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Opportunities for private sector investment in the Middle East oil and gas sector

In recent years there has been an increasing level of federal scrutiny on the strategy of national oil companies (NOCs) in the Middle East. Rising global energy consumption patterns coupled with rebounding oil prices have created the ideal opportunity for Middle Eastern governments to increase their treasury intake from the sale of hydrocarbons. As a result, the NOCs are pursuing various initiatives aimed at building an energy infrastructure that is truly world-class in terms of both capability and scope. The private sector is also expected to play a role in bringing this to fruition.

Realizing such ambition hinges on deploying the appropriate levels of investment. Pure NOC investments will help drive the oil services' backlog for contractors in the longer term, making them a price-setter in the context of global capital expenditure (CAPEX) recovery. Studies indicate that on a global level, NOCs are projected to spend approximately USD 400bn, which is 40% of total global CAPEX¹. In the Middle East, approximately USD 140bn worth of engineering and construction contracts in the sector have either been awarded or planned in 2011². Capital costs could push CAPEX spend even higher, particularly as higher

commodity prices have led to increased downstream costs. Much of this money will be spent on Front End Engineering Design (FEED) work. In addition, although certain large upstream ventures have either been delayed or abandoned, a focus on more difficult and unconventional exploration activities should spur NOC capital expenditure levels. Looking ahead to the coming five years, the majority of engineering, procurement and construction (EPC) work will be awarded in Saudi Arabia, while Iraq is a new focus as contractors follow their client oil companies into the country. The Iraqi opportunity itself is lucrative with the government expected to award EPC contracts worth more than USD 130bn over the course of the next few years. Finally, sufficient CAPEX outlays are crucial to improving existing gas infrastructure which will help overcome the projected regional gas shortage. Despite reserves of 76.18 trillion cubic meters (tcm), or approximately 41% of total proven reserves³, the Middle East's share is relatively undeveloped. The GCC is facing a 51 billion cubic meters shortfall in gas⁴, a significant portion of which is used to generate electricity. The Gulf states, particularly the UAE, Qatar and Saudi Arabia, plan to award contracts worth over USD 68bn during the next five years to raise gas production³.

A second initiative that the NOCs are pursuing is a drive towards efficiency and profitability. For example, as far back as 2005, Saudi Arabia examined the feasibility of converting two of its domestic refineries, namely Yanbu and Ras Tanura, into integrated refining and petrochemical complexes. The rationale was that the refinery provides a secure supply of fuel to the petrochemicals units and the combined facility can share utilities such as captive power plants and offsite facilities. Such integration has already taken place in the US, Europe and Asia, where owners have realized improved margins by taking advantages of the synergies. NOCs

have also pursued the strategy of delaying the re-tendering and engaging in re-negotiation of projects in an attempt to reduce costs. Significant increases in contractor prices in 2005 and 2006 caused the NOCs to hold off on signing deals, leading to a 66% drop in awards by value between 2006-07 and 2007-08 from USD 45bn to USD 15bn². In 2009, the Abu Dhabi Company for Onshore Operations (Adco) negotiated with the selected EPC contractors to reduce their costs on the Sahil, Asab and Shah full field development. Although not without some compromise on its own part (lowering potential fines for delays, and larger down-payments), a 22% downward adjustment to the original USD 4.5bn contract cost was achieved.

NOCs are also placing an increased emphasis on environmental protection and social responsibility. Saudi Aramco has been at the forefront of protecting the marine environment and establishing standards for controlling industrial emissions. Between 1974 and 2005, natural gas flaring was reduced from 85% of the Kingdom's fossil fuel emissions to less than 1%⁵. The Saudis are also examining the prospects for reducing greenhouse emissions through energy efficient design. At the Kuwait Petroleum Corporation (KPC), efforts are also underway to minimize gas flaring. KPC's strategic direction calls for a zero-flaring policy for both onshore and offshore operations, targeting 1% gas flaring by 2011. The company is investing heavily in this regard and is also exploring initiatives that promote ammonia and emission reduction, oil-spill management, and waste management⁶. As recently as March 2011, Qatar Petroleum (QP) hired consultants to study the feasibility of adding smokeless flaring facilities to its Dukhan oil field. QP has been striving to improve its environmental credentials for some years now. In 2008 local contractor Black Cat installed QP's first smokeless flaring project on an offshore oilfield, by modifying the USD

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110m Fahahil stripping plant. Black Cat upgraded the existing gas flaring system by installing a nozzle that injected compressed air during the flaring process, thereby eliminating smoke from the emissions. It is believed that the Dukhan oil field itself could support up to five smokeless flaring projects⁷.

Finally, NOCs and their respective governments are striving to promote the training and hire of local talent within the oil and gas sector. This initiative is part of a wider program to boost job opportunities available to locals, especially since youth unemployment in countries such as Qatar and Saudi Arabia is as high as 62% and 46% respectively⁸. In Saudi Arabia, under the 'Nitaqat' system implemented by the Labor Ministry, companies are ranked on the proportion of nationals they employ. Firms that employ low levels of national staff will not have the visas of their expatriate staff renewed upon expiry⁹. Companies like General Electric (GE), which recently opened a USD 250m manufacturing and repair center in Damman to service the oil and gas sector, intend to comply with this system. This investment is expected to generate 2000 direct and indirect jobs, and help GE achieve 85% Saudization over a six-year period. It will also provide technology and managerial courses for 100 students annually¹⁰.

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Given the aforementioned NOC initiatives, one could perceive the regional oil and gas sector offering prospects aplenty for private sector involvement. However, the reality is that the need for private sector participation varies along the energy value chain. The regional NOCs have evolved significantly since their early days and are becoming increasingly sophisticated institutions. Hence, a 'one-size fits all' approach by the international oil companies (IOCs) is unlikely to bear fruit. Rather, IOCs that can offer solutions tailored to the nuances of the various regional NOCs will play an important role in the region going forward. This chapter explores the subsectors within the oil and gas industry that the NOCs have deregulated and in which they have invited private industry aboard.

Upstream

Traditionally, upstream oil development and pipelines have not been open to the private sector. However, exceptions to this have been made when in the interest of national security, to fulfill a pressing market need, or to gain access to specialist technology and practices. The following three examples illustrate this more clearly.

In Saudi Arabia, Saudi Aramco has held absolute rights to exploration, drilling, production and pipeline transmission since 1980. In order to develop gas reserves estimated to range as high as 232 trillion cubic

feet (tcf)¹¹, the Kingdom launched its own Gas Initiative in 1998. This marked a departure from its traditional stance that prioritized oil exports, and pursued imported gas for domestic consumption, instead of utilizing existing gas reserves for the same purpose. Further, the Saudis believed that natural gas as a fuel source would cannibalize international demand for their oil. However, three factors brought about a change in the Kingdom's natural gas policy. Firstly, the creation of a Master Gas System in the 1980s, which helped mitigate flaring and encouraged a domestic gas disbursement network. Secondly, the Kingdom sought to diversify its relatively narrow dependence on crude oil¹². Finally, the Gas Initiative proved to be a useful tool in securing American interest in long-term, bilateral partnerships. Essentially, via the Gas Initiative, Saudi Arabia would provide stable energy in the form of natural gas, in return for American security guarantees¹³. As a result, the Saudis provided American IOCs with attractive terms in order to retain pre-eminence within the US government's strategic sphere. It is worth noting that in the past Qatar has also used its natural gas reserves as leverage for security guarantees. Qatar and Saudi Arabia believed that active involvement of the US energy sector in the production of natural gas would result in American protection. Bilateral security treaties would only re-enforce this in light of the increased shipments of natural gas to the USA. This is a prime example that absolute sovereign control over the upstream sector can be partially ceded, particularly in the broader context of national security¹⁴.

In the UAE, the need to develop and extract the world's sixth largest gas reserves is pressing. As demand for electricity continues to rise, the federation has little choice but to pursue the development of the Shah field and its associated sour gas. The high levels of toxic hydrogen sulfide that are inherent in sour gas fields, makes extraction and processing technically challenging.

In addition, the project involves building one of the world's largest sulfur removal plants, and protecting both pipelines and equipment from the highly corrosive gas. NOCs like the Abu Dhabi National Oil Company (ADNOC) have little relevant experience in this, and have thus turned to the IOCs for assistance. In January 2011, ADNOC signed an agreement with Occidental Petroleum for the USD 10bn Shah field project. Occidental Petroleum's technical expertise, financial position, and commitment to the region were ideal attributes from ADNOC's perspective¹⁵. The partners are expected to produce 540m cubic feet a day of processed gas, after separating the sulfur from 1bn cubic feet a day of sour gas. Three gathering systems will take gas and fluids from the field to the processing plant. Pipelines will subsequently transport gas, condensate, and natural gas liquids to other processing and distribution facilities. These will be linked to a sulfur export terminal at the Ruwais port¹⁶. Extracting and processing the gas are not the only roles that the private sector will play. Italy's Technit and India's Dodsai have been awarded two schemes worth approximately USD 1.2bn to build new sulfur forming, handling, and export facilities in the western region. Given the sheer scale and scope of the scheme, ADNOC could potentially emerge as a global leader in sour gas development, when the project comes online. The private sector's role in achieving this would be undeniable.

Offshore exploration represents another opportunity for IOCs and the private sector to lend much needed technical expertise. Regional NOCs have traditionally focused on the cheaper, onshore exploration, but are now under pressure to replace output from fields that are maturing. In 2009, Saudi Aramco had 26 offshore rigs in operation, 15 more than four years prior. The region's offshore technological requirements have to cover a range of geologies, from the large shallow-

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water Gulf acreage, to the deep-water acreage in Egypt with depths over 600 meters. One example of the IOCs and the NOCs working together in this respect is at Abu Dhabi's Upper Zakum field. Plans are underway to raise production to 750,000 barrels per day (bpd), from the current level of 500,000 bpd. ADNOC has established a joint venture vehicle with the Abu Dhabi Zakum Development Company (Zadco), Japan Oil Development Company, and ExxonMobil, as a means to achieve it. Less than 10% of the field's oil has been pumped and much of the reservoir is comprised of low-permeability rock, making the oil difficult and expensive to extract. ExxonMobil has been charged with creating models using its EMpower reservoir-simulation technology to determine how it will maximize recovery while minimizing both cost and risk. The US major has established a technology center in Abu Dhabi to apply high impact technologies to the Upper Zakum field, as well as training facilities¹⁷.



The Emirate has an ambitious master-plan that involves building a fully integrated industry, from the ground up over the next two decades

Petrochemicals and refining

One area in which the private sector has the potential to play an important role in is the integration of regional petrochemical facilities with refineries. Abu Dhabi has taken note of such integration as previously achieved by Total and the Dow Chemical Company. The emirate has an ambitious master-plan that involves building a fully integrated industry, from the ground up over the next two decades. State oil and gas production will feed into government refining and petrochemical companies, which will in turn supply specialty plastics and chemicals producers in industrial zones linked to export hubs. International firms with the right technical expertise will be crucial to this process. With this strategy in mind, the Emirate's International Petroleum Investment Company (IPIC) has made a series of carefully considered investments in international firms with technologies that will ensure that the dream eventually becomes reality¹⁸. Examples of these investments include the Cosmo Oil Company, Compania Espanola de Petroleos (CEPSA) and the EDP Group¹⁹.

Over the course of the coming decade, the governments of the Middle East will deploy their petrodollars to ensure that petrochemicals manufacturing constitutes the main part of their industrial base. This will be achievable due to the availability of low-cost energy and

feedstock. The region's transition to a global center of petrochemicals production is already underway. Despite the global financial crisis, petrochemicals capacity in the Middle East grew by 3.7%, at a time when manufacturers in the US and Europe were forced to either cut production or close their facilities²⁰. Although ethylene has been the primary petrochemical produced, the latest projects planned for the region aim to create higher value and more diverse products. Due to the growing shortage of gas, particularly ethane, many producers have turned to alternative feedstock such as naphtha. However, since naphtha is more expensive, producers will need to construct huge plants capable of exploiting economies of scale, and where possible integrate them with refineries to realize cost synergies. Enter the IOCs via the joint venture mechanism. In partnership with Sumitomo Chemicals, Saudi Aramco has formed the Petro Rabigh JV. The resulting output will include polyurethane building blocks, metallocene-based elastomers, glycol ethers, and nylon among others. Both companies are now gearing up for Phase 2 of Petro Rabigh²¹. This will include an Aromatics complex and various other packages such as acrylic acid and cyclohexanone. Due to the highly technical nature of the expansion, the assistance of private players with the appropriate design expertise is being sought. In this regard, several international engineering consultancies are partnering with EPC contractors to bid for the work. Japan's JGC Corporation has already secured the FEED work²². Upon completion, Phase 2 is forecast to produce over 2m tons per year of specialty chemicals and products²³.

Unfortunately, the prospects for private sector involvement in Qatar's petrochemical space are less clear. Although it has built a dominant position in the liquefied natural gas (LNG) industry, Qatar's petrochemicals potential is under-realized. QPs own

timing has been less than ideal particularly since its plans to expand ethylene production emerged at the peak of global demand. Between 2005 and 2007, Qatar signed three initial agreements with ExxonMobil, Total, and Shell to develop new petrochemical projects using ethane as feedstock. These agreements are now uncertain due to Doha's moratorium on the development of its North field until 2015, which could potentially lead to feedstock shortages. It is believed that ExxonMobil eventually ended talks with QP because of this. Nevertheless, the eagerness for the IOCs to become involved in Qatar's petrochemicals industry was clear. Total's methanol-to-olefins (MTO) technology was developed for precisely such an opportunity. Shell eventually succeeded in becoming QP's first partner at a new complex at Ras Laffan that will utilize mixed feedstock²⁴. Partnering with Shell made economic sense since it was part of a wider strategic co-operation with the NOC that extended throughout the energy value chain. However, the extended timeline of talks with QP potentially indicates that the issue of sufficient gas and liquid feedstock availability is not entirely resolved²⁵.

Oil field services

Since 2003, the MENA oilfield services (OFS) market has undergone a period of heavy investment. Over the next five years, the region will see strong growth in hydrocarbon production as the world becomes increasingly reliant on oil supplies within the region. In order to attain forecast production levels, drilling activity, both on and offshore must grow at a dramatic rate thus increasing demand for rigs and associated drilling services. OFS in the region are provided by a host of private players, both international and domestic. Drilling and work over expenditure across the MENA region is forecast to increase by over USD 10bn to reach approximately USD 28bn by 2014. In addition, work over and intervention expenditure is set to increase year over year, in order to counteract the effects of production

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decline within the region's more mature production zones²⁶. While the international OFS players offer a broader suite of services, local entities focus on specialized services such as cementing, coil tubing, drilling, etc. NOCs have been keen to encourage the growth of local private players in order to gradually reduce their reliance on IOCs like Baker Hughes, Schlumberger, and Halliburton. In 2004, Kuwait Oil Company's (KOC) Drilling Operations Group commissioned a study to examine the potential for further expanding the OFS market²⁷ in order to support its 2020 production target of 4m bpd. Preference would be given to local private companies that would over time contribute leading technological solutions, employ more Kuwaitis in the OFS sector, and achieve high health, safety and environmental (HSE) standards. From a technical standpoint, KOC was keen to encourage partnerships between local and international companies to help facilitate technology transfers. This model was employed by the Gulf Drilling and Maintenance Company (GDMC), and Kuwait Drilling Fluids (KDF). GDMC had a JV agreement with Dresco for crucial coil tubing technology. MISWACO had a 49% equity stake in KDF, thereby providing the latter with access to a state-of-the-art R&D center in Houston. Partnering with international companies that offer proprietary solutions has been an effective way to ensure that the local companies retain their competitive edge.

Certain local OFS companies have leveraged these partnerships to such a degree that they now compete across several markets in the region

Certain local OFS companies have leveraged these partnerships to such a degree that they now compete across several markets in the region. One example of this is Abu Dhabi based AlMansoori Petroleum Services (AMPS). Established in 1977 as AlMansoori Specialized Engineering, it currently has operations in Egypt, Oman, Saudi Arabia, Iraq and the UAE. In order to gain access to specific technologies and licenses, AMPS has pursued both outright acquisitions and JVs. In 2007, it bought UK-based Target Energy, which had directional drilling capabilities. It also acquired a Thailand-based logging and perforation company, which helped it obtain an explosives license for the GCC. Its most recent JV took place in 2010 when it signed an agreement with US based Key Energy, a drilling work company²⁸. AlMansoori is a good example of an entity that is continuously acquiring technical knowhow, and building alliances with the right international players to become the type of local private company that the NOCs want to engage.

The private sector opportunity in some OFS markets is less certain. In Iraq, although the market potential is huge, only five OFS companies have been invited to participate in the country's existing fields. Four of these companies are Weatherford, Halliburton, Baker Hughes and Schlumberger. The fifth is local company Oil Serv. Companies not aligned with these five will not have

access to the market. However, experts believe this will change in the medium term when subsequent rounds of bidding will include other players that have the technical capability²⁹. It is entirely likely that the Iraqi government will continue to encourage other private local companies, such as Oil Serv, in much the manner that KOC has done in Kuwait. Doing so will establish a tier of local companies that can operate in conjunction with the IOCs to restore the nation's oil sector, and create a pool of Iraqi human capital in the process.

Conclusion

The relationship between the NOCs and IOCs has evolved significantly since the days when the 'Seven Sisters' – an alleged IOC cartel³⁰, controlled global oil production and the price that local governments got paid from it. Although the right balance of power seemed to be in place at the start of the new millennium, the NOCs now have firm control over their own resources. In the aftermath of the global financial crisis, IOCs (i.e. certain super-majors) are reassessing their role in the region, due to concerns regarding the feasibility of some NOC sponsored projects. In cases where IOCs have pulled out, less risk-averse firms such as Occidental have stepped in to fill the void. Going forward there will be opportunities for the IOCs, or any private player that has specialist technology and skills that caters to the specific needs of the NOCs. Those that can offer eco-friendly solutions and are willing to employ and train local talent, will be viewed favorably. In the longer term, locally grown oil field service companies, having benefited from international partnerships, will grow in sophistication and widen their geographic footprint. They will undoubtedly play a crucial role in helping achieve their respective government's ambitions for the wider sector.



Endnotes

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