Group	Dana Gas	Shell
BP	Eni	Transglobe Energy

Highlights

- Egypt is the largest non-OPEC oil producer in Africa and the second-largest dry natural gas producer on the continent.
- Egypt plays a vital role in international energy markets through the operation of the Suez Canal and Sumed (Suez-Mediterranean) pipeline.
- One of Egypt's challenges is to satisfy increasing domestic demand for oil amid falling domestic production.
- Egypt is in a serious energy crisis due to the inadequacy of its energy delivery infrastructure as it is unable to handle the energy demand of the country.
- Egypt has the largest refinery capacity in Africa and holds 23% of the continent's total refinery capacity.
- Egypt is a significant oil producer in North Africa and a rapidly growing natural gas producer.

Recent developments

- Egypt's refinery capacity is planned to increase in 2015 when a new 96 000-bbl/d refinery next to the Mostorod refinery in Cairo begins operation. Construction of the facility began in 2012.
- Improved Petroleum Recovery (IPR) announced the discovery of a new oil well in the field of Yidma in Alamein, located in the Western Desert.
- Apache announced two gas and condensate discoveries in Egypt's Western Desert.
- Caracal Energy is acquiring fellow North Africa-focused TransGlobe Energy Corporation for CAD695 million. The companies said the merger would create one of the largest independent Africa-focused oil producers, poised for strong growth in oil production and reserves from development and exploration in Chad and Egypt.
- IPR announced an oil & gas discovery by its first well in its Southwest Gebel El Zeit concession located offshore in the Gulf of Suez.

Egypt

Regulatory environment

- In terms of the Egyptian Constitution, all minerals, including solid, liquid and gaseous resources, are the property of the state.
- Only the state can grant rights for exploitation of petroleum resources under a concession agreement.
- Priority should be given to local contractors and subcontractors as long as their performance is comparable to international performance.
- Preference should be given to locally-manufactured material, equipment, machinery and consumables so long as their quality and time of delivery are comparable to internationally available material, equipment, machinery and consumables.
- There is a minimum requirement that at least 25% of salaries in the PSA-holding companies are paid out in Egyptian pounds, effectively acting as a lower floor for local content.

Ghana



Demographics

Size

238 533km²

Population

26.4 million

OPEC member

No

GDP

USD90.4 billion (78th in the world)

Proven reserves

Oil: 666mmbbls

Gas: 0.80Tcf

PwC offices

Accra and Takoradi

Partners

8

Staff

244

National oil company Ghana National Petroleum Corporation (GNPC)

Key players

Afren	Kosmos Energy	Sahara Oil
Anadarko	Lukoil	Tap Oil
Eni	Ophir	Tullow Oil
Hess	PetroSA	Vanco

Highlights

- Ghana is one of the top 10 fastest growing economies in the world and the fastest growing economy in Africa.
- Ghana is making strides to establish itself as an important gateway to the West African market.
- The Ghanaian Government aims to double oil production to 250 000bbl/d by 2021.

Recent developments

- The Government expects some growth for the industry sector in the medium term, and this is predicated on the anticipated debut production of gas in 2014.
- When gas from the Atuabo gas processing plant starts flowing in 2014 it will deliver relief to the present power crisis by minimising the volume and cost of crude oil the country imports to power its thermal plants.
- The Government of Ghana has signed a memorandum of understanding under which it will begin discussions to create a regional gas company with Côte d'Ivoire and Equatorial Guinea.
- The main focus for the upstream petroleum subsector in 2014 will be to attain peak oil production of 120 000bbl/d in the Jubilee field.
- Hess has made seven discoveries offshore Ghana, the latest announced in February 2013, and since then has been working towards Government approval on its appraisal programme.
- The Tullow-led consortium's deepwater Tweneboa/Enyera/Ntomme (TEN) project is on track for first oil in 2016. Production will then ramp up to 80 000 bbl/d. It is expected that in 2014 USD1.4 billion will be spent on this project.

Ghana

Regulatory environment

- The Petroleum Commission (PC) is the industry regulator and seeks to implement local content and local participation through various actions and initiatives.
- The PC aims to regulate as far as possible the use of Ghanaian human resources, materials, services and businesses for the systematic development of national capacity.
- Ghana's Parliament passed a new set of local content regulations that comes into effect in 2015. These call for a target of 60-90% of specific goods and services to be provided by Ghanaian-registered companies within 10 years.
- A petroleum agreement or licence will only be valid if a domestic company other than the Ghana National Petroleum Corporation (GNPC) has at least a 5% equity stake.
- A foreign company providing goods and services to a contractor, subcontractor, licensee, the GNPC or any other allied entity, must set up a JV with a domestic firm, which must have an equity participation of at least 10%.
- A contractor, subcontractor, licensee or other allied entity shall establish and implement a bidding process for the acquisition of goods and services to give preference to indigenous Ghanaian companies. To qualify as an indigenous company, a company must have at least 51% of its equity owned by a Ghanaian with 80% of management and senior positions held by Ghanaians.

Nigeria



Demographics

Size

924 000km²

Population

178.5 million

OPEC member

Yes

GDP

USD478.5 billion (31st in the world)

Proven reserves

Oil: 37 200mmbbls

Gas: 182Tcf

PwC offices

Abuja, Lagos and Port Harcourt

Partners

22

Staff

681

National oil company Nigerian National Petroleum Corporation (NNPC)

Key players

Agip	Oando	Sinopec
Chevron	SAPETRO	Texaco
ExxonMobil	Seplat	Total
Nigeria LNG	Shell	

Highlights

- Nigeria is the largest economy in Africa after rebasing its GDP in April 2014.
- Nigeria is the leading oil exporter in Africa and has the second-largest amount of proven crude oil reserves on the continent. It is the 11th-largest oil producer in the world.
- Nigeria also has the largest natural gas reserves in Africa, but it presently cannot take advantage of this resource due to its limited infrastructure.
- Increasing security issues, together with regulatory uncertainty, have played a major role in contributing to a decrease in exploration activity. This has led to minimal growth in reserve estimates.

Recent developments

- The Nigerian content implementation framework has continued to firmly pitch Nigeria as an evolving energy market and a continental economic power block, as African countries are absorbing the local content philosophy into their national economic agenda.
- The Nigerian content policy promotes participation of Nigerians in the industry. Engineering in the oil & gas industry is done 90% in-country, and manufacturing of all the field development facilities has 50% of the tonnage done in Nigeria.
- There is a trend for oil & gas majors to divest their onshore holdings because of security issues and theft from pipelines. This makes way for small, indigenous oil companies that will need to focus on operational excellence to realise success.

Nigeria

Regulatory environment

- It has been six years since the draft of the Petroleum Industry Bill (PIB) was put before the Nigerian Parliament and it is yet to be implemented. The draft contains changes to the taxation regime, improved economies for small, onshore developments and an amended royalty structure.
- To conduct petroleum operations in Nigeria, participants must first obtain an oil exploration licence (OEL), oil prospecting licence (OPL) or oil mining licence (OML) from the Minister to explore, exploit and produce petroleum (including natural gas) within a concession area. Only a company incorporated in Nigeria may be granted such a licence.
- The Nigerian Oil and Gas Industry Content Development Act (NOGICDA) of 2010 has stringent localisation provisions requiring Nigerian companies to own over 50% of the equipment utilised, expatriate management to be limited to 5% and all other positions to be transferred to locals within four years of its promulgation.
- Nigerian content has brought about in-country value addition where activities of the industry were geared towards creating value, employment and getting nationals to participate in the oil & gas value chain to promote the development and use of local resources.
- The NOGICDA requires that every bid for any licence, permit or interest in the oil & gas industry must contain provisions to ensure that first consideration is given to Nigerian independent operators, employees, goods and services and only if there is inadequate Nigerian capacity may the Minister authorise importation of relevant items.
- One percent of the total contract sum awarded in the upstream sector is required to be paid into the Nigerian Content Development Fund. These sums are deductible at the source.

Kenya



Demographics

Size

580 000km²

Population

45.5 million

OPEC member

No

GDP

USD79.9 billion (82nd in the world)

Proven reserves

Oil: 0mmbbls

Gas: 0Tcf

PwC office

Nairobi

Partners

22

Staff

681

National oil company National Oil Corporation of Kenya (NOCK)

Key players

Afren	Eni	Rift Energy Corp
Africa Oil	ERHC Energy	Simba Energy
Anadarko	Far Ltd	Sunbird Energy
A-Z Petroleum	Imara Energy	Swiss Oil company
BG	NOCK	Taipan Resources
Camac	Ophir Energy	Total
CNOOC	Pacific Seaboard	Tullow Oil
EDGO Group	PTTEP	Vangold

Highlights

- Many companies looking to expand into East Africa see Kenya as a prime point of entry.
- International oil companies are turning to Kenya as a country for investment in acreage.
- Kenya is ahead of its neighbours when it comes to the expected monetisation of assets.
- Kenya's first commercial oil was found in 2013, and first production is expected in 2016.

Recent developments

- Tullow's first discovery in January 2012 and six further discoveries in the South Lokichar Basin have led to the company to fast-tracking development, with the first commercial production expected in 2016.
- BG Group plans USD160 million spend on two offshore drilling wells in 2014.
- PwC was appointed in 2014 to oversee Kenya's Petroleum Master Plan. It will provide a clear vision on how to commercialise oil & gas reserves, maximise the value of projects and provide a road map for investment in processing, pipelines, storage and distribution up to 2040.
- Tullow operations were suspended for a few days in October 2013 as local politicians used the recent discoveries as a way to leverage concessions from the Government and oil companies.
- The proposed Lappset pipeline seems likely as the recent Memorandum of understanding (MOU) signed in Uganda by the three oil companies involved included the crude export pipeline to Lamu in Kenya. The complete 1 380km pipeline for the export of crude from Sudan to Kenya will be the largest such heated facility in the world and cost an estimated USD25.5–30 billion.
- Farm-in and farm-out activity continues with the most recent in April 2014 as Tower Resources acquired 15% of block 2B from Taipan Resources.
- In September 2013, the first major gas discovery was found offshore.
- Increased drilling activity is expected over the next two years.

Kenya

- At least seven new blocks will be awarded in the first bid licensing rounds expected in the fourth quarter of 2014; although, this may be delayed until new regulations are enacted.
- At present 53 blocks are available in Kenya, of which seven were recently relinquished.

Regulatory environment

- Reform of the regulatory system has included the review of Production Sharing Contracts (PSCs), petroleum legislation and the management of the petroleum industry.
- Kenya offers acreage through direct negotiations with NOCK. Bidding rounds are proposed to start in the last quarter of 2014.
- The Exploration and Production Act of 1986 and the Energy Act are being amended/drafted and expected to be approved in the second half of 2014. Changes to royalties, capital gains, windfall taxes, the states' share as well as new environmental and local content regulations are expected.
- The Energy Act proposes that petroleum production will be managed under an independent Energy Regulatory Authority that could be set up by December 2014.
- The Energy Minister has indicated that deepwater exploration and production (E&P) PSC contracts could be renegotiated, increasing the Government's share from 10% to 25% once a commercial discovery is confirmed.
- New bidding terms will entitle companies to recover 60% of their production costs and thereafter to split profits with the Government on a sliding scale, with the Government claiming 50% of up to 30 000bbl/d (40 000bbl/d offshore) and 78% of 100 000bbl/d or above (120,000bbl/d offshore). The signature bonus will be USD1 million along with a training fee of USD200 000 annually.
- The key legislation that impacts E&P companies are the Ninth Schedule of the Income Tax Act (until new regulations are approved), and this includes the VAT and East Africa Community Customs Management Act, which have special provisions for transactions involving E&P companies.

Tanzania



Demographics

Size

947 000km²

Population

50.8 million

OPEC member

No

GDP

USD79.3 billion (83rd in the world)

Proven reserves

Oil: 0mmbbls

Gas: 0.23Tcf

PwC office

Dar es Salaam

Partners

6

Staff

185

National oil company Tanzania Petroleum Development Corporation (TPDC)

Key players

Afren	Maurel & Prom	Petroquest
Aminex	Ndovu Resources	Rukwa
Beach Energy	Nor Energy	Shell
BG Group	Ophir Energy	Statoil
Bounty Oil and Gas	Orca	Swala Energy
ExxonMobil	Pan African Energy	Total Signet Petroleum
Heritage Oil	Petrobras	Petroquest
Jacka Resources		

Highlights

- Tanzania is expected to become one of the fastest-growing economies in the world, with recent natural gas discoveries being a key driver.
- Exploration activity continues to reveal big offshore gas discoveries.
- New energy policies and PSAs will allow for even greater Government benefit.
- LNG exports are expected from 2020.

Recent developments

- A 542-km pipeline from Mtwara to Dar es Salaam is to be completed by December 2014. It will allow power generation by natural gas to increase from around 40% to 80% of total supply.
- Statoil and Exxon Mobil announced in June 2014 that the sixth well drilled in Block 2 also encountered gas, increasing the estimated reserves for the two companies from around 17 to 20Tcf.
- Forbes noted that the Tangawizi discovery of 4-6Tcf was the sixth-largest global oil & gas discovery in 2013.
- There were only five bids on four of the eight blocks offered in the May 2014 bidding round. The lack of interest could be due to limited data on certain blocks or stricter licensing terms.
- The BG and Statoil consortiums, with offshore Blocks 1, 2, 3 and 4, have indicated that two onshore 10-million tonnes/year LNG plants could be required in Tanzania, but these will only be operational in 2020.
- The Ophir and BG consortium, with offshore Blocks 1, 3 and 4, has estimated the reserves to be around 15Tcf. Ophir's sale of 20% of its assets in Blocks 1, 3 and 4 for USD1.3 billion to Pavilion Energy netted the Government USD258 million in capital gains taxes.
- Offshore blocks drilled for the first time: In 2013, Ophir drilled its first well in Block 7, but no hydrocarbons were encountered. In 2014, Shell will drill its first well in Block 6.

Tanzania

Regulatory environment

- The Tanzanian Petroleum Development Corporation (TPDC) awards acreage directly through competitive licensing rounds and is the holding company for the state's interest in all PSCs, which takes precedence over the law.
- A new gas policy and gas master plan were introduced in October 2013. They prioritise the domestic gas market over export markets.
- The TPDC has the right to take at least 25% in each development with costs recovered by contractors with interest at LIBOR +2%. The TPDC will not pay for any exploration costs incurred.
- It has been estimated that the average Government take could have increased from around 80% to 90% with the new 2013 deepwater PSC.
- A capital gains tax was introduced into PSCs and is expected to also be introduced for all other oil & gas transactions.
- New separate standardised PSCs for onshore/shelf and deepwater sites were introduced in 2013.
- Exploration rights are granted for a period up to 11 years. Development and production licences are issued for up to 45 years.
- Local content regulations in the energy sector have not been established as recent PSCs only indicate the need for greater localisation but do not stipulate minimum percentages.
- Constitutional review of the terms for exploration in Zanzibar has been delayed and will prevent activity from progressing.

Uganda



Demographics

Size

241 000km²

Population

38.8 million

OPEC member

No

GDP

USD54.4 billion (96th in the world)

Proven reserves

Oil: 2 500mmbbls

Gas: 0.5Tcf

PwC office

Kampala

Partners

3

Staff

117

National oil company Uganda National Oil Company (NATOIL) – not yet functional

Key players

CNOOC

Total

Tullow Oil

Highlights

- 60 000bbl/d refinery going ahead – expected cost USD2.5 billion – with 30 000 bbl/d to be dedicated to local demand.
- First new licensing round for eight years due in the fourth quarter of 2014.
- The 1 380-km Lappset Sudan-Uganda-Kenya pipeline for crude exports will be the largest such heated facility in the world and cost an estimated USD25.5–30 billion.

Recent developments

- Neptune, Heritage and Dominion divested their acreage in 2012/2013.
- Commercial oil production is targeted to begin in 2018.
- An eight-year halt in licensing rounds is expected to end with an open bidding round in the last quarter of 2014 and the awarding of 13 blocks in mid 2015.
- The Ministry of Energy and Mineral Development (MEMD) announced in June 2014 that two consortiums from Russia and South Korea are the final bidders for the construction of a 60 000bbl/d refinery in Hoima. Negotiations could conclude as early as the fourth quarter of 2014. The refinery will be developed in a modular manner starting with 30 000 bbl/d.
- In May 2014, Tullow Oil relinquished its Ngassa discovery, which was part of the EA (exploration area) 2 field, as it was described uneconomical due to complex geology, a fact disputed by the Government who will now include it in the areas to be re-licensed.
- In February 2012 CNOOC received the only 25-year development licence for the Kingfisher field.
- 76 of the 88 oil exploration and appraisal wells drilled in the country have hit oil, with the government reporting 20 fields containing recoverable oil & gas.
- In February 2014 the Government signed an MOU with Tullow Oil, Total and CNOOC on an integrated development plan for the Albertine Graben blocks including EA 1, EA 2 and the Kingfisher fields (EA 3A) and the construction of an export pipeline to Lamu in Kenya (800km of the 1 380-km Lappset pipeline).
- Uganda and Kenya have agreed to coordinate the development of the crude pipeline, while South Sudan is considering the possibility of involvement in the project as an alternative export route.

Uganda

Regulatory environment

- The Ministry of Energy and Mineral Development (MEMD), through the Petroleum Exploration and Production Department (PEPD), promotes and regulates the oil & gas industry.
- The new National Oil and Gas Policy proposes the establishment of the Uganda National Oil Company (NATOIL) and the Petroleum Authority of Uganda (PAU), which will regulate and handle all commercial aspects of the industry.
- The Government uses production sharing agreements as the mechanism to collect revenue, with the Government's share at around 73%; although, its actual take is expected to exceed 80%.
- The Ugandan Government passed a number of laws and regulations in 2012, including the Oil and Gas Revenue Management Policy, Petroleum (Exploration, Development and Production) Bill, the Petroleum (Refining, Gas Processing and Conversion, Transportation and Storage) Bill and the Public Finance Bill.
- The passing of the Petroleum Refining, Conversion, Transmission and Midstream Storage Bill in 2013 unlocked the moratorium on new licensing rounds.
- At present, local content is encouraged, but no minimum percentage has yet been prescribed.
- Exploration rights are for a period of up to six years and development and production licences up to 30 years.

Republic of Congo



Demographics

Size

342 000km²

Population

4.6 million

OPEC member

No

GDP

USD20.3 billion (134th in the world)

Proven reserves

Oil: 1 600mmbbls

Gas: 3.2Tcf

PwC offices

Pointe-Noire and Brazzaville

Partners

4

Staff

50

National oil company Société Nationale des Pétroles du Congo (SNPC)

Key players

Africa O&G	Murphy Oil	SOCO International
Chevron	Perenco	Total
Eni	Prestoil	

Highlights

- The Republic of Congo is one of the top five oil producers in sub-Saharan Africa.
- Its economy relies on its oil and natural gas exploration and production activities, most of which are conducted offshore.
- Oil makes up a major share of government revenues and exports. Congo exports nearly all of its crude oil, retaining very little for domestic consumption.
- The Congolese civil war that took place in the late 90s damaged the country's infrastructure, thus hindering its ability to fully capitalise on its proven crude oil and natural gas reserves.
- The Government seeks to lift levels of oil production through new developments in order to offset the decreasing production from mature oil fields.

Recent developments

- Oil production has gradually decreased over the past few years because of oil fields reaching maturity. As a result, oil production is expected to continue declining over the next few years.
- A number of offshore discoveries in late 2013 and early 2014, together with changes to the regulatory framework and efforts by the Government to produce new oil from old fields, should create interest in developing oil fields and attract new entrants into the country.
- The Congolese Government is willing to invest in onshore and offshore fields. The national oil company aims to award additional onshore and offshore blocks in an effort to boost oil production.
- Production from the Lianzi deepwater field (jointly developed by Congo and Angola) is expected to start in 2015 and produce up to an estimated 46 000boe/d at its peak according to the field operator, Chevron.
- SNPC, the national oil company, announced in April 2014 that it will use hydraulic fracturing technology on the Kundj and Mengo fields to extract new oil from old fields.
- Eni's discovery of oil and hydrocarbons offshore at Nene Marine confirms the existence of significant hydrocarbons in the area. This offers potential to maintain and increase Congo's oil production through projects in the Marine XII block and attract international interest in West Africa for further development of oil reserves in the area.

Republic of Congo

Regulatory environment

- The Ministry of Mines, Energy and Water Resources manages the country's oil & gas resources. Congo's national oil company, SNPC, regulates the country's oil production and exploration activities and also manages government-owned shares in hydrocarbon operations.
- Exploration permits are granted for an initial period of four years and can be renewed only twice more for a further three years each time (i.e. the maximum period for exploration is 10 years) with a reduction of surface for each renewal.
- Exploitation permits are granted for an initial period of 20 years and can be renewed once only for a further five years (i.e. the maximum period for exploitation is 25 years).
- In an effort to promote local content, Congolese authorities have imposed a requirement for a minimum of 30% local shareholding in companies involved in contractual relationships with Congolese oil & gas companies.
- Exploration and production operations are governed mainly by production sharing contracts entered into between the Congolese Government/SNPC and the oil companies operating in Congo.
- The law does not prescribe any quantitative consideration for sharing of profit oil between the company and the Congolese Government. Accordingly, the Government share of profit oil is determined by the contract.

Côte d'Ivoire



Demographics

Size

322 463km²

Population

20.8 million

OPEC member

No

GDP

USD43.7 billion (102nd in the world)

Proven reserves

Oil: 100mmbbls

Gas: 1.0Tcf

PwC office

Abidjan

Partners

6 + 1 Director

Staff

128

National oil company Société Nationale d'Opérations Pétrolière de Côte d'Ivoire (Petroci)

Key players

Afren	Edison Oil	Total
African Petroleum	Foxtrot	Tullow Oil
Anadarko	Lukoil	Vanco Energy
Canadian Natural Resources (SNR)	Rialto	

Highlights

- Côte d'Ivoire's economy continues to grow, and the estimated economic growth of 8.8% in 2013 is expected to continue into 2014 and 2015 thanks to the improved business climate and stabilised social and political environment.
- Several oil & gas discoveries have been made in recent years.
- Côte d'Ivoire has ambitious oil production growth targets, and the Government hopes to boost production from its current level of around 32 000bbl/d to around 200 000bbl/d by 2019.

Recent developments

- According to African Economic Outlook, the production of natural gas doubled in 2013 to more than 6 million cubic metres.
- There are plans to build a gas pipeline between Takoradi (Ghana) and the port of Assinie (Côte d'Ivoire).
- Several oil & gas discoveries have been made in recent years. It is expected that at least two offshore gas field developments will boost production.
- No licensing round has been held for a number of years, and all recent contract awards have occurred by direct negotiation.
- Qatar Petroleum is expanding its West African presence, having recently signed two energy-related agreements with Ivorian Government. The first agreement is for Qatar to supply LNG to Côte d'Ivoire from 2015. The second is for potential joint oil exploration in Ivorian waters.
- The Saphir-1XB exploration well operated by Total on Block CI-514 found liquid hydrocarbons offshore west of Cote d'Ivoire. The well is the first discovery in the San Pedro Basin, a frontier exploration area.
- Total is planning on expanding its offshore exploration activities and has earmarked USD300 million for drilling exploration wells.

Côte d'Ivoire

Regulatory environment

- The key regulators in the oil & gas industry include the Department of Hydrocarbons, PETROCI and the Department of Petroleum Operations of the Tax administration (DGI).
- The main legislation governing petroleum exploration and production activity in Côte d'Ivoire is Law No. 96-669 of 29 August 1996 relating to the Petroleum Code.
- According to the provisions of the Petroleum Code, oil & gas exploration and exploitation activities are to be carried out through petroleum contracts, which can either be concession contracts or production sharing contracts (PSCs). PSCs are the most common form of petroleum contract in Côte d'Ivoire.
- An exploration licence (in the case of concession contracts) or an exclusive exploration authorisation (in the case of PSCs) is granted for an initial period of three years. These can be renewed twice more for durations as stipulated in the petroleum contract.
- An exploitation licence (in the case of concession contracts) or an exclusive authorisation for exploitation (in the case of PSCs) is granted for an initial period of 25 years and may under certain circumstances be renewed once for a maximum duration of 10 years.

South Africa



Demographics

Size

1 219 090km²

Population

52.5 million

OPEC member

No

GDP

USD595.7 billion (26th in the world)

Proven reserves

Oil: 20mmbbls

Gas: 0.42Tcf

PwC offices

Johannesburg, Cape Town, Durban and 20 other offices across all nine provinces

Partners

242

Staff

5037

National oil company Petroleum, Oil and Gas Corporation of South Africa (PetroSA)

Key players

Anadarko	Chevron	Kinetiko Energy
Anglo American	Engen	Sasol
BHP Billiton	Eni	Shell
BP	ExxonMobil	Sunbird Energy
Cairn India	Falcon Oil	Total

Highlights

- South Africa's proven oil and natural gas reserves are limited, but it is extensively involved in the synthetic fuels industry, which accounts for the majority of the country's domestically produced petroleum.
- Crude oil production is very limited, and most of the country's oil is imported from the Middle East and West Africa. It is refined locally.
- PetroSA's Ikhwezi offshore gas field project is expected to increase gas production output significantly until 2023.
- South Africa's offshore potential is becoming more promising, with companies now exploring in deeper water areas.
- The Mineral and Petroleum Resources Development Act (MPRDA) Amendment Bill was passed by parliament in March 2014, but needs presidential approval prior to it being promulgated into law.

Recent developments

- PetroSA is currently developing the F-O gas field (Project Ikhwezi) to sustain gas supplies to its gas-to-liquids (GTL) plant.
- South Africa has very little proven natural gas reserves but holds notable shale gas resources estimated at 390Tcf of recoverable reserves by the EIA. The Government lifted the moratorium on licensing and exploration of shale resources in 2012.
- Although the Government released proposed new technical regulations to govern the exploration of shale resources and hydraulic fracturing, international companies are yet to be issued with permit licences for shale exploration.
- PetroSA is still evaluating the construction of its proposed 300 000bbl/d Mthombo crude oil refinery at Coega.
- Total and Shell are likely to begin deeperwater drilling operations during 2014.
- The Government has approved the transfer of a 76% stake in the offshore Ibhuesi gas project (Block 2A, 7.4Tcf) to Sunbird Energy in an effort to tap into what has been described as the largest undeveloped gas field in South Africa.

South Africa

- Sasol signed an exploration permit to explore for hydrocarbons off the east coast of KwaZulu-Natal in November 2013. In June 2014 Sasol farmed out 40% of the block to Eni for EUR236 million. Eni will operate this block located at the southern end of the Mozambique Channel if the deal is approved by the Government.
- In February 2014 the Government revised and postponed the implementation date of EURO V-type specifications 'Clean Fuels 2' until 1 July 2017, as industry and Government work out a cost recovery mechanism for the estimated USD4 billion upgrade.

Regulatory environment

- The key regulators in South Africa's oil & gas industry include the National Energy Regulator of South Africa (NERSA), the Petroleum Agency of South Africa (PASA) and PetroSA.
- The MPRDA Amendment Bill in its current proposed status provides the State with a 20% free carried interest on all new exploration and production rights of oil & gas, as well as a further 'uncapped' participation clause enabling the State to acquire up to a further 80% at an agreed price or under a PSC. The new Minister of Mineral Resources and the oil & gas industry have all expressed a need for further amendments prior to it being signed into law if the South African oil & gas industry is to flourish.
- The 2000 Petroleum and Liquid Fuels Charter sets a target to place 25% of the oil industry in the hands of black-controlled energy companies.
- A royalty is payable to the Government on the extraction of resources in terms of the Mineral and Petroleum Resources Royalty Act and the Mineral and Petroleum Resources Royalty (Administration) Act of 2008.
- The South African Supplier Development Agency (SASDA) is responsible for the development of black suppliers and creating opportunities for them to access to industry.

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Acronyms and abbreviations



bbl/d	Barrels per day
BCM	Billion cubic metres
BOE	Barrels of oil equivalent
boe/d	Barrels of oil equivalent per day
CAD	Canadian dollars
Capex	Capital expenditure
CBM	Coal bed methane
CO2	Carbon dioxide
DGI	Department of Petroleum Operations of the Tax administration (Cote d'Ivoire)
DPOC	Dar Petroleum Operating Company (South Sudan)
DRC	Democratic Republic of Congo
EA	Exploration area
E&P	Exploration and production
EDC	Enterprise Development Centre (Ghana)
EGPC	Egyptian General Petroleum Corporation (national oil company)
EIA	Energy Information Administration (USA)
EITI	Extractive Industries Transparency Initiative
ENH	Empresa Nacional de Hidrocarbonetos (national oil company, Mozambique)
EUR	Euros
FEED	Front-end engineering design
FID	Final investment decision
GDP	Gross domestic product
GNPC	Ghana National Petroleum Corporation
GNPOC	Greater Nile Petroleum Operating Company (South Sudan)
GTL	Gas to liquids
IMF	International Monetary Fund
IOC	international oil company
IPR	Improved Petroleum Recovery (group of companies)
JOA	Joint operating agreement
Km	Kilometre (distance)
Km2	Square kilometre (area)
KPI	Key performance indicator
LCP	Local content policy
Libor	London Interbank Offered Rate
LNG	Liquefied natural gas
MEMD	Ministry of Energy and Mineral Development (Uganda)
Mmbbl	Million barrels
MOU	Memorandum of understanding
MPRDA	Mineral and Petroleum Resources Development Act

MPRDA	Mineral and Petroleum Resources Development Act (South Africa)
NATOIL	National Oil Company (Uganda)
NERSA	National Energy Regulator of South Africa
Nilepet	Nile Petroleum Corporation (national oil company, South Sudan)
NOC	National oil company
NOCK	National Oil Corporation of Kenya
NOGICDA	Nigerian Oil and Gas Industry Content Development Act
NNPC	Nigerian National Petroleum Corporation
OEL	Oil exploration licence
OML	Oil mining licence
OPEC	Organisation of Petroleum Exporting Countries
OPL	Oil prospecting licence
OFS	Oilfield services
PASA	Petroleum Agency of South Africa
PAU	Petroleum Authority of Uganda
PC	Petroleum Commission (Ghana)
PEPD	Petroleum Exploration and Production Department (Uganda)
Petroci	Société Nationale d'Opérations Pétrolière de Cote d'Ivoire
PetroSA	Petroleum, Oil and Gas Corporation of South Africa
PIB	Petroleum Industry Bill (Nigeria)
PSA	Production sharing agreement
PSC	Production sharing contract
PTT	Petroleum Authority of Thailand
RENAMO	Resistência Nacional Moçambicana
RSC	Risk service contract
SASDA	South African Supplier Development Agency
SHEQ	Safety, health, environment & quality
SNPC	Société Nationale des Pétroles du Congo (Republic of Congo)
Sonangol	Sociedade Nacional de Combustíveis de Angola (national oil company, Angola)
SPOC	Sudd Petroleum Operating Company (South Sudan)
SUMED	Suez-Mediterranean (Egypt)
TEN	Tweneboa/Enyera/Ntomme consortium (Ghana)
Tcf	Trillion cubic feet
TPDC	Tanzanian Petroleum Development Corporation
US	United States
USD	US dollars
UK	United Kingdom
VAT	Value-added tax

Notes

Notes



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