








ENERGY & NATURAL RESOURCES

The National Oil Company Investment Challenge

KPMG INTERNATIONAL

Contents

	Foreword	1
	Executive summary Why NOCs want an oil price in excess of US\$80/b	2
	Section 1 How NOC business plans will be impacted by different oil prices	6
	Section 2 Comparing operating costs	12
	Section 3 Degrees of financial autonomy	16
	Conclusion	19
	Methodology	20
	Background	21
	Other KPMG thought leadership	22



Foreword

The past 12 months have seen turmoil in the financial markets and volatility in the oil price. This has meant that both international oil companies (IOCs) and national oil companies (NOCs) have had to try to balance the immediate cash flow needs of their investors/governments with the need to invest in the future development of reserves.

Twelve months ago our research suggested that governments, through NOCs, were in the ascendency and gaining greater control over oil markets and reserves. The picture today is different.

- IOCs, with the ability to use capital markets, have an opportunity to gain access to projects and reserves which they may not have had a year ago.
- NOCs with financing capability or access to state funding, in particular the Chinese NOCs, have the opportunity to secure a greater proportion of their supply.
- NOCs, like IOCs, are focused on driving down their cost base.

This report was written for KPMG International by Dr. Valerie Marcel, who has written widely on the subject of NOCs. The report is based on interviews, carried out in early 2009, with senior executives from NOCs on how they see the future of the industry and surviving the current economic turmoil.



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Executive Summary

Why NOCs want an oil price in excess of US\$80/b

The market today

Oil markets have suffered in the turmoil of the global financial crisis, with demand slackening and prices plunging. Prices have been volatile over this period as the graph shows, but have recently recovered to around half of the peak price (US\$147 per barrel (/b)) achieved in July 2008, and are still significantly higher than 2004 levels. There is, however, a fear within the industry that the recent upturn in prices is not fully underpinned by supply and demand fundamentals.

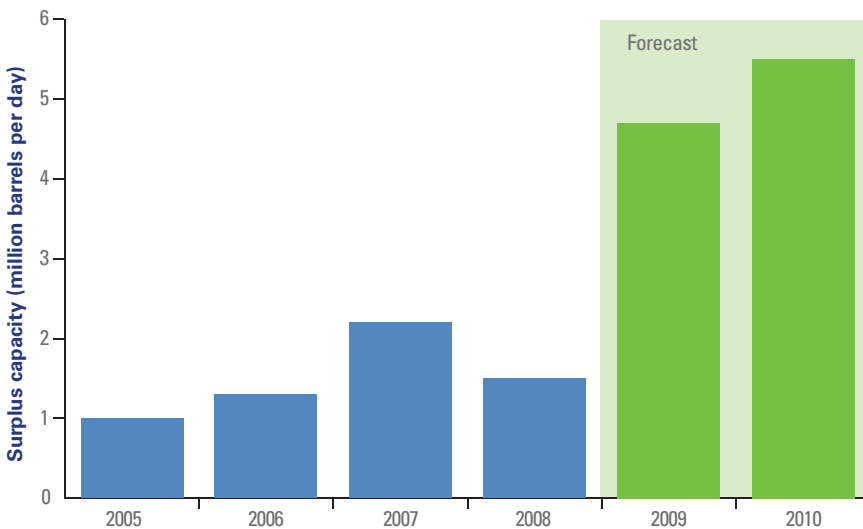
In the current market there is an increasing focus on reducing costs and these have started to decline in 2009.

Graph 1 – Brent Oil Price and Industry Cost Inflation



Source: EIA, CERA 2009

Graph 2 – OPEC Surplus Crude Oil Production Capacity



Source: EIA Short-Term Energy Outlook, July 2009

The uncertainty of a volatile oil price has meant that making the right long-term investment decisions is one of the greatest challenges for those in the oil industry. Producers are currently carrying, collectively, 4.4mn barrels a day (b/d) of excess capacity, representing approximately five percent of world consumption¹. The excess could further increase if demand continues to fall. But it could disappear quickly if growth resumes, if there is some disruption of supply, or if production declines due to a lack of investment in drilling. The underlying

question remains, to what extent producers can, and will, continue to invest in a low oil environment. Exploration investments have a long lead time (in some cases up to 10 years), so that the failure to invest is very likely to result in future shortages, possibly leading to a long-term upward shift in the price of oil.

In May 2009 the International Energy Agency (IEA) warned that global upstream oil and gas investment budgets for 2009 had already been cut by 21 percent compared with 2008².

OPEC's secretary-general, Abdalla Salem El-Badri, recently told delegates at the IFP International Oil Summit that uncertainty about demand, as well as volatile oil prices and rising costs, are causing upstream projects to be delayed.

¹ EIA Short-Term Energy Outlook, July 2009.

² OECD/IEA, The Impact of the Financial and Economic Crisis on Global Energy Investment, a report prepared for the G8 Energy Ministerial Meeting, Rome, May 2009.

For this report, research and interviews were carried out with leading NOCs. Our key findings include:

1. NOCs, like IOCs, are actively seeking to reduce their cost base

- NOCs are having to adjust rapidly to the low oil price by reducing costs. Many contracts with service companies are set two to four years in advance and the ability to renegotiate these contracts and drive down costs in the short term has been, and will continue to be key.
- However, the pressure to reduce costs is being seen by some NOCs as an additional opportunity. An executive from CNOOC explained that his company was capitalizing on lower costs to increase investment: “We are whipping the horse to run faster amid the low iron and steel prices. We will start projects so long as they involve iron and steel.”

2. Developing and extracting new and unconventional reserves is becoming more expensive

- While many of the Persian Gulf oil companies benefit from onshore reserves with low extraction costs (commonly below US\$10/b), many of the new finds in Angola, Brazil and Nigeria require significant development, lifting and infrastructure costs, which require a long-term oil price in excess of US\$60/b.
- Our research found that:
 - NOCs with conventional reserves typically require a minimum average long-term price of US\$30/b
 - NOCs with unconventional reserves typically require a minimum average long-term price of US\$60/b
 - When the fiscal needs of the state are considered, together with unconventional reserves, certain NOCs are seeking a minimum long-term price in excess of US\$80/b.

3. Financing new and existing projects is key in the current financial market and may provide new opportunities for IOCs

- The interviews provided a stark comparison between those NOCs with good access to finance and those with limited access. Those NOCs with good access, such as KPC, Saudi Aramco and the Chinese players (as seen in recent market activity), appear to be able to continue to finance long-term projects (and M&A activity), even without access to the financial markets.
- The difficulty of accessing finance for other NOCs may lead to opportunities for IOCs. A good example is in Iraq, where the Ministry of Oil has asked foreign oil companies to contribute to Iraqi partner costs.³

³ Dr. V. Marcel interview with Thamir Ghadhban

Conclusion

In conclusion, our interviews and research suggest that the increased volatile oil markets could:

- Affect interaction between the IOCs and NOCs – potentially generating new opportunities for IOCs, when previously they were being increasingly excluded from new reserves.
- Provide opportunities for those NOCs with access to finance to expand their reserve base, particularly the Chinese NOCs, for whom securing supply will continue to be a key objective (for example, proposed transactions in Russia, Kazakhstan, Iraq and the Kurdistan Region of Iraq).
- Drive a period of cost focus throughout the industry.
- Result in large development projects being delayed or cancelled, which may lead to reduced supply and consequently increased prices in the future.
- While US\$60/b is seen as the balancing point for many producers, NOCs are typically looking for a long-term price in excess of US\$80/b to justify the development of new reserves.



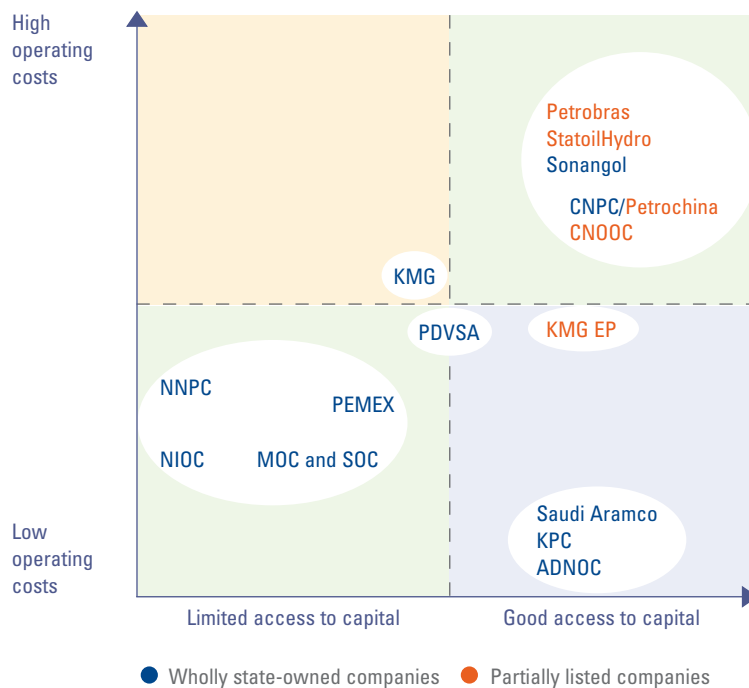
“Now, since we have had to lower the price assumptions in our budget three times ... turning to oil companies to finance oil projects is gaining ground. (...) That’s why it has become clear that Iraq has to co-operate with IOCs.”

Thamir Ghadhban, former Oil Minister and Chairman of the Prime Minister’s Advisory Commission, Iraq

Section 1 How NOC business plans will be impacted by different oil prices

... the average breakeven price for more difficult projects to deliver a 15 percent IRR is in the region of US\$60/b.

Diagram 1 – The NOC Investment Challenge



Source: Dr. Valerie Marcel, 2009, based on the methodology disclosed on page 20

US\$60/b oil price is a key decision point for developing reserves

The diagram above illustrates in broad terms where the investment challenge lies for various national oil companies – on the finance or the cost side, or in some cases both. An oil price of US\$60/b is useful for comparing companies because it is arguably a key decision point for producing more

difficult reserves. Indeed, the average breakeven price for projects to deliver a 15 percent internal rate of return (IRR) was recently estimated to be US\$68/b in Angola, US\$60/b in deepwater Nigeria and around US\$60/b in Brazil (though this depends on the scale of the development).⁴ This price threshold is in the same region as the one put forth by Ali Aissaoui at

⁴ Deutsche Bank, Global Trends, The Cost of Producing Oil, Commodities Weekly, February 2009.



APICORP, who argues that the US\$60/b-US\$80/b price band “lies at the confluence of the economic price needed to develop planned frontier oil projects and the fiscal price needed to meet oil producers’ revenue expectations.”

The decision point varies depending on the nature of the reserve

Lower revenues are likely to affect investment decisions for companies with high costs. On this basis, we can assume that new projects with high cost structures run the risk of being postponed/shelved with an oil price below US\$60/b – affecting the companies in the top half of Diagram 1. Indeed, all companies will review their project portfolio, turning, where possible, to easier reserves to replace the decline in production from their mature fields. StatoilHydro faces high costs in developing offshore Arctic oil and may have to review further

projects in a lower price environment. Petrobras, a Brazilian oil producer, is facing costly challenges in the development of its pre-salt discoveries. The company is testing the first well and the extent of these costs is still uncertain.

For PDVSA, production costs remain relatively low, as Eulogio Del Pino, the company’s Head of E&P, explained that the commercial breakeven for Venezuelan heavy oil projects was under US\$30/b.⁶ For extra heavy oil projects, PDVSA needs to build dedicated upgraders that will bring the price up to US\$50/b, according to Mr Kabboul.

Some NOCs require cash to maintain social programs or develop new fields

For other companies, high costs come from outside their core business. For instance, KazMunaiGas (KMG) is committed to spending on “social

obligations,” which have increased since the economic crisis, said Maksat Idenov, the company’s First Vice-President, prompting the company to cut costs where it can (and, notably, reviewing contracts with subcontractors). “With oil prices down, we are trying to keep our social programs in place, but we need to make another hole in our belt in order to keep things going.”⁵ KMG also has high costs due to capital commitments in its Kashagan project. The required cash injections (which doubled since KMG increased its stake in 2008) are a challenge for the company, as production from the geologically complex project has been held back by delays, and costs have been higher than expected. PDVSA has also invested in national welfare programs that amounted to 11 percent of its revenues in 2008. According to Fadi Kabboul, PDVSA’s Director of planning, the company views these programs “like paying dividends to the people.”

⁵ Revenue Watch Institute Workshop, “National Oil Companies and the Global Financial Crisis”, Doha, February 2009.

⁶ World NOC Congress, Abu Dhabi, June 2009.

IOC pressure on operating cash flows

The pressure on cash flows is similar to that facing IOCs having to juggle the finance of large-scale capital projects, while continuing to recognize the importance of shareholders by maintaining dividends. IOCs are stepping up to the challenge, and many have suggested that gearing levels will increase to satisfy both objectives.

Lack of access to capital means many NOCs may have to delay or cancel long-term projects or look to alternative sources of finance, such as IOCs

The risk of project delays or cancellations is also salient for countries where NOCs have limited access to capital (left side of the Diagram 1). NOCs such the National Iranian Oil Company (NIOC) and PEMEX may struggle to secure sufficient finance to dedicate to upstream investments. Like NIOC, PEMEX's annual budget is part of the government's annual budget, which must be approved by Congress. While PEMEX posts positive pre-tax profits, it generates post-tax losses and has been forced to depend on debt to

finance its capital projects. Group managing director of the Nigerian National Petroleum Corporation (NNPC), Muhammad Barkindo, told the country's Senate Committee on Upstream Petroleum in March: "For us in the industry, the issue is (...) survival. We must begin as a matter of urgency to review the cost profile of our projects to streamline our projects."⁷ NNPC had to borrow US\$3.8bn last year to pay the government's joint-venture share of the costs to develop Nigeria's onshore fields. The Nigerian oil minister, Rilwanu Lukman, has been advocating a scheme which would convert NOCs into stand-alone companies with their own balance sheets which could then finance developments directly without going through the NNPC books. Compounding the problem for companies like NNPC, PDVSA and NIOC is the high cost of borrowing due to perceived political risk. Nevertheless, Mr Kabboul, PDVSA's head of planning, believes the company "has good access to capital and was able to access US\$17bn in the last three years. Venezuela and PDVSA are looking at innovative ways of accessing capital", such as oil-

for-loan agreements with Asian consumer countries.

The Iraqi NOCs, South Oil Company (SOC) and Missan Oil Company (MOC), have low costs (though security expenditure is higher than elsewhere in the Persian Gulf), but insufficient capital to finance their ambitious capacity expansion programs. Thamir Ghadhban, former oil minister and Chairman of the Prime Minister's Advisory Commission, explained, "When we calculated the investment needed for all our projects – we had six oil fields and two gas fields, that's a lot of money – we realized that we needed a greater injection of capital to get it done." In exchange for a greater stake in the project (raised from 49 percent to 75 percent), the Ministry of Oil asked the foreign oil companies to carry all the Iraqi partner costs, which they were apparently "willing to do" and "flexible" about. Iraq is seen by the oil majors as one of the last great frontiers. So long as security continues to improve, contractual terms are clearly established and a petroleum law approved, Iraq will attract the necessary capital for its production expansion programs. Would Iraq

“...we must begin as a matter of urgency to review the cost profile of our projects to streamline our projects.”

Muhammad Barkindo, Group Managing Director, NNPC

⁷ *Vanguard*, March 2009. <http://www.vanguardngr.com/content/view/full/32036/43/>

increase its production as much as possible even if prices were low? “Absolutely”, explained Mr Ghadhban, “It’s clear to us that we can only affect our production and not the price. All we can do is increase our production.” However, there appears to be a degree of concern over the commercial terms, as noted by Jabir Khalifa Jabir, secretary of the government’s Oil and Gas Committee “The oil minister must convince us why the government should have spent US\$8billion to develop oilfields, but then offers them to foreign firms like pieces of cake.”⁸

Large exporters including OPEC members may reduce supply until demand returns, creating upward pressure on prices

For large exporters finding themselves in the bottom right quadrant of Diagram 1, with low costs and good access to capital, the main obstacle to investment in new capacity or in maintaining production capacity is a caution resulting from the expectation of lower demand in a recession. OPEC spare production capacity is also at an eight-year high. This has already resulted in project delays. OPEC’s Mr El-Badri said in February that its members had

collectively postponed 35 drilling projects that had been in various stages of development, among a total of 150 that were planned to deliver over the next decade.⁹

Among the biggest exporters, KPC and Saudi Aramco enjoy good access to capital thanks to retained earnings from the sales of crude oil. However, they are concerned about slackening demand and the cost of excess capacity. According to Ibrahim Al-Muhanna, adviser to the Saudi Ministry of Petroleum, the kingdom is expected to have about 4.5mn b/d of stand-by production capacity by the middle of 2009. Saudi Aramco takes a long-term view of oil market trends and is maintaining its upstream expansion program, though it has extended the development timetable for the Manifa heavy-oil project by 18 months. Meanwhile, ADCO (Abu Dhabi Onshore Oil Operations Company) the largest operating company of the ADNOC group (Abu Dhabi National Oil Company), is going ahead with its US\$12.2bn investment program to lift the company’s sustainable oil output capacity. ADCO’s general manager, Abdul Monem Al Kindi, said the program would be self-financed by

ADCO and its foreign partners, without the need to resort to loans.¹⁰

The companies falling just under the horizontal half-mark of Diagram 1 have low enough costs that their investments are not greatly affected by an average oil price of US\$60/b. KMG EP, which is the listed subsidiary of KazMunaiGas, operates onshore in Kazakhstan. Its existing assets have low capex requirements. “At US\$60/b there would be no change to our investment plans,” says Alexander Gladyshev, the company’s Director of Investor Relations. At US\$40/b, KMG EP’s production capacity is largely maintained (a 3 percent reduction from last year), but less money is available to ensure growth in long-term assets, such as greenfield projects and acquisitions. “Here people believe in a price between US\$50-US\$60. We don’t count on US\$80 but we don’t think that US\$40 oil is there forever. But we are ready to operate at US\$40 for a long time.” In fact, the company based its annual budget on this conservative price assumption and decided to halve its drilling activity and cut back on enhanced oil recovery (EOR) methods to ensure “[it] remained profitable at US\$40.”

“It’s clear to us that we can only affect our production and not the price. All we can do is increase our production.”

Thamir Ghadhban, former Oil Minister and Chairman of the Prime Minister’s Advisory Commission, Iraq

⁸ Timesonline, June 23 2009.

⁹ OPEC’s Mr El-Badri, IFP Oil Summit, February 09

¹⁰ UAE Interact, January 2009. http://www.uaeinteract.com/docs/Abu_Dhabi_says_oil_project_cost_slashed_20_per_cent_/33975.htm

NOCs with access to capital, such as the Chinese, have an opportunity to use a low or volatile oil price to try to secure supply

Companies in the upper right quadrant face high costs but can also benefit from greater availability of capital. In a low-price environment, the determinant of investment is the political or business will to commit the funds, in spite of lower returns. In the case of Chinese companies, the guaranteed access to supplies of crude is a strategic objective and funds can be dedicated to this effort. But for StatoilHydro and Petrobras, projects are unlikely to go ahead without reasonable profit. As a senior executive of the China National Offshore Oil Corporation pointed out, "CNOOC will increase production under all [oil price] scenarios because China is badly in need of oil." A fall of prices to below US\$30/b could curtail CNPC and CNOOC's investment, but this is not seen as likely. Executives from the Chinese NOCs explained that short or medium-term price fluctuations would not affect their upstream investment plans because their eyes are on the long-term picture and China's future energy needs. To offset the decline in oil revenues, CNPC has required all of its subsidiaries to cut costs in project design, raw materials

procurement and construction. Similarly, CNOOC's senior executive explained their "major concern is how to improve efficiency and raise the investment return." Chinese NOCs' high costs derive in part from their domestic spending program to support the economy – in particular infrastructure projects, such as pipelines and storage, tanks and terminals.

The comfortable financial situation of an NOC with good access to capital and/or low costs can quickly be altered in a low-price environment. Ali Aissaoui, head of research at APICORP, believes that "a prolonged period of low oil prices below US\$60-US\$80/b will affect NOCs' (and probably IOCs' as well) ability to self-finance their investments." Cash-strapped governments, as sole or majority shareholders, can ask to receive dividends, reducing the NOCs' net savings. Also, NOCs may become burdened with greater costs related to offsetting the socio-economic impact of lower oil revenues on their country.

On the other hand, the global financial crisis may provide opportunities for low-cost expansion for companies with strong cash reserves. This is what Jiang Jiemin, general manager

of CNPC and chairman of PetroChina, told an annual company meeting in January 2009. CNPC aims to increase its oil and gas production by 5 percent a year and maintain an increase in its total investment despite the financial turmoil. Chinese companies are becoming increasingly active as they seek to secure supply in countries such as Russia, Kazakhstan, Iraq and the Kurdistan Region of Iraq. Mr Gladyshev, at KMG EP, said, "It's true that assets have become cheaper and that there is more availability. If they are attractive enough, we can do it." KMG EP can cherry-pick the best acquisitions in Kazakhstan, where the government has granted it a pre-emptive right of first refusal on onshore oil asset purchases.

"A prolonged period of low oil prices below US\$60-US\$80/b will affect NOCs' (and probably IOCs' as well) ability to self-finance their investments."

Ali Aissaoui, Head of Research, APICORP



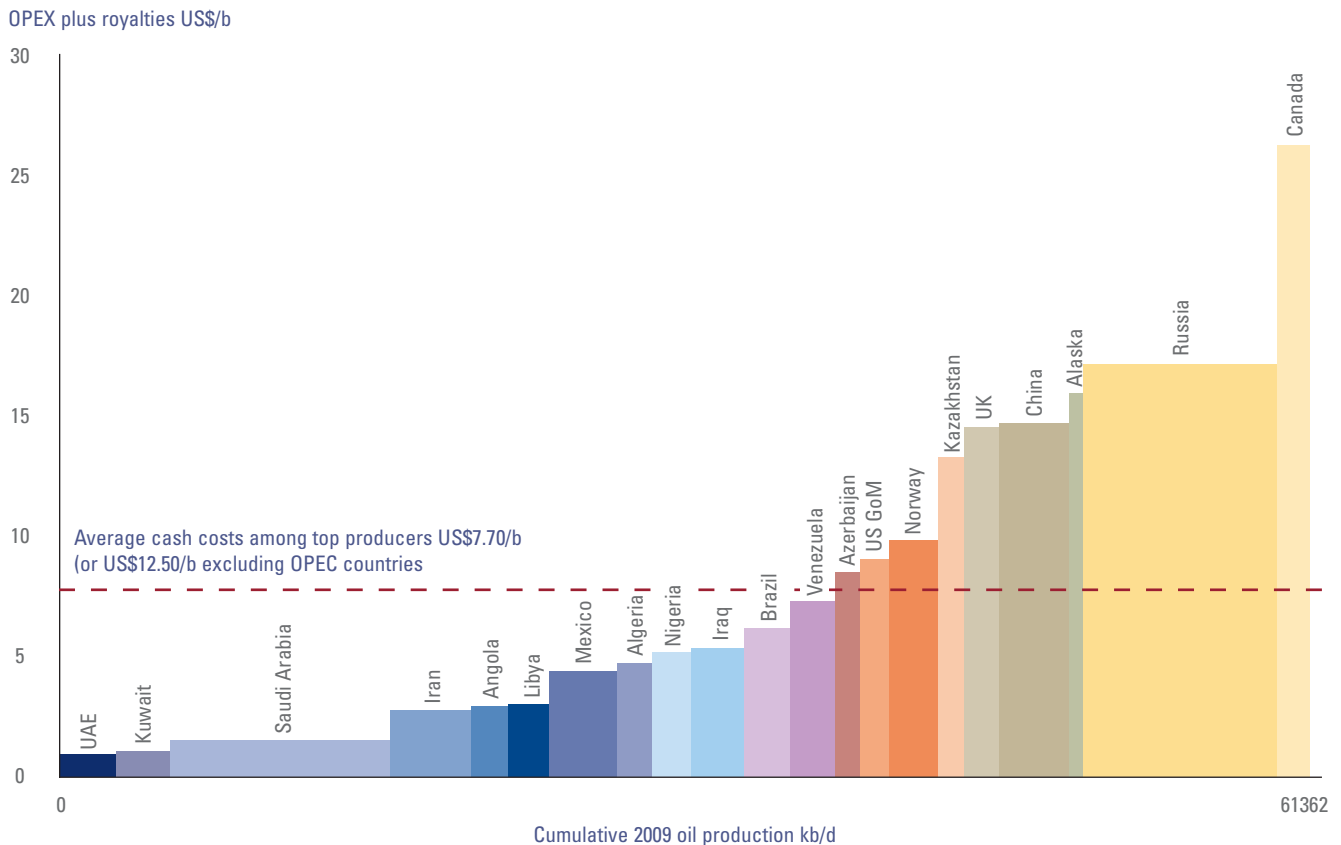
Section 2 Comparing operating costs

A major challenge of assessing operating costs is not being able to compare like with like. Producers have a wide range of production costs, depending for instance on their reservoir characteristics, the maturity of their producing basins and their decline rates, on the accessibility of the

reserves (deep offshore for instance), and the physical characteristics of the crude oil. In some cases, the obligation for NOCs to meet some of the welfare needs of their society adds significantly to operating costs. Thus the wide range of geological and national challenges can help to make

comparisons across NOCs difficult. Another problem is that these costs are not publicly available for most of the major oil producers. Partial cost data is available for the operations of listed NOCs and some wholly state-owned NOCs (such as Sonatrach, KMG and KPC).

Graph 3 – What does OPEX plus royalties mean?



Source: Deutsche Bank Global, February 2009



Cost structures vary across territories and are difficult to accurately compare

A partial picture of costs was recently put out by Deutsche Bank, which compared lifting costs and royalties among major producers. Lifting figures were drawn from WoodMackenzie data compiled on a country basis and royalties were estimated on the basis of national fiscal policies. This cost data does not give an accurate picture for countries with NOCs operating largely alone and not disclosing financial information. (WoodMackenzie's data for Saudi Arabia, for example, comes from the Joint Development Zone.) However, in countries where publicly listed companies operate (and disclose their costs) we can more readily infer approximate costs for NOCs operating alongside them.

Another reason the available data comparing costs across countries needs careful interpretation is that they give the impression that NOCs could easily afford to invest more and so face less of an investment challenge. From the available data, the average cash costs as shown in Graph 3 (lifting costs and royalties) are US\$7.70/b for the top producers and US\$12.50/b for non-OPEC countries.

But as Elaine Dunphy from Deutsche Bank explained, "The comparative lifting costs are deceiving in that they don't show a big part of the spending. Oil companies also need to make considerable capital investment in the ongoing maintenance of fields (drilling, water injection, etc., to maintain production rates and reservoir pressure). Furthermore, when considering full project development,

you are assessing the costs for the entire life of the project, including capital spend on both development and maintenance, taxes, royalties and operating costs... versus just operating costs as shown above." The timeline of the project costs is also an important factor in the decision to invest. John Mitchell, Associate Fellow at Chatham House and former Special Adviser to the Managing Directors at BP, explained, "Development costs are almost all in the future, whereas the costs of maintaining production have the benefit of past investment in infrastructure and also low geological risk. Exploration costs (or pre-discovery estimates of development costs plus a risked exploration budget) would be the highest."

...the average cash costs (lifting costs and royalties) are US\$7.70/b for the top producers and US\$12.50/b for non-OPEC countries.

New discoveries are more geologically challenging and require an upward shift in the oil price to be economically viable in the long term

NOC costs vary depending on how much of their projected production comes from new discoveries, development and maintenance. If looking at a fuller project cost structure – which would include the costs of finding and developing the oil, infrastructure maintenance as well as payments to government - then the picture would show the NOC investment challenge more clearly.

As a measure of comparison, a US\$60/b-plus oil price is needed to make projects profitable in Angola, Brazil and Nigeria's deep offshore, even though their lifting costs and royalties are between only US\$2.50/b and US\$6.50/b.

So-called finding costs, which are the costs of adding proven reserves of oil and gas through exploration and development activities, vary significantly across regions. The Energy Information Administration (EIA) put these costs at US\$15.25/b in Africa (averaged over 2003, 2004, 2005) which is over three times that of the Middle East (US\$5.26/b averaged over 2004, 2005, 2006) for private oil companies reporting to EIA's Financial Reporting System.¹¹

As the industry shifts to developing unconventional and difficult reserves the long-term oil price may need to shift to US\$80/b-US\$100/b

The International Energy Agency (IEA) has produced long-term oil supply cost curves that give a fuller picture (that is, more than production and finding costs), but only on a by-region and reserve-type basis. The IEA's World Energy Outlook 2008 estimates that the costs of exploiting remaining oil from new enhanced oil recovery projects is between US\$30/b and US\$80/b specifically:

- for deepwater and ultra deepwater between US\$30/b and US\$65/b;
- for heavy oil and bitumen between US\$30/b and US\$70/b; and
- for Arctic reserves between US\$30/b and US\$100/b.

The cost of exploiting remaining conventional reserves is significantly lower. For example, in the Middle East and North Africa it stands at less than US\$30/b (excluding taxes and royalties) and elsewhere at up to US\$40/b (in 2008 dollar prices).

Costs include:

- Development costs: expenses directly related to the development of a particular field (including drilling, construction of pipelines connecting the field to the main system).
- Lifting costs (also called operating costs): the cash cost to bring a barrel of oil to the surface. That is, out-of-pocket costs per barrel of oil, to operate and maintain wells and related equipment and facilities after hydrocarbons have been found, acquired and developed for production (EIA, 2006).
- Finding costs: the exploration, development and property-acquisition costs of replacing reserves removed through production (EIA, 2006).
- Other significant costs: capital expenditures on infrastructure like major transport pipelines, terminals and processing plants.
- Payments to governments: signature bonuses, royalties, profit and development taxes.

¹¹ EIA (2006). Performance Profiles of Major Energy Producers 2005. DOE/EIA-0206(05). Available at <http://tonto.eia.doe.gov/ftproot/financial/020605.pdf>

Cost control will be a key focus in the industry if prices remain volatile

There are some common expectations that costs will fall, though many producers are uncertain as to when and by how much. Mr Ghadhban, from the Iraqi government, remarked that “costs have come down, but not as much as the [oil] price.” Mr Aissaoui, at APICORP, observed lower costs of factor inputs in the engineering, procurement and construction (EPC) of large-scale projects, but noted that “it is hard to infer how far and how long the overall cost trend is likely to be down when considering other EPC cost components, which include contractors’ margins and project-risk premiums.” Some costs can come down quickly, such as fuel, steel and rigs, others move slowly and unpredictably. Ms Dunphy, from Deutsche Bank, explained, “It’s harder to pin point exactly when some key costs could fall; notably service company contracts. These are often set for two to four years (depending on contract duration) with little scope for renegotiation. However, many companies have been pushing hard, where renegotiation clauses do exist, to obtain cost reductions anywhere between six percent and 20 percent. Some have cancelled bid rounds to re-tender when prices have declined

further, while a number of NOCs have cancelled contracts with service companies to re-tender the work at a later date (for example, Aramco’s cancellation of the Snamprogetti contract for the development of the Manifa field).” Clearly, all eyes are on contractors. At KMG EP, Mr Gladyshev explained that the company had structured its budget to allow renegotiation of contracts with suppliers should prices come down. ADCO’s Mr Al Kindi said in January that the company had already saved nearly 20 percent of the value of a major crude capacity expansion project over a period of just six months.¹² A senior executive from CNOOC explained that his company was capitalizing on lower costs to increase investment: “We are whipping the horse to run faster amid the low iron and steel prices. We will start projects so long as they involve iron and steel.”



“We are whipping the horse to run faster amid the low iron and steel prices. We will start projects so long as they involve iron and steel.”

Senior Executive, CNOOC

¹² UAE Interact, January 2009. http://www.uaeinteract.com/docs/Abu_Dhabi_says_oil_project_cost_slashed_20_per_cent_/33975.htm

Section 3 Degrees of financial autonomy

There are five main ways in which NOCs access capital for upstream projects. Low prices and constrained capital markets affect NOCs differently depending on how they access funds. The big question is whether NOCs can sustain their investment through the financial and economic slump by finding ways to insulate themselves from their governments. It seems that Saudi Aramco and ADNOC are insulated - and their government can take a long view about investments. The part-private NOCs, such as StatoilHydro and Petrobras, are partially protected, but could have significant demands on their operating cash flows (like some smaller upstream-only IOCs). However, they have ways of raising capital. Companies such as PDVSA, PEMEX, NIOC, NNPC, KMG and others, will find it hard to insulate their finances from government even if they are adroit financially.

Set out below are the various types of capital funding available to NOCs:

1. Government budget allocation: including NIOC, PEMEX, SOC and MOC (Iraq), NNPC

Some NOCs function like government ministries, receiving an annual budgetary allocation. They can be, as a result, cash-strapped when prices fall and the government's budget becomes strained under the pressure of greater social needs. NOCs must then turn to investors (if their government allows them), or loan and bond markets. They may also set up foreign companies that generate revenue independently from national constraints.

Iraq offers a good example of the difficulty of committing to an investment program under this type of finance structure. The government based its 2009 budget on a price assumption of US\$80/b, with an export

target of 2mn b/d. Since then, the price assumption has been revised downwards three times, settling at US\$50/b, and exports also fell below target for the first quarter of 2009. Mr Ghadhban explains, "So we were below our plan in terms of income. We had to maintain our budget for the various ministries and therefore we had to reduce investments. Price has an impact on the availability of funds for the oil sector."

2. Retained earnings: including Saudi Aramco, KPC, ADNOC, Sonatrach, KMG EP, CNOOC, Petronas, Sonangol, StatoilHydro, PDVSA

Some NOCs are able to retain sufficient earnings from their activities to self-finance their capex programs. In many cases, this emulates the finding of the oil majors when they operated in these countries – and, indeed, many oil majors continue to

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Thamir Ghadhban, former Oil Minister and Chairman of the Prime Minister's Advisory Commission, Iraq



self-finance. NOCs pay the state royalty on the sale of crude oil and are taxed on their profits, usually in an explicit or well established way. However, as a (or the sole) shareholder, a government may ask for dividends or even impose a special levy that shrinks the NOCs' retained earnings. As Mr Aissaoui explains, "Should the current dual crisis ([involving both] the credit market and oil market) deepen and lengthen, the NOCs' net savings run the risk of being siphoned off by governments."

Thanks to retained earnings in times of plenty, companies such as KPC and KMG EP benefit from accumulated cash reserves. As for the Kazakh company's capital needs, Mr Gladyshev feels that its reserves can carry the company's investment in smaller projects, but that larger ones will require more capital. "So far we have been flush with cash. But we will be

faced with similar problems as others going to the capital markets." The company now has a small debt of US\$100mn, which stands against US\$4.5bn in cash reserves, over half of which was accumulated from retained earnings.

3. Foreign partners (PSAs, JVs or service agreements): including NNPC, NIOC, ADNOC, Sonatrach, KMG, SOC, PDVSA, SOC and MOC

A number of NOCs have turned to foreign investors to commit a share of the capital investment to develop resources, employing a variety of terms, from joint ventures to service agreements. This method of raising capital is more attractive when oil prices are low, and retained earnings or budget allocations cannot meet the capex needs of the company. Low prices prompted a recent change in Iraq, as Mr Ghadhban explained, "There was a division among politicians

regarding foreign investment when prices were higher. Now, since we have had to lower the price assumptions in our budget three times and we've had a lowering of revenues, turning to oil companies to finance oil projects is gaining ground. (...) That's why it has become clear that Iraq has to co-operate with IOCs. However, there are differences on the involvement of IOCs in producing oil fields such as those named in the First Bid Round."

"Now, since we have had to lower the price assumptions in our budget three times ... turning to oil companies to finance oil projects is gaining ground. (...) That's why it has become clear that Iraq has to co-operate with IOCs."

Thamir Ghadhban, former Oil Minister and Chairman of the Prime Minister's Advisory Commission, Iraq

4. Loan and bond markets: including Sonatrach, NIOC, PDVSA, CNOOC, PetroChina, PEMEX

NOCs will remain choice borrowers in credit markets, but risk is now a more important factor for oil producers when accessing capital. Fiscal transparency and good governance can help to alleviate the perception of risk and affect sovereign debt ratings and interest rates. The perceived high standard of corporate governance in Petrobras and StatoilHydro potentially give these NOCs an advantage in this respect. PEMEX has accessed capital from a variety of sources thanks to its disclosure of financial and geological data. It is likely that the lower availability of credit will force other NOCs to offer more information to stakeholders. This will be particularly useful in the case of NOCs such as NIOC and NNPC operating in countries with greater political risk.

Loan and bond markets offer a variety of financing vehicles, which the Chinese and Mexican NOCs have been making use of adeptly. A PEMEX executive explained that the company has been able to diversify its sources of financing by approaching export credit agencies in US and European markets, which “have helped put more eggs in our basket”. In addition, the Islamic bond and Asian markets may be explored in order to diversify

further the investor base. Of CNPC’s access to capital, a company policy adviser said, “We can issue bonds and we have support from banks. Finance is not an issue for us.” In fact, in March 2009, PetroChina raised 15bn yuan (US\$2.2bn) in its latest three-year medium-term bonds issue to boost its cash flow. CNOOC will issue 80bn yuan (US\$11.71bn) in medium-term bonds in 2009 to finance its development. The company will use the money to build up its offshore exploration facilities to take advantage of falling raw material prices, as well as finance other projects. Fully state owned NOCs, such as Qatar Petroleum, PDVSA and PEMEX, have also issued bonds to support their capital investment programs. They may issue them directly or through subsidiaries, for example, through shipping companies which secure their loans against ships, or through companies which ring-fence oil earnings in overseas subsidiaries that raise the loans by issuing bonds (for example, PDVSA’s CITGO). Mr Mitchell, of Chatham House, believes that in a low price environment, more NOCs “could benefit from new methods of financing (e.g., forward sales of oil, ring-fenced loans, etc) which they do not now practise.” This would prove particularly useful for NOCs whose finances are under the control of their governments and

which lack independence. Chinese loan-for-oil agreements are also on the rise, giving producers more financial flexibility. Last May, Petrobras signed a deal with China promising to supply Sinopec with 200,000b/d over the next decade in exchange for US\$10bn, which will help it develop its sea reserves. A similar deal was signed a month earlier between China and Russia for US\$25bn, bringing total loan-for-oil deals agreed to so far to US\$50bn. PDVSA has also tapped into these “heavy funds”, as the company’s director of planning Mr Kabboul calls them, and is seeking similar deals with other oil-consuming countries.

5. Stock markets: including KMG EP, CNOOC, Petrobras, Petrochina, StatoilHydro, PTT

Listed NOCs have generated capital through stock markets. KMG EP, for instance, raised approximately US\$2bn from its listing in September 2006. CNPC’s E&P arm, PetroChina, is listed in both domestic and overseas markets. Its domestic listing in 2007 raised nearly US\$9bn. These companies stand in contrast to those that are wholly state-owned.

“We can issue bonds and we have support from banks. Finance is not an issue for us.”

CNPC Policy Advisor, China

Conclusion

Although this study has not examined the impact of the growing fiscal needs of governments, these demands do potentially pose a threat to long-term investment in the energy sector. Continued low prices could shift investment priorities away from energy projects to domestic economic development. In countries where NOCs are expected to meet certain social needs, they are engaged in a balancing act, trying to meet production targets and maintain social programs, despite lower revenue flows.

To weather the financial storm, many NOCs across the board are in crisis management mode, cutting costs where they can by reviewing projects and contracts with subcontractors. NOCs with independent capital-raising mechanisms will find it easier to protect their investments. A new trend is emerging in which NOCs are getting creative with financing. Benefiting from a greater variety of mechanisms to raise capital, these NOCs can more easily face the financial crisis and the energy slump. The market conditions

are providing opportunities for IOCs with access to capital markets and driving partnerships that that would not have been possible in a high oil-price environment.

Lastly, those NOCs with access to financing, particularly the Chinese players, have an opportunity to secure supply through providing cash and debt in return for partnerships with either NOCs or IOCs. There have been several examples to date in countries such as Russia, Kazakhstan, Iraq and the Kurdistan Region of Iraq.

Methodology

Dr. Valerie Marcel conducted telephone interviews in March and April 2009 with a senior Iraqi official, two project finance experts, and a KMG EP executive, and in June with a PDVSA executive. Additionally, she received written comments from John Mitchell and Ali Aissaoui. She received comments in person from two senior executives from PEMEX in June. Yihe Xu, an independent researcher who worked with Dr. Valerie Marcel, conducted in person interviews with two senior executives at CNOOC and CNPC in March 2009. All interviewees were given an opportunity to review the text and make comments.

Note on Diagram 1: This graph represents a qualitative assessment of the investment challenge for various NOCs should the average price of oil remain below US\$60/b over the next three years. The horizontal dotted line demarcating companies with higher and lower costs is the point at which projects can be profitable at US\$60/b. The placement of StatoilHydro and PDVSA was estimated on the basis of IEA and EIA cost data on Arctic oil projects and heavy-oil projects. The placement of KMG, KMG EP, MOC and SOC, PEMEX, CNPC/Petrochina and CNOOC is based on interviews. Interviewees were given opportunities to comment on the position of their company in this graph. Additionally, the placement of PDVSA and KMG on the cost axis was guided by comments made by company representatives and

financial data on those companies' social programs. Comments from both companies were received. The placement of Petrobras and Sonangol on the graph is chosen according to the Deutsche Bank analysis "The Cost of Producing Oil", which estimated project costs in Brazil and Angola. The placement of Saudi Aramco, KPC, ADNOC, NNPC and NIOC was determined by previous author interviews with company representatives and supported by publicly available cost estimates. Placement of companies on the access to capital (X) axis was determined by the capacity to retain earnings versus budget allocation, and the ability of companies to access other sources of finance (for example, issuing bonds, loans, listing, foreign partners).

Companies and executives interviewed

Arab Petroleum Investments Corporation (APICORP)	Ali Aissaoui, Head of Economics & Research
China National Offshore Oil Corporation (CNOOC)	Senior Executive
China National Petroleum Corporation (CNPC)	Policy Adviser
Deutsche Bank	Elaine Dunphy, European Oil and Gas Team
Government of Iraq	Thamir Ghadhban, Chairman of Advisory Commission, Prime Minister's Office
KazMunaiGas Exploration Production (KMG EP)	Alexander Gladyshev, Head of Investor Relations
PDVSA	Fadi Kabboul, Director of Planning, Board of Directors
PEMEX	Corporate Finance Senior Executive

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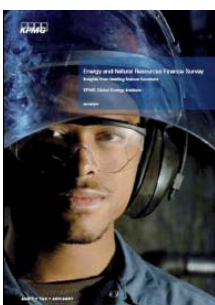
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Oil Company Reporting on Alternative Energy Diversification

The primary aim of this study is to present the results of a comparative analysis of the nature and volume of information published by major oil companies on their strategies for diversification into alternative energy sources.



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Designed and produced by KPMG LLP (UK)'s Design Services

Publication name: The National Oil Company Investment Challenge

Publication number: RFD-158721

Publication date: August 2009