IRAQ'S OIL FUTURE:
Finding the Right Framework

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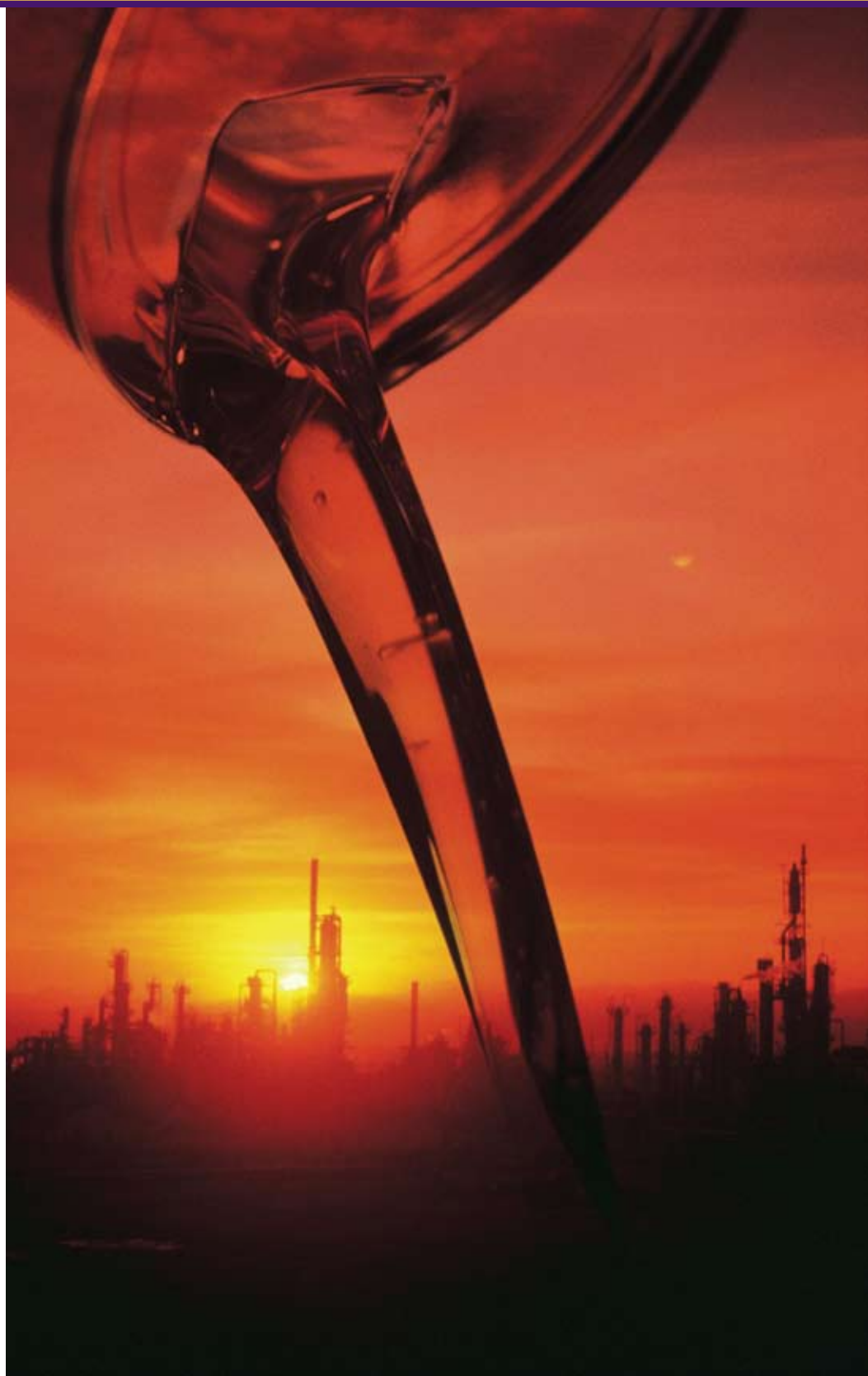

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EXECUTIVE SUMMARY

Iraq is a country in transition. The legacy from long years of suppression and conflict has left what could have been one of the world's richest nations in widespread poverty. Today Iraq endures debilitated infrastructure and conflicting tensions as to how swiftly its world class hydrocarbon wealth should be developed and its revenues distributed.

Many questions are being raised.

At what pace does Iraq want to develop its oil resources? What is Iraq's production ambition and what are the possible scenarios for the next decade? What level of investment is required to achieve the various goals that have been enumerated? How can the priorities for the petroleum sector be managed alongside the competing demands internationally for resources, human and financial for the reconstruction and development of the wider economy? How much can and should the State accomplish on its own and what are the consequences and possible alternatives? What role can the Iraq national Oil Company (INOC) play in achieving this?

In particular, can new forms of partnership between the state oil company (INOC) and investors from outside be designed and what role will or should the International Oil Companies (IOCs) play in such a partnership? If this is the way forward, how should the IOCs adjust their procedures and policies so as to maximise the value to Iraq from their involvement? How can IOCs' involvement ensure that the Iraqi Government's control and sovereignty are respected and sustained free from external influences? What are the realities of different fiscal arrangements? Which arrangement suits Iraq the most? What model should Iraq adopt in developing the best regulatory and fiscal framework for the necessary expansion of its oil production which hopefully lies ahead? Is there a model from the Middle East or should Iraq look further a field to ones in the OECD such as those developed to suit North Sea conditions? Should Iraq follow the Saudis or the Kuwaitis or any other of a dozen different regimes now in operation around the world?

The broad and over-arching answer embracing these many detailed questions is that Iraq should follow the Iraqi model. It should build a robust framework uniquely suited to Iraqi conditions, needs and aspirations. The more detailed questions and answers should start from there. Policy makers in the Iraqi oil sector should certainly look closely at the experience of other countries and learn from both their successes and their failures. It is a misguided planner who ignores the lessons of oil development which the world has to tell, especially at a time of vast uncertainty and unprecedented change in oil markets.

But every country is special. Every country must carry the whole-hearted support of its people for the handling of its precious resources, and for Iraq, the prizes for successful progress are without parallel in its history. Despite past tragedies there is every reason to hope that Iraq can now move to the forefront again not just as a major oil producer but as a leading force and influence both in the region and on the world stage.

With that background firmly in mind, the purpose of this study is to assist in providing Iraqi policy makers with an objective assessment of the various fiscal and regulatory frameworks that they could adopt or adapt for the development of their oil and gas sector. The study provides a menu that the Iraqi policy planners may find useful and can consult, while elucidating the reality behind the misguided myths that only serve to create obstacles towards building a strong economy for a proud nation. It is grounded in a sound and detailed analysis of the fiscal and regulatory frameworks from which Iraq can choose. The study does not attempt to impose one single course of actions; different options, opportunities and conditions are considered.

It does not take sides; it simply considers the contractual framework that will serve best the Iraqis interests.

Many instructive examples around the world have been examined to show how both transition and developed economies have successfully and swiftly used their oil and gas wealth to improve dramatically the standard of living for their people. Equally there are examples of less successful evolution of petroleum potential.

The study's headline conclusion is that if Iraq wants to efficiently and sustainably enhance production, deploy the latest technology, access much needed capital, then outside support will be essential. The strains on internal investment resources will be too great if the 'go-it-alone' strategy is adopted. On the other hand, exclusive reliance on IOCs is neither an acceptable nor a practical arrangement. The most persuasive contractual formulation is likely to be a hybrid solution involving both Iraq NOC and the IOCs. This is the route which round the world has proved to be the most commonly adopted strategy; and which all experience suggests can meet the required goals and satisfy political expediency.

The development of a successful hydrocarbon sector in Iraq, as in any other oil and gas producing nations, should be built upon three essential pillars. These are: a well resourced technically competent NOC, disciplined IOCs' operations within the umbrella of a long term NOC/IOC relationship, and a framework of good governance which delivers a competitive fiscal regime and fit for purpose regulatory code. If one of these pillars is missing, the foundation of the sector will be weakened.

One of the most critical choices that the Government has to make is in respect of the fiscal arrangements. A very wide spectrum of relationships exists between host governments in oil producing countries and IOCs. At the extremes, one finds either 100% private ownership of the hydrocarbon resource or absolutely no involvement of private companies. However, the majority of oil producing countries have developed arrangements which lie in between these two poles, with a strong role for the domestic NOC hand in hand with incentives for IOCs — each with its own fiscal terms and arrangements.

Attracting IOC investment is about accelerating the pace; IOC investment is a means to an end. It creates space for State resources to be diverted to other priorities as well as providing access to early revenues.

Iraq offers a range of opportunities, from producing large fields, to fields awaiting developments to new exploration. There is no one fiscal structure that could or should be designed to cover all such investment opportunities. The suggested approach is therefore to move towards a hybrid model, which is carefully designed to Iraq's conditions and Iraq's best interests.

The essence of these new arrangements is that the Iraqi Government must always be in control of the key strategic decisions that set the objectives for the evolution of the hydrocarbon sector this is understandable and is the norm in most hydrocarbon provinces. Company operations take place within a tightly defined regulatory framework which devolves operational flexibility to investors. Iraq will need to draw on the skills and energies of the Iraqi State authorities *and* on the best and most advanced resources from the private sector, both domestic and international. Government sovereignty can and must be fully secured. External IOC investment in no way diminishes or sacrifices State control. Effective regulation is THE key to effective state control of the oil resource. Iraqis have the capability to put in place a regulatory and fiscal regime that provides Industry with a competitive framework but leaves Iraqi with the vast majority of the economic rent.

It merits repetition that it is for Iraqi people and through them their elected representatives to shape all the decisions with respect to development of their petroleum resources.

Despite the clearly changing patterns of energy consumption round the globe, and the growing evidence that we are now in an era of major transition to a new global energy mix, oil and its many refined products will remain at the centre of economic progress and industrial advance for the foreseeable future. This is therefore Iraq's opportunity. Wise judgements and carefully crafted policy must ensure that this opportunity is not missed.

Section 1:

INTRODUCTION

The history, geography and socio-politics of each nation create unique conditions, needs and patterns of development. In the Iraqi case the needs are those of a nation which is relatively young, emerging from a destructive conflict, which is located at the epicentre of Middle East rivalries and conflicts but which possesses oil and mineral resources on a world-beating scale.

The requirement is therefore to accelerate full economic recovery and social advance swiftly and to do so by mobilising both internal AND external resources, both public and private, governmental and entrepreneurial, to the full. The Iraqi people deserve nothing less.

The catalyst is the expansion of oil exploration, development and production. The process interacts with social and political development. The faster the revenues from oil can be grown, the more rapidly can the benefits in terms of living standards, public services and social stability be secured, in turn creating the conditions for further oil investment and expansion as well as broader diversification of the economy.

This Study seeks to examine the most favourable ways in which this can be achieved, providing always that Iraq and its people retain effective control over the development of their resources. It aims to demonstrate that it makes perfect strategic sense for the Iraqi authorities to create the option to call on both domestic and international resources in full measure to move along this path and to seek the appropriate balance between the two. The goal is the restoration of the wellbeing, security and cohesion of all the people of Iraq by the swiftest sustainable route.

The ingredients for overall advance lie in both re-building national capabilities at all levels and in calling on international capital, technology and expertise to combine with national endeavours. To exclude vigorous international involvement in the name of narrow nationalism is to deny directly the rights of the Iraqi people and to delay and frustrate their legitimate hopes for improvement. Those who oppose international investment may well have genuine motives but these sentiments are based on fear, inadequate information and a deeply flawed analysis.

Resource nationalism, although appealing — especially when presented as resource patriotism — is far from equating with the best interests of the Iraqi people. Iraq's unhappy past offers a uniquely clear example of the costs and dangers of domestic monopolization of the oil industry, and the obvious benefits of a balanced partnership (which may well require novel qualities) with international enterprise and complimentary inward investment.

The myth that all such outside involvement is part of an attempted grab of Iraqi national resources is superficially appealing in populist terms and persuasive. But close examination suggests that it is perhaps little more than a cover for an underlying ideology that served the 20th century very poorly and which elevates the political classes at the direct expense of ordinary people.

While many major international companies have much to learn about creating the most sensitive and respectful partnerships with their host nations and host institutions, it is only along such a route that an early and sustained improvement in Iraqi welfare and political health lies.

Translated into the oil sector this means finding the appropriate balance between national overall control of oil resources and the necessary incentives to international companies to invest and contribute to industrial expansion and restoration of the economy. The more successfully (and swiftly) this formula can be found and established, the greater the opportunities for Iraq to deploy its own sorely limited resources and technical abilities on social and infrastructure priorities. Such a policy enables the International Oil Companies (IOCs) to deploy their skills, technology and resources, within an Iraqi established regulatory framework and consistent with the nations objectives, to assist the growth of Iraqi oil production.

The essential and strategic task is to move away from the adversarial perceptions of antagonism between National Oil Companies (NOCs) and IOCs which conventional analysis all too

often presents, and to forge a new and more modern partnership and create conditions which are constructed to secure and sustain mutual advantage. This new partnership must respect the values of transparent and balanced terms of engagement such as those promoted by the Extractive Industries Transparency Initiative and by the United Nations.

The world has changed from the days when remote Governments and lofty corporations could impose their plans and solutions on a compliant population. The people of Iraq, like any other society, today want their full say in the future arrangements of their country, and especially in the best ways for using its great resources for the public benefit. This demands something far more subtle and sophisticated than a diet of populist notions about clinging on to 'our oil' and keeping the foreigner at bay.

The Iraqi Opportunity

It is widely acknowledged that Iraq has one of the world's largest reserves of petroleum. However existing production levels of circa 2–2.5 million barrels a day (bbl/d) are falling considerably short of the levels that Iraq could comfortably sustain. Near term revenue needs are an obvious priority to rebuild the economy and improve the prosperity and standard of living of the long suffering Iraqi people, who now have one of the lowest standards of living in the world. Considerably higher production levels are desirable to provide the necessary financial resources to achieve this.

But are they achievable? This is the question facing the Iraqi people: how best to maximise the economic potential of the hydrocarbon resource for the nation? How can the priorities for the petroleum sector be managed alongside the competing demands internationally for resources, human and financial for the reconstruction and development of the wider economy?

Part of this assessment must include an objective evaluation not just of the net contribution that could be made by foreign investment in the oil and gas sector but also of the best and most supportive way in which this should be engineered. This would free up State resources for other pressing priorities. The issue of the nature and form of foreign investment in the oil sector is solely a decision for the Iraqi people but it is important that such critical decisions are made on an informed and objective basis free from political dogma and from the pre-conceived, and often irrational, ideas of the past, which deprived Iraq of billions of dollars.

Dissenting voices are still urging Iraq to return to this barren route from the past, and there has been no lack of emotive language about the prospect of Iraq's oil being 'stolen' by foreign predators. A clear and objective analysis must rise above such views and look at real benefits rather than false fears.

The division of the value from petroleum extraction between the state and investors has long been controversial and the current high oil price is reenergising this debate around the world. Of course the Iraqi people are proud and resourceful and they could choose to reject such a course. However, it is argued in this study that such an approach would most likely lead to a sub-optimal and slower growth in petroleum production and deny the state the near-term revenues it desperately needs. Given the world class scale of the Iraq

resource potential it is inevitable and appropriate that close and meticulous interest is taken is such critical policy questions.

The purpose of this study is to assist in providing Iraqi policy makers with an objective assessment of the merits of investment by the IOCs and potential contractual frameworks that could be created. Although the conditions in Iraq are new and unique, requiring creative and innovative approaches, there are many instructive examples around the world of how both transition and developed economies have successfully and swiftly encouraged IOC investment to improve dramatically the standard of living for the host nation. Equally there are examples where IOC investment has been actively discouraged leading to a less successful evolution of petroleum potential. Examples of both will be explored in this study.

There must be no question of this being an all or nothing policy choice. The most likely and desirable course would be for a range of contractual formulations to be constructed to match the nature of the petroleum development priorities of the Iraqi Government. Contract structures for the redevelopment of existing fields are likely to be different to those for new fields or exploration. While the unit extraction costs of Iraq petroleum are likely to be low, given the large scale of the resource base and availability of large field sizes, it is important that the best technologies and leading edge reservoir management techniques are applied. The challenge of maximising recovery applies to all reservoirs, whether perceived as 'easy or difficult' in all fields in all countries. Iraq is no different. It is also envisaged that this study, in elucidating the role of IOC investment in accelerating the development of petroleum resources, could have wider application beyond Iraq. Policy makers in other developing nations facing similar choices in formulating the role of IOC investment should find this study of use in shaping such critical decisions.

Content of This Study: The Sequence, the Analysis, the Argumentation and the Recommendations

The Content of the Study which follows falls into ten further sections, including a Conclusion section and a summary of the Key Messages which emerge.

Section 2 reviews the current situation in Iraq and explores the colossal potential ahead for the country and how its vision for a better future can best be realised.

Section 3 dissects the various options and models from which Iraq can choose in moving forward towards its goals.

Section 4 presents a strategic structure which might be followed by Iraq's authorities and policy-makers, based on the concept of three pillars required to build a successful oil and gas sector.

Section 5 defines the way in which a new partnership could operate between national and international interests to enable the successful fulfilment of Iraq's ambitions.

Section 6 lays out how the contribution of IOCs to these aims can be maximised and how their role must be tailored to Iraq's needs.

Section 7 analyses the methods by which effective Iraqi control can be maintained over the development process and the steps by the Iraqi administration and its agencies which could lead to the most fruitful progress of the new partnership.

Section 8 sets out exactly how the process can yield the essential early flows of cash resources into the Iraqi system, before expanded production gets under way — in line with the imperative for Iraq to accelerate the overall recovery process.

Section 9 provides a detailed examination of the various contractual options, drawn from governments round the world, from which Iraq can now chose in order to manage its oil and gas sector. It sets out the main principles that should be used when evaluating and implementing the most suitable fiscal package in Iraq's situation.

Section 10 draws the whole analysis and the implied lessons together and presents the recommendations and guidance — reinforced with facts and examples at each stage — which Iraq should find most useful as it approaches the moment of key decision about its future — a moment which could also prove to be of profound significance in shaping world oil production and markets in the coming period.

IRAQ — YESTERDAY, TODAY AND TOMORROW

Why did the past fail?

Is the long night for Iraq ending?

How large is the potential?

After having lost decades of opportunity Iraq today could be on the threshold of the greatest period of prosperity for generations. Improvements in the security situation are being consolidated and the challenge remains to establish the right framework for a major expansion of the country's substantial oil and gas resources.

Growing Reserve Estimates

According to the Oil and Gas Journal, Iraq has the world's third largest proven petroleum reserves with 115 billion barrels of proven oil reserves.

However, these estimates are dated and almost certainly conservative. They have not been revised since 2001 and are largely based on 2-D seismic data from nearly three decades ago. In May 2008, the Iraqi Deputy Prime Minister, Braham Saleh, reported revised assessments indicating that his country has the world's largest proven oil reserves, with as much as 350 billion barrels. This figure exceeds that of Saudi Arabia's estimated 264 billion barrels of oil.

Whatever the estimates, it is clear the potential for reserve additions and sustained production growth is exceptional. Large areas of the country remain relatively under-explored and broad regions, particularly in Western Iraq, remain undrilled. Geologists and consultants have estimated that relatively unexplored territory in the western and southern deserts may contain an estimated additional 45 to 100 billion barrels of recoverable oil. Similarly, although Iraq's proven natural gas reserves are estimated to 112 trillion cubic feet, the country's potential could be much higher.

Dismal Production Levels

In 2007, Iraq's upstream crude oil production averaged 2.1 million barrels per day (bbl/d), down from around 2.6 million bbl/d of production at the start of the decade. Iraq has struggled to maintain its pre-war production capacity of 2.8 to 3.0 million bbl/d, due to the deteriorating security situation, lack of investment, smuggling and escalating acts of sabotage and increasing level of insurgency attacks on export facilities and pipelines. For instance, average production at Kirkuk and the northern fields of around 200,000 bbl/d is only a fraction of the pre-war peak of around 680,000 bbl/d, due to reservoir damage from gas and water injection as well as shut-in export routes.

Natural gas production has steadily declined over the past decade-and-a-half, reportedly due to an associated fall in oil production and deterioration of gas processing facilities. In 2005, dry natural gas production was approximately 87 billion cubic feet (Bcf); down from 215 Bcf in 1989. Approximately 60 percent of associated natural gas production is flared due to a lack of sufficient infrastructure to utilize it for consumption and export. In today's world of high prices and concerns in respect of supply security it is deeply disappointing that such vast quantities of gas are wasted. It must be a priority for Iraqi policy makers to end this waste and develop options to commercialise these valuable gas resources while exporting the additional oil currently used for power generation.

Today Iraq's economy, like that of all oil producer countries, is benefiting from higher oil prices. It is estimated that the Government of Iraq earned $41 billion in oil revenue during 2007. Clearly, much larger sums would accrue if production could be increased, and of course the whole economy will gain tremendous benefits if revenues are fairly distributed. The oil sector provides about 95% of Iraq's foreign exchange earnings.

The Potential — Immense but is it in Reach?

The Iraqi Government has announced, with some voices of dissent (see below), a goal of 6 million bbl/d of sustainable production by the end of the decade though 4–5 million looks more realistic, while unofficial figures even suggest that a level of 6 to 8 million bbl/d is in reach by 2020. But the Iraqi Government stated that between $25 and $75 billion in investment is needed to get Iraq's sector producing at 6 million bbl/d. And although the security situation has improved considerable political obstacles remain to be overcome.

The opportunities offered by Iraq's oil and gas potential are immense and world class. They can be catalogued as:

- The existing producing fields, which, according to the Government of Iraq, include around 9 fields that are considered "super giants" (over 5 billion barrels reserves) as well as 22 known "giant" fields (over 1 billion barrels).
- Discovered fields that need to be developed.
- Yet-to-find fields that need to be explored. The Western Desert region remains largely under-investigated.

Large capital investment is necessary not only to open up the enormous potential but to sustain production from existing fields, to both meet domestic consumption and increase exports. Just a fraction of Iraq's known fields are in development. Raising oil production remains critical to providing Iraq with the resources needed for its reconstruction and economic recovery.

After more than a decade of sanctions and two Gulf Wars, Iraq's oil infrastructure needs extensive modernization and investment. Iraq's petroleum sector faces technical challenges in procuring, transporting and storing crude and refined products, as well as problems of managing price controls and imports, fighting smuggling and corruption, improving budget delivery, and managing sustainability of operations.

Long-term Iraq reconstruction costs could reach $100-billion or higher, of which it is estimated that more than a third will go to the oil, gas and electricity sectors. The World Bank estimates that at least $1 billion in additional revenues needs to be committed annually to the oil industry just to sustain current production.

There is also a need to rehabilitate the gas infrastructure of the country and to develop the utilisation of gas for domestic power generation. In the longer term, Iraq will also need to promote the viability of LNG and Gas-to-Liquids technologies, and to market these products, in order to realise full value from its significant resource base. Future gas development will be linked closely with expansion of its oil production capacity as more than 70% of Iraq's gas is associated with the giant oil fields. Longer term Iraqi gas could be exported to Europe via the proposed Nabucco gas pipeline linking the Middle East to European markets.

Iraq Oil Law

The Americans have been anxious to influence Iraq's future oil framework and its legal dimension, and it is alleged that much of the drafting has been under American supervision. If so, this is evidence of a maladroit American approach and accounts, at least in part, for the continuing political controversy, suspicion and delay surrounding the drafting of the new law.

A further major challenge to Iraq's development of the oil sector is that resources are not evenly divided across sectarian-demographic lines. Most of the oil fields are in the Shia-dominated south, while the best prospects for future drilling are in the Kurdish north, with few resources in control of the Sunni minority. Control over rights to reserves is a source of controversy between the ethnic Kurds and other groups in the area. Currently, the Ministry of Oil has central control over oil and gas production and development in all but the Kurdish territory through its two operating entities, the North and South Oil Companies. The Kurds seem to be operating independently, with more than 15 PSC's already signed despite the opposition in Baghdad.

Despite the numerous difficulties and obstacles, a legal framework for investment in the hydrocarbon sector remains a main policy objective. That framework should enable effective cooperation between federal and regional authorities.

The Iraq oil law, also referred to as Iraq's Hydrocarbon Law was first presented to the upper house of Parliament for review on February 27, 2007. It is still waiting enactment. The draft law focuses on upstream development and lays out the conditions for investment and international participation in the sector. The law also details a governance model which includes the proposed re-establishment of the umbrella operations company in the same form as the former the Iraq National Oil Company (INOC). This would go alongside a central regulatory body, a Federal Oil and Gas Council, to review contracts.

The draft enacting bill allocates oil revenues between Iraq's 18 provinces based on their population levels.

Nouri Al Maliki, Iraq Prime Minister, describes it as "gift to all the Iraqi people... this law has been based on our national interest. It will encourage the bringing together of all component parts of the Iraqi people". The US has maintained that agreement on the fair distribution of Iraq's resources is necessary for national reconciliation.

The original draft law laid out a proposed plan for domestic control of oil and gas fields and a framework for revenue sharing among governorates. But following discussions between cabinet members, parliament and other groups in July 2007, the proposal changed and the new draft will be considered at a later date by the yet-to-be established regulatory body.

Perhaps inevitably, the whole enactment process is being held up by political disputes in parliament. The Kurds are in fact opposing widening central control over planning, upstream development and revenue distribution The Kurds and the Shia have been at odds over whether regional governments should have the right to sign contracts with oil companies. Kurdish officials have been unwilling to give Baghdad veto power over the development of the industry within their territory. But officials in Baghdad insist that only the central government should direct oil industry development across the country. Mr. Shahristani's decision to bypass the oil law reflects his government's irritation with the Kurdish regional government, which has passed its own oil law and has been signing exploration contracts with small and medium-sized oil companies. Mr. Shahristani has warned that these contracts are illegal and that companies involved in the contracts could be blacklisted.

Numerous practical realities face the Iraqi oil industry today. They create a tantalising contrast with the possibilities for Iraqi oil which ought now to be coming into reach. In the words of Shell's CEO Jeroen van der Veer: "You need basically ... green lights before you can work...first of all you have to know the rules of the game." If this and the security requirement were met, then companies like Shell and its many peers could create a "win-win situation" in Iraq, "but it needs those two conditions."

Enlarging the Vision

There are doubts in some minds about the wisdom of raising Iraqi oil production beyond the pre conflict levels. It is apparent that in certain quarters within the Iraqi administration the view exists that the expansion of oil production should be tightly limited. It is argued that there should be a ceiling on output of 3 million bbl/d.

The contention is that the oil is best left in the ground for the future benefit of the Iraqi people, that the Government take from 2.5 to 3 million bbl/d is as large as is required and that foreign investment in the oil industry, to raise output to 5 or 6 million bbl/d is therefore unnecessary and, in the opinion of some, undesirable.

The argument has echoes of the policies favoured by the main OPEC producers in the nineteen seventies and eighties, when it was contended that the oil resource should be depleted at a very restrained rate to ensure future reserves. The same idea, characterised as a depletion policy, had a brief airing in the UK when the North Sea was first being opened up.

But the conditions now are entirely different, as is the situation of Iraq. Not only is it the highest priority in both political and security terms that Iraq generates the largest and most rapid revenue flows, for the widest possible distribution to a deeply impoverished populations and for the early restoration of a debilitated infrastructure. But, also, it is highly questionable whether retaining oil in the ground beyond the demands of a balanced reserves policy, is the best investment for Iraq's future.

Crude oil prices have been very high since mid 2007, buoyed up significantly by fast growing Asian demand and geopolitical concerns. There is no certainty that they will remain at mid 2008 levels either in the short or the medium term.

In the short term, there could be a significant price correction. As, after the usual brief period of inelastic consumer response, the effects of the doubling of the crude price in less than twelve months sink in and both consumer reaction and lower economic growth weaken the demand pull. Evidence of this can already be found in unsold cargoes of the heavier crudes, while Chinese economic expansion will be curbed by inflation fears and the removal of subsidies on refined products such as gasoline. The same pattern is occurring in the hitherto subsidised sectors of other economies in the Middle East.

In the medium term the oil-consuming world is now driven by a new determination, not present back in the nineteen eighties, to meet global warming challenges by curbing fossil fuel demand in all forms, but especially demand for oil by the transport sector, the largest oil consumer.

Extensive measures are already being taken in both Europe and the United States to 'dethrone' oil and reduce imported mineral oil dependence. The significant world-wide switch to biofuels is a clear example (although this is having undesirable side effects in terms of food prices which may lead to some slowing down in the trend).

All this points to a future in which, while the price collapse of the 1980s may not be repeated, there will be a distinct moderation in world oil demand, while supply sources, developed during the high price period, come on stream.

It is these considerations which have led several major oil-producing countries to put their revenues in Petroleum Funds, or so-called sovereign funds, as the best and safest investment, rather than leaving oil resources undeveloped and unexploited. Some of these funds have been long established, such as in Norway and Kuwait. Others have been opened up more recently. Iraq should certainly be following the same prudent path. It should be emphasised that building up a Petroleum Fund need be in no way to the exclusion of sensible and expanding near-term expenditure on Iraq's recovery needs, nor on some element of careful depletion policy. A production level of 4 or 5 million bbl/d would cater for all three requirements.

But to constrain production for motives inspired by narrow nationalism, at the present stage in the evolution of world energy patterns would seem to be both short-sighted and directly against the interests of the Iraqi people.

On all counts the best investment for Iraq must surely be in, first, accelerating by all possible means the flow of funds into economic revival and the restoration of Iraq as an advancing nation with high technical skills and a strong and united social infrastructure, and, second, in building up sound investments in a less oil-dominated future.

If Iraq seeks models of the best pattern for the deployment of oil resources it needs look no further than its Arab neighbours, such as Kuwait or the UAE. All of these nations are now committing large resources to alternative energy development and to less oil-dependent economies and lifestyles.

Iraq, too, should be allowed to share in this developing vision of a better, more stable and more sustainable life pattern throughout the Arab world. It has the resources to follow such a path. It now needs the policies not to hold it back, in the name of outdated and inward-looking ideologies of the past, but to make this happen and to bring Iraq back, fully and proudly, into the community of nations.

Section 3:

THE CHOICES FACING IRAQ

Choosing the best policy path

Why Iraq is at a critical point?

What is the best way forward?

Iraq is painfully emerging from the most destructive period in its history. Despite being endowed by the circumstances of history with some of the most extensive hydrocarbon resources on earth, it has been driven through periods of political repression and the darkest forms of nationalism. Recent events have deepened the misfortune, characterised by a stream of violence and insecurity, culminating in large scale destruction and conflict.

Yet the very depths to which Iraq has descended provides a dramatic and almost unique opportunity to recover and prosper — unique because its massive oil and gas resources, having been mismanaged for decades, now offer an escape route from the past such as few other countries have ever had presented to them. Everything in Iraq's future now depends on making the right policy choices in the handling and development of these resources. Iraq is not hampered by any

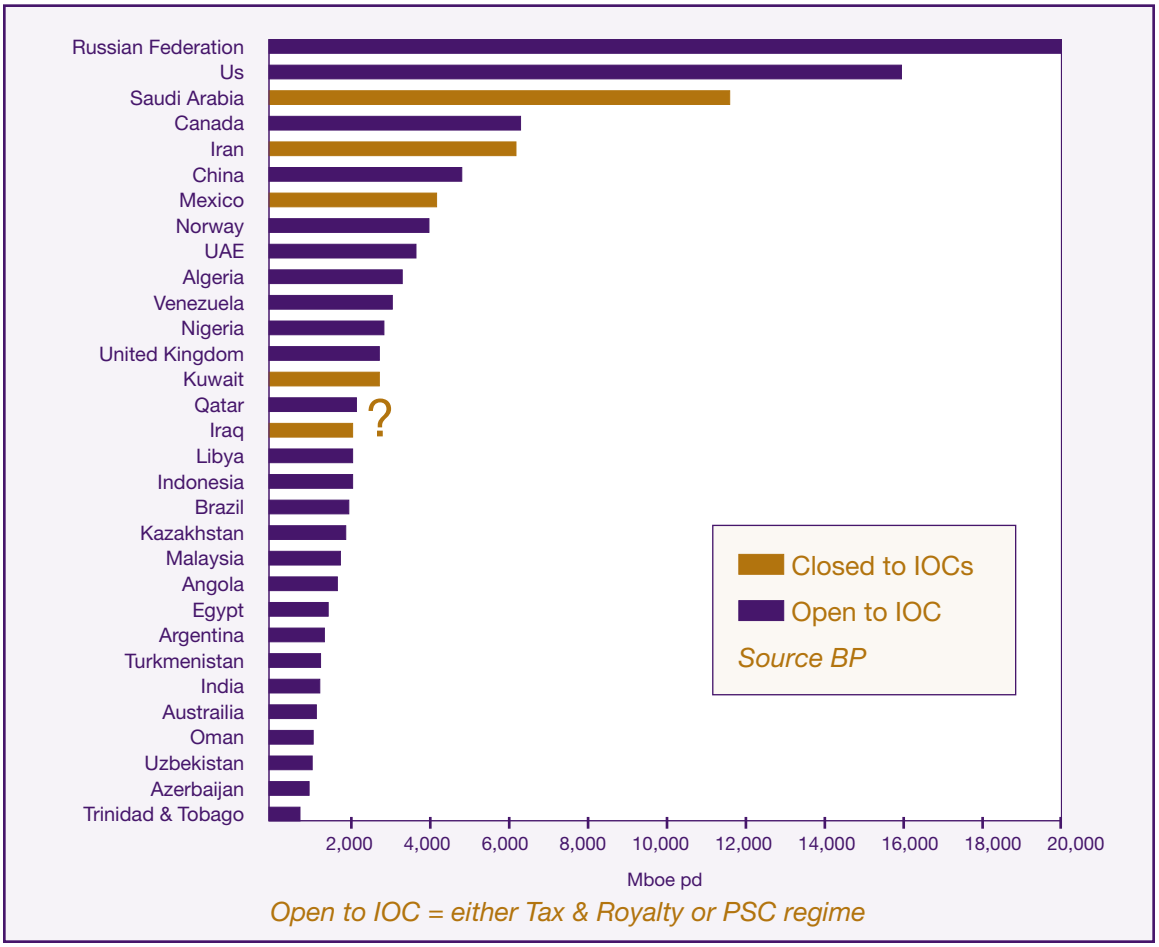


Figure 3.1: Leading Oil & Gas Producers 2007 — Most Open to IOCs

substantive licensing legacy and can to a large extent start afresh with a blank sheet of paper. This should facilitate the construction of a simpler and better targeted regulatory and fiscal framework.

Iraq's way forward must be, and can only be, tailored to Iraq's situation and needs. But three broad categories of policy options lie immediately ahead:

1. First, Iraq can attempt to go it alone in developing its oil resources, much as it tried in the past. Under this model, the Government of the producing country concerned formulates and finances an adequate investment program themselves and executes it through an NOC. This approach can certainly work after a fashion and Saudi Arabia is one of the very few countries to have adopted it — although only after many years of reliance on outside oil companies (the original Aramco). To succeed, as Saudi-Arabia found, the need is for an NOC that is fully capable of taking the operations role in upstream asset development. And of course the Saudis were not starting from Iraq's low point, or developing their oil industry from almost nothing.

2. Second, the host nation can encourage the IOCs to take the lead. In this model the Government creates the appropriate regulatory and fiscal conditions for IOCs to make the necessary investments in their upstream sectors. This enables the State to avoid allocating much capital themselves and without developing substantial or adequate internal technical and operating capabilities such as through the creation of an active well resourced NOC. Qatar is a good example of a country that has adopted this approach. The skills required at political and policy level in making this approach attractive and balanced should not be underestimated, but the core investment and operations are undertaken by international firms, both major IOCs and associated service providers, with an appropriate return-sharing arrangement. Most OECD countries follow this model.

3. The third way is to adopt hybrid solutions based on NOC-IOCs' partnerships. This in effect is a combination of the other two options, where an active NOC combines forces with material and significant foreign capital and technical expertise to meet the investment needs of the country. Most oil and gas producing countries, outside the OECD, have adopted this approach (Egypt, Indonesia, etc.) and some inside the OECD (e.g. Norway). This is the broad approach which permits a variety of interfaces between the national and the international partners and allows for experiment and innovation.

Figure 3.1, found on page 13, indicates that nearly all the major oil and gas producing provinces in the world encourage investment by IOCs. (Only the countries in red are not open for IOCs — so far, as this is under review in Kuwait and Mexico).

Although there is no universally winning approach among these three policy options, the question is 'what suits Iraq the most, today?' What is the right template with which Iraq should now best proceed?

To address this central issue we need to identify and analyse some of the unique features of the Iraqi situation at this point in its history and its recovery from chaos. The following summary points need to be considered:

- Iraq is a country in painful and precarious transition, recovering from repression and war, and very heavily dependent on investment in the oil sector.

- Improvements in security and improvements in economic situation will be mutually reinforcing.

- Iraqis are resourceful people; they can do things on their own, but given the current status, it will take decades, especially in the light of rising exploration and development costs, and the serious shortage of equipment and people round the world.

- Iraq needs to swiftly rebuild its financial resources and deliver a sustained flow of investment in order to tackle the long list of economic and social needs. The flow of revenues, if properly handled, will in turn help develop the economy, reduce unemployment and improve security.

- Iraq needs to secure the benefits from a substantial increase in hydrocarbons production. For the last 30 years, the world's richest country in hydrocarbon resources has failed to produce more than 3 million barrels a day and the Iraqis today are among the poorest in the world. This means not only that Iraq has suffered due to decades of mismanagement and underinvestment, but that it is also missing out on the opportunity to share in the flow of sharply increased revenues that other oil producing nations are enjoying with the high oil prices of recent years.

- In Iraq, there are different sets of opportunities: existing discovered fields which cover both producing fields — including five world class fields — and fields which are still awaiting development, in addition to yet-to-find fields. It is often argued that because the risk — both technically and in terms of requirements of risk-capital — is very low there is no particular or urgent need for IOCs support or involvement at this stage. However, even in the case of established fields, Iraq needs to revive and sustain production and boost efficiency to best practice standards. A heavily damaged infrastructure, suffering from many years of neglect, war destruction and sabotage, and with limited capital injected, is massively in need of attention in order to modernise and update all existing facilities.

- In a depletion business, sustained investment is essential to avoid rapid decline. Governments, NOCs as well as IOCs all face the challenge of formulating and implementing viable investment programs to replace, or more than replace, produced reserves. It takes larger amounts of capital outlays every year to just keep production constant.

Looking at the models above it seems plain that Iraq is not going to succeed by the go-it-alone route unless it is content with a lamentable lack of ambition. Not only has this model failed Iraq drastically in the past but once the challenge moves on from existing fields to the detailed exploration and development of large new fields the expertise and resources required are not available domestically. If the target is an increase in production to 6 million bbl/d in the next 10 years, along with the generation of substantial cash flows at the earliest possible stage — even before any new production comes on stream — then the international dimension is unavoidable.

As noted in Section 2, the apparently appealing arguments both of resource nationalism and danger of foreign exploitation of Iraq's resources are to be heard in some Iraqi circles pointing another way — towards a deliberate capping of Iraqi oil production at 3 million bbl/d or less, with the clear exclusion of foreign investment and IOCs participation, except for limited and narrowly drawn service agreements.

Even if this was politically desirable — and it is questionable as to whether this is anything more than an elitist view of sectional interests anxious to preserve their own position — our analysis will show that it may not be feasible. Even to maintain production at the pre conflict peak level of 2.5 million bbl/d will require heavy new investment and outside technical support. To lift output in line with obvious Iraqi interests will necessitate a substantial investment (in both technology, people and capital) from IOCs in collaboration with the INOC.

The second route, going to the opposite pole of reliance entirely on outside IOCs involvement can work, and has worked particularly in the OECD. But in today's Iraq, and in today's political climate it has to be recognised that it is not a practicable arrangement. Far too many delicate and dangerous political compromises colour the Iraqi situation and the concept of IOCs dominance, even with the most sophisticated systems of national regulation l is simply unacceptable to most Iraqis. Deliberate incitement of nationalist sentiments both by populist domestic politicians and by outside ideological propaganda has made this route even less realistic, even though in the medium term it might bring the Iraqi people most benefits.

Realistically, we are therefore looking at hybrid solutions for Iraq as the only types of arrangement that can meet the required goals and satisfy political expediency. It is a pattern of this kind, refined and carefully tailored to modern Iraqi conditions that will work for Iraq. Hybrid solutions of one kind or another have already worked successfully in many other countries, based on varying patterns of partnership between NOC and IOCs. Iraq now has the opportunity to develop its own model on this basis.

In the sections which follow, this study seeks to look at all aspects which assist in determining the best hybrid pattern most suitable to Iraq and most realistically achievable. But some general and preliminary observations are called for.

The IOC-Host Government/NOC interaction does not have to be reduced to a zero-sum game, where what one side wins the other loses. These two entities have different objective functions, different capabilities, different assets and different appetites and tolerance for risk. They are generally complementary, not competitive. In principle, each side possesses what the other side seeks: Governments hold the below ground resources sought by IOCs and IOCs control most of the above ground drivers of the global energy business that governments need.

One possible area where direct cooperation between IOCs and governments can produce benefits for both is early consultation regarding the shaping of a country's hydrocarbon laws. Is this feasible in the Iraqi case? A country's hydrocarbon law should serve the country not only through providing the legal framework for organising and regulating the sector, but also through managing and directing the behaviour of NOCs and IOCs in the best interests of the country. How is this to be done, given the delicate political context and the invariable reluctance in all countries, not just Iraq, to see private sector interests involved in law-making and fiscal policy setting processes?

The pattern has to be an evolving one. The Iraqi Government, while it struggles to establish a new legal, fiscal and general policy framework for its oil industry, has already proposed short (one year) contracts to a number of major IOCs which are innovative in being more than mere service agreements. It is possible to see these contracts as part of a exploratory enabling process which will gradually open out into a new pattern of cooperation.

The ultimate objective of the Government in all initial consultations with IOCs must be to understand more clearly and precisely what needs to be done to extract the most benefit from the IOCs presence in its upstream sector. This is where the innovative thinking is most urgently needed.

Another nexus of cooperation between IOCs and governments would target directly the challenges of high cost technology needs, especially in the increasingly demanding area of enhanced oil recovery (EOR) investments in mature regions. NOCs and IOCs could create joint venture companies specifically dedicated to EOR investments in mature oil sectors.

The next section gathers together these considerations, assessments and requirements and seeks to develop a coherent, relevant and practicable strategy for Iraq over the next few years.

Section 4:

THE IRAQI CHALLENGE: THE THREE PILLAR APPROACH

Where now for the State oil company?

Time for a new partnership?

Sound Governance — how to create the right conditions?

A useful framework for characterising the essential ingredients necessary to create a world class petroleum sector for Iraq is to categorise the range of needs and policies into three distinct pillars.

The three pillars can be categorised as:

1. The creation of a world class NOC capability
2. Partnership and Collaboration — A New IOC Relationship
3. The Governance, Political and Legal Contexts: Establishing the right conditions

Fulfilment of goals in relation to each of these 'pillars' demands an intensive and rigidly focussed agenda of policy development and reform for all three major parties and stakeholders — the national oil company, the international corporations and their ancillaries, and the Iraqi Government and its agencies.

Developing the NOC Role

Iraq's immediate priority must be to develop and strengthen further its own national oil company (INOC), both as an instrument of national and political involvement in oil expansion and as a professional interlocutor to manage the relationship with IOCs and other investors. In the Iraq context, this is both a political and a technical imperative. Ultimately policy makers will need to develop appropriate institutions with clearly defined relationships which separate for example, the aspirations of the NOC, regulation of the Industry and fiscal administration. In other words, there should be a comprehensible separation of power and clearly defined roles between the NOC, the regulator (Ministry of Petroleum) and the tax collector (Ministry of Finance).

However, it has to be recognised that NOCs, especially in poorer countries seeking to grow and expand their oil industries, tend to operate with both priorities and constraints which are not shared by private sector corporations.

Inevitably NOCs tend to have close and interlocking relationships with their national governments, and the INOC may be no exception to this pattern. They are expected to fulfil important social and economic functions that compete for capital budgets that might otherwise be spent on more commercial activities designed to build reserve replacement and production activities.

In many instances there is a risk that they become states within a state,generating unhelpful political rivalries — a situation which the new Iraqi Government is no doubt determined to avoid. As large suppliers of state revenues NOCs have a special role in state budgets; usually they are among the most attractive employers in the country; typically they exert influence on a wide range of energy services (e.g. electric power supply) in addition to hydrocarbons.

Because of their close ties to the national government, in many cases their objectives might include wealth re-distribution, jobs creation, general economic development, economic and energy security, and vertical integration. NOCs may be involved in redistributing the oil wealth of the nation to the society in general. This redistribution can be accomplished through fuel subsidies, employment policies, and social welfare programs among others. While subsidized fuel prices reduce energy prices to the general population, enhance industrial and transportation resources, and protect the domestic economy from the damaging effects of volatile world petroleum prices, the downside is that they are very expensive in terms of lost potential revenues for the national oil company. The artificially low product prices encourage demand growth, inefficient use of fuels, and even arbitrage-based smuggling schemes.

The expanded use of fuels domestically leads to reduced exports and tightens supply in world markets, leading to higher prices in the oil-importing countries. Examples of subsidy programs with these effects include those observed in Iran, Nigeria, and Indonesia among others.

Indeed in the new context of ultra-high crude oil price, it is the governments of oil producing countries in particular that are facing the difficult task of unwinding their fuel subsidies and permitting oil and oil product prices domestically to rise gradually to international market levels.

These objectives may well be desirable from the point of view of the nation's government, and possibly politically necessary. But they cannot equate to the maximization of enterprise value, the stated objective of the private international oil companies, nor will they generate the same incentives or competitive motivations. Nor are the younger NOCs, such as the INOC in an Iraq emerging from conflict, likely to have a marketing culture embedded in their institutional structures, whether upstream or downstream. In some instances the national oil company may also be required to supply subsidized fuels to industries targeted in their nation's development plans.

Although all NOCs respond to their national governments to one degree or another, the amount of influence varies widely. The national oil companies of more developed nations, Statoilhydro in Norway, and Petronas in Malaysia, for example, tend to follow a more commercially oriented strategy than the Nigerian National Petroleum Co. and Petroleos de Venezuela. This is particularly the case where the state oil company has been partially privatised with a significant shareholder base. For the NOCs which remain wholly state owned there is a risk that government objectives largely supplant commercial objectives, and the companies are under pressure to maximize the flow of funds to the national treasuries.

Many of these companies have been found to be less efficient than their partially or fully privatised rivals. They may have a preference to exploit oil reserves for short-term gain. Some also have limited access to international capital markets because of poor business practices and a lack of transparency in their business deals. High oil prices since late 2003 have masked the effect of some of these characteristics in the flow of oil revenues.

A further issue facing INOC, as it has faced other NOCs round the world, is whether the aim is to follow longer-established state oil companies in moving onto the international scene, and becoming, in effect global players. Norway's Statoilhydro is the most striking example of this trend, but others, such as Gazprom, Petronas, and Petrobras, have made similar moves. These are early days for Iraq to send its state oil company into the international environment. But if and when Iraqi oil production begins to place it at the top of the world league, as is possible, the need for INOC to develop a world role, with both upstream and downstream reach, will grow, necessitating a distinct shift in its character from being a purely domestic institution governed by internal, and to some extent non-commercial objectives. Internationalisation is a very productive vehicle for the acquisition of global best practice, be it in technology or commercial expertise, across the Industry.

A final but central question for all NOCs, and again for INOC, concerns the best route to meeting its very large-scale capital needs. Can any NOC tap global capital markets in the ways long familiar to IOCs?

The International Energy Agency (2006) has estimated that over the period 2001 to 2030, the world will need to invest $20 trillion in energy infrastructure to meet the needs of projected demand. The oil sector is expected to account for over $4 trillion (2005 money) in the period 2005–30 alone. To accomplish this level of investment, it is likely that the industry will need to draw on many sources of financial capital. Since 2004, the IOCs have had record-setting profit performances. This financial strength allows them substantial latitude in accessing financial resources. Because their own cash reserves have risen, internal financing is now the norm. Because of their strong balance sheet and income statements, it is likely that they can access world capital markets for financing on relatively favourable terms if required.

For the most part, NOCs are in a weaker position with respect to the capital markets, though a sustained high oil price may change this. Perceptions of relative inefficiency in turning oil into revenues makes them less likely to receive favourable terms from international capital markets. Their obligations to the national treasury to

finance domestic welfare programs, as described above, along with the below market price sale of their products at home, make it less likely that they will have access to enough retained internal earnings to finance optimal levels of exploration and development of oil resources. To the extent that such companies experience a shortage of financial capital, it could result in higher prices and the potential for physical shortages in the future.

If NOCs do gain wide-spread access to the world financial markets, this might not only spur upstream capital investment but might also provide benefits to the companies and their interface with the global market. Compliance with international accounting standards, more business transparency, as well as certain basic standards of corporate responsibility might result from the NOC's exposure to international financial markets.

The above constitutes an assessment of both the strengths and weaknesses which today's NOCs exhibit, and the manner in which they are reflected in the unique situation of Iraq. They amount to a complex pattern of activities which may give NOCs considerable influence internally but which also involve a distraction from the core tasks of producing, and selling oil and oil products.

It is therefore to the outside and international scene that successful NOCs must turn if they are to bring the most and the swiftest benefit to their home governments and peoples. To the extent that IOCs still remain today as the dominant commercial entities on the international energy landscape (although increasingly challenged) this can only mean working to establish new kinds of partnership with international oil, suitable for today's and tomorrow's fast-changing circumstances.

At a practical level one of the most effective ways for NOCs to learn from and emulate the IOC model of efficiency is to participate with them in all future projects in Iraq. It is therefore recommended that INOC takes a minimum equity position in all contracts/licenses awarded to IOC consortia. As a core participant in each Joint Venture established in Iraq it will be able to swiftly learn from the business models deployed by IOCs. Having NOC direct involvement will also benefit the IOC in securing improved alignment with the ambitions of the State and result in a better informed Ministry of Oil with direct access to field and project specific information via the NOC. Funding of the NOCs development expenditure can be a condition of any agreement with IOC consortia.

Partnership and Collaboration — A New IOC Relationship

The IOCs must now be ready to face and adapt to new conditions in contributing most effectively to Iraq's interests and economic development. And in a highly competitive and politically sensitive environment they must be ready to demonstrate that they have a unique contribution for which there is no substitute. They should better articulate that mere service agreements will not necessarily deliver the long term support and input which IOCs can uniquely provide, but that PSCs, suitably tailored, certainly can, if skilfully structured. It is difficult to be too prescriptive and there will need to be intimate and constructive cooperation by IOCs with the Iraqi authorities in working out the details of the most appropriate fiscal regime needed to match terms to opportunities.

A hybrid contractual solution may work best, with the fiscal framework for existing fields being based on technical or risk service but green field opportunities being more suitable for PSCs. It is investment capital on a large scale and top international technical expertise which will be required to secure rapid oil expansion. The dangerous myth that because NOCs can draw on national revenues there is no need for IOCs to bring in capital resources must be exposed. No line of argument could be more calculated to deprive the Iraqi people of the benefits of oil expansion and to shut off Iraqi operations from international opportunities.

In short, it is perfectly possible, drawing from, although not necessarily copying, the experience of other oil producing nations, to combine good incentives to IOCs with the maximising of benefit to the Iraqi people. Indeed, this is the only path to a rapid expansion of revenues and returns, and to dogmatically oppose such constructs is to attack at the roots the interests and aspirations of the Iraqi people.

Care is needed to avoid over-stating IOCs proclaimed advantages. The essential mindset is to see the IOC role not as an alternative to NOC development but as part of a complementary partnership, bringing crucial assets (human, financial, technological) to the overall national effort and meeting needs which coincide directly with state requirements and aspirations. At all times the activities of the IOCs will be regulated and monitored, where appropriate, to ensure their decisions are in accord with the high level strategic objectives of the nation.

Placed in this perspective it becomes clear that IOCs can 'bring to the party' a value-enhancing list of contributing benefits. These include downstream assets and technology capabilities, particularly in LNG, enhanced oil recovery techniques, market, trading and infrastructure linkages built up over years and difficult to replicate. As projects link across geographies, value chains and markets, the global scale and asset base of IOCs provide a competitive advantage. Whilst the natural focus of the debate in Iraq is oil we should not omit from consideration the potential from gas. As noted earlier vast quantities of gas are simply wasted through unnecessary flaring whilst the potential of undeveloped gas resources is overlooked. There is an equivalent priority for Iraq to shape a gas 'master plan' which both conserves existing gas resources, by reducing flaring and develops options for the commercialisation of gas discoveries. The IOCs with there undoubted expertise in gas marketing, infrastructure development, LNG and gas fired power generation have much to offer in developing this almost neglected resource.

A crucial consideration in evaluating the IOC contribution lies in the time-scale. IOCs are mostly long established and can provide accelerated results. While it may be true that today's NOCs, including INOC, can gradually and eventually acquire much of the IOCs' skill set this will take time. And time is what Iraq does not have. Whether from the viewpoints of internal welfare and nation re-building, of political stability or of security the imperative is for rapid recovery, both to end the violence and to maximize revenues by taking advantage of the very high oil price. Tangible signs of higher prosperity are needed if the security situation is to improve.

It is also a matter of record that most of the major global oil challenges are being met by the world's IOCs. In the Caspian region, fields such as Azeri-Chirag-Gunashli in Azerbaijan and Tengiz in Kazakstan, are being developed with the oil being brought to markets in huge trans-continental pipelines. In the deepwater of the continental margins of West Africa, Gulf of Mexico and Sakhalin, fields are being discovered and developed through fantastic feats of IOCs-directed engineering.

Whilst Iraqi oil is considered 'easy oil' many may question whether such capability is required. The response must be that all oil fields whether perceived 'easy' or not face the eternal challenge of maximising production and arresting decline. All oil fields can benefit from best practice reservoir management, the latest technology, extending field life and improving the economics of marginal projects. If the recovery factor is 50% then management set a target of 60%, if that is achieved then the target moves to 70% and so on.

IOCs need to think even more clearly and with more intense focus about local-content issues (energy security, trade and supply chain development, long-term development of skills (a good example is the BP training centre in Baku), broad-

based job creation and industrial development. The essence of a new kind of partnership must be that IOCs and NOCs work together in developing their joint capabilities, rather than viewing each other as uneasy rivals. Wherever IOCs have adopted a model that meets the long-term strategic goals of NOCs and the nations they serve, they have been the most successful in winning business and securing a license to operate.

IOCs can offer further benefits drawing on their deep experience, crafting and managing integrated energy projects on a global scale. Projects like the already mentioned Azeri-Chirag-Gunashli development and BTC pipeline, or the technology drive to oil field recoveries of 60–80%, as in the great fields of Alaska, the North Sea and Siberia, bring home the point that oil industry development means bringing together infrastructure skills and organisation on a scale which reaches by definition beyond one-country boundaries. In addition, the increasing preoccupation with energy security may create a world where IOCs and NOCs collaborate to reduce the perceived risk around security of supply.

In working for new patterns of partnership and collaboration IOCs need to distinguish themselves from service providers that many people see as a replacement for IOCs. Increasingly new competitors are arriving and challenging IOC dominance. The newcomers, so-called 'Independents with attitude', are already on the scene in Asia, offering perhaps shorter term horizon and more willingness to take price and security risks than the IOCs. And of course already on the scene are the major Service Companies who are increasingly sophisticated, although not traditionally investors and risk takers.

NOCs can share risk with a service provider, so IOCs will need to go wider and offer a balance of expertise that covers project management, technology, and integrated market solutions. It is this combination of qualities and benefits — upstream and downstream — which can secure the IOCs position attractive partners for many NOCs. The downstream aspect is especially relevant in developing a balanced Iraqi economy and a balanced oil industry within it. The unfortunate example of Iran should be noted in that it has the highest imports of petroleum products because the Iranians failed to develop their downstream sector. This is precisely the future which Iraq must avoid. The geographic flexibility and sophistication of IOCs can also appeal to NOCs. But IOCs should be willing to bring all their assets and capabilities to the deal.

Underlying the modern case for IOC/NOC partnership are two key elements — human resources and capital resources. NOCs can grow and match the highest standards of established oil industry players, but to do so they need, above all, the best possible technical experience and engineering skills and capital resources on a major scale, as described above. They need these assets quickly — in the case of battered Iraq very quickly indeed. This is where the IOCs can deliver today, but to do so they need to widen and rethink their relationships and prepare to meet innovative and agile competition from new directions. That is the IOC challenge which in the Iraq case, as in others, they will only meet successfully if they move hand in hand with the state oil company and the interests of the Iraqi people.

The Governance, Political and Legal Contexts: The Need for Transparency and Establishing the Right Conditions

The third essential and strategic pillar of a well managed petroleum sector is transparency of administration and good governance in practice. This should not be seen as a threat to the effective and efficient working of either IOC or Government and can still be achieved without compromising commercial confidentiality for either party. With good governance the exploitation of Iraq's resources can generate large revenues to foster growth and reduce poverty.

However when governance is weak, it may result in poverty, corruption, and conflict. The risk of corruption is always present both in the developed and undeveloped world and policy makers need to be vigilant and take appropriate measures to root out corruption wherever it is found.

Transparency of Government policy and actions should embrace the full range of petroleum activities. In the context of petroleum taxation it would be beneficial if the Iraqi Government were to publish annually the tax revenues it receives from the oil and gas sector.

The best vehicle to achieve this is to work with IOCs and international agencies through the Extractive Industry Transparency Initiative (EITI) which has already established a track record in developing transparency disclosure templates, collecting data from IOCs under confidential cover and aggregating such data in a disciplined and consistent manner. The EITI aims to strengthen governance by improving transparency and accountability in the extractive sector. The EITI sets a global standard for companies to publish what they pay and for governments to disclose what they receive. The EITI supports improved governance in resource-rich countries through the verification and full publication of company payments and government revenues from oil, gas and mining. The EITI has a robust yet flexible methodology that ensures a global standard is maintained throughout the different implementing countries. The EITI Board and the international Secretariat are the guardians of that methodology. Implementation itself, however, is the responsibility of individual countries. The EITI, in a nutshell, is a globally developed standard that promotes revenue transparency at the local level.

Publication of taxes received in a country such as Iraq is critical given the potential scale of such payments the high level of interest from the general public and above all the need to demonstrate and dispel the deeply engrained suspicion that corruption is assumed to exist. Such a new approach to Governance and transparency would be seen as part of the new beginning for Iraq and a tangible break from the past. The fact that the Iraqi administration has already committed to EITI is a very important signal of intent that can be built upon. The IOCs will welcome a process such as EITI as it assists them in demonstrating that they are creating wealth for the Iraqi people. Of course how the monies received from IOCs is spent is equally important as the proper accounting of what is collected and transparency is important for these Government activities but this falls outside the scope of this study.

The sound establishment of this kind of environment should be viewed not in sequence but in combination with successful NOC/IOC partnership.

Thus in the Iraq case the ambiguity of the Kurdish legal position must be rapidly and firmly resolved (to the benefit of both parties), the laws and regulations governing oil industry policy clarified and the drive to root out corruption (and the extensive diversion of oil revenues) intensified.

More generally, a broad tableau of welcome and openness towards foreign investment must be presented by the Baghdad Government authorities to the wider world. This applies not just to the oil industry, although IOC investment can signal the way but to international business generally. It must also be a two-way process. As new fields are opened up, and Iraqi oil production rises, it is not fanciful to envisage an Iraqi sovereign fund seeking investment outlets in Europe and America, as well as in rising Asia.

A clear policy option facing Iraq is to offer a competitive fiscal and regulatory framework to international companies to encourage swift and sustained deployment of their resources and expertise. At the same time policy makers should create a competitive dynamic between them such that the Iraq nation is able to secure the most advantaged long term commercial bargain.

Later sections set out in detail the possible terms of engagement for IOCs which might best suit the Iraqi situation. But whatever the favoured pattern a degree of clarity, predictability and stability is the essential characteristic required on Iraq's petroleum taxation system. Of course the immediate necessity is for the security situation to allow more confident involvement, both domestically and from outside, in oil industry growth. But security is itself a function of prosperity and resource availability. The faster that returns from the oil industry can be generated (e.g. from upfront payments from IOCs), the better the chances of improved security, in turn allowing for still more investment and expansion.

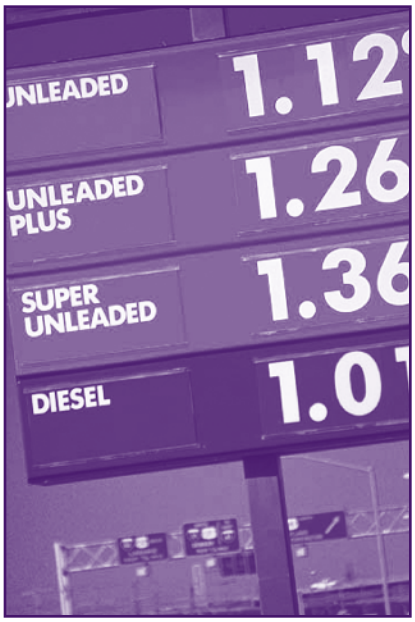
Once this virtuous circle is entered, and once the three pillars described above are visibly in place, the path will be open to full Iraqi recovery, betterment and advance on a momentous scale. The narrow and discredited nationalist doctrines and ideologies of the 20th Century must not be allowed to deny the long-suffering people of Iraq their legitimate and rightful goals in the 21st century.

Section 5:

WHAT CAN IOCs OFFER?

Iraq's future — how do the IOCs fit in?

Can the IOCs deliver?



Many commentators today are challenging the traditional IOC business model and question whether it has a future in a world of sustained high oil prices. Does the world need IOCs? Why can't the NOCs simply bypass the IOC and undertake the project activity themselves in tandem with support from the supply chain for technology and capability? Is this an alternative prescription for Iraq, particularly as Iraq is blessed with abundant oil reserves, high quality reservoirs and low extraction costs?

Whilst these questions are frequently posed, they are over-simplistic and underestimate the mutual benefits that can flow from NOC/IOC partnership.

At the outset, we need to have a balanced understanding of the IOC potential offering. IOCs have been the traditional partner of choice for most resource holders, undertaking large, complex and groundbreaking oil and gas projects. Essentially, the IOCs advantages and contribution lie in their accumulation of experience, their undoubted technical expertise, innovation, transparency, commercial discipline, and their capacity for mobilising capital resources to deliver swift project execution. To list these qualities is not to imply that NOCs may not also be able to match some of them, but there can be no doubt that when it comes to the mobilisation of capital on a global scale the IOCs retain a distinct advantage.

Beyond that, IOCs provide an undisputed ability to integrate all aspects of successful oil and gas developments including financial strength, leading edge technologies, market experience and development and critically proven project execution skills.

The IOCs still rank among the largest oil and gas producers worldwide, and these Western majors also have also achieved a dramatically higher return on capital than national oil companies of similar size and operations. They still control massive capital inflows that could be invested in future production. Out of some $220 billion in CAPEX spent in the global E&P sector in 2006, $80 billion was spent by the top five IOCs (BP, Chevron, ConocoPhillips Company, ExxonMobil, and Royal Dutch Shell).

Bringing together experienced people, proprietary technology and operational excellence IOCs are able to work collaboratively with NOCs to deliver shared success. IOCs assist with the development of a local supply chain, over time this will deliver higher local content and create globally competitive industries. Beyond the central capital raising function, it can be argued that technology and knowledge transfer are the most critical parts of the IOC offering.

Technology has long been the answer to the Industry's most difficult challenges, enabling obstacles to be overcome across the Industry activity spectrum from finding, producing and delivering products to existing and new markets.

Technologies are equally important for new fields and existing ones, the deployment of enhanced oil recovery techniques such as gas injection, water-flooding, and multilateral drilling have extended the productive life of hundreds of fields across the globe. All oil and gas fields can benefit from the best technology. Even for the most prolific reservoirs there is always the challenge of maximising recovery, extending field life and extracting petroleum at the lowest sustainable cost. This is just as important in Iraq as it is for the North Sea or the Arctic. For oil fields in Iraq the prize is commensurately larger from the application of the latest technology, a 1% increase in recovery factor for a 20 billion oil in place reservoir is 200 million barrels.

Project management is an area where IOCs often claim to offer leadership. IOCs operate projects with relentless focus on cost efficiency and unparalleled effectiveness in hydrocarbons recovery: they can do what others can do but they do it in a superior way! The international majors produce their fields at maximum production. IOCs can only do business where it is wanted and needed to support production growth and reserves replacement. They do that through sustaining existing reservoirs to ever higher levels of recovery, whilst maintaining a sensible and controlled cost base, the development of difficult, marginal and unconventional reservoirs and the exploration of the higher risk and higher cost fields.

The IOC offering is compelling and there is a global proven track record going back many decades, new chapters are added to the book each year. The list of successes range from the development of the North Sea and Alaska in the 1970's, the steady march into deeper and deeper water in areas such as the Gulf of Mexico and Brazil, the transformation of the Former Soviet Union economies such as Azerbaijan and Kazakhstan with world scale developments and the globalisation of gas through the rapid evolution of LNG technologies. The scale of resources, human, financial and physical that needs to be deployed to bring developments to fruition is considerable and exposes IOCs to significant risks both below and above ground.

MAXIMISING THE CONTRIBUTION OF IOCs

IOCs — their key priorities

Access to reserves — Is this the key to survival?

Long-term investment: the search for stability

To bring the full benefits to bear from the involvement of the major IOCs in Iraq's upstream oil development the right investment climate has to prevail. The basic elements required can be itemised in three broad categories — all of equal importance:

- Strategic considerations
- Access, transparency and stability
- Commercial considerations

Fundamental commercial pre-requisites create the necessary minimum conditions to facilitate upstream investment. But they are by no means sufficient. Other non-commercial factors come into play. These include firstly strategic considerations and secondly access to reserves, transparency and stability. These three considerations together constitute the essential ingredients for investors in assessing the competitiveness of an oil and gas province and therefore attractiveness of major resource commitment.

Strategic Considerations

Companies scrutinize projects in sophisticated ways that go well beyond the criteria of commercial viability and profitability.

- The project that an IOC plans to undertake has to fit with its current and planned portfolio of projects and be consistent with its strategic ambitions. It also has to fit with the company's overall corporate strategy, in terms of type of activity and regional growth.
- Companies increasingly look at a project from the perspective of providing follow on opportunities for continued profitable investments in the future. A single project, with little or no potential for repeat investment opportunities surrounding it, is not as attractive as one that can help a company over time build a position of critical mass in a particular oil province. In this regard Technical service agreements (see Section 9) offer little of long term appeal as they tend to be of limited duration and offer a poor financial return for the resource commitment potentially required.

Access, Transparency and Stability:

- Ease of access and operations are also fundamental requirements. The resource base must be accessible. This means that it is desirable for the country to have a policy of allowing foreign investment in its hydrocarbon sector.
- The central features of such a policy must be a simple regulatory framework and commitment in the host nation to the rule of law and to the administration of commercial law in ways that IOCs can understand and that offer sufficient protection to their shareholders.
- Fiscal and contract stability: oil and gas projects are long term projects; they have inherent levels of risk present at every stage — from exploration to abandonment. Unstable fiscal regimes negatively affect the confidence of investors in government policy and increase political risk. If the variation of taxes over project life can be minimized — that is if the tax regime is stable — there is one less variable to worry the investor. A major risk factor is either reduced or eliminated. If fiscal stability cannot be constitutionally guaranteed then

investors have to live with the fiscal risk. This is acceptable provided that the fiscal risk is compensated for by a lower level of Government take.

- Clarity and transparency require that an IOC should be clear about which players within the host country it needs to interact with. Is it the State, the owner of the resources of the country, the shareholder of the NOC and the main authority issuing the laws that govern the hydrocarbon sector? Is it the Oil Ministry, the body assigned to formulate hydrocarbon sector policy and to state the national priorities in developing the national resources? Is it the NOC, the entity that operates and manages the hydrocarbon assets of the state, and serves as the main operating link with IOCs? Or is it the Finance Ministry, the body entrusted with managing the revenues generated from the sector?

- A minimum level of cohesiveness among the various players is required. When these different government bodies are at odds on a policy affecting foreign investment, they can delay investments by several years. Delays can cause considerable erosion in financial returns, something about which both IOCs and governments are very sensitive.

- If IOCs are to be encouraged it is in the best interests of the State to encourage competition between them. Opportunities in Iraq should therefore be made available to an extensive list of companies, subject to qualification criteria, both large and small. It is undesirable to leave the future of Iraq's resource development concentrated in too few hands. The more players in a basin will stimulate a competitive environment leading to more investment, swiftly technology deployment, higher production and more revenues for the State.

Commercial Considerations

Commercial considerations include:

- The resource base (Basin prospectivity — the chance of finding oil or gas — and volumetric potential — how large are the discoveries). The quality of the reservoirs and the oil.

- Technical challenges, is new leading edge technology required?

- Cost structure (overall finding, development and operating costs per billion of oil equivalent).

- Access to infrastructure and markets. Can the product be easily exported?

- Fiscal terms that provide an acceptable and sufficient level of profitability for IOCs. IOCs need a minimum rate of return and fiscal terms that are profit related, i.e. vary with profitability rather than revenues. IOCs are owned by shareholders and they need to maximise shareholders' wealth. Also, in their efforts to increase production, they must maintain an adequate unit profit margin at an acceptable level of risk. Iraqi policy makers will need to ensure that the fiscal regime is competitive with regimes elsewhere in the globe. IOCs investment capital will naturally flow to the most attractive opportunities in their global portfolios. The fiscal regime should also be kept as simple as possible to minimise distortions, deliver predictability and facilitate ease of compliance.

- Risk: although one can argue that the exploration risk is low in Iraq, the political risk is very high, not only because of the military legacy but also because of internal conflict between the Kurdish area and Baghdad. Perceptions of political risk will improve once there is a track record of stability and sound governance.

- Freedom of assignment, the ability to buy and sell their potential assets to third parties.

Most Governments traditionally put considerable effort into encouraging investment in the upstream sector and maximising the contribution of IOCs. Some measures require fundamental re-thinking vis-à-vis the sector's geological potential and the competitiveness of existing fiscal terms in relation to that potential. Other measures are procedural and bureaucratic; they make a major difference to IOCs but come at no monetary cost to governments. This is best illustrated with the concept of booking reserves explained below.

‘Booking Reserves’: The Importance of the Barrel

One of the most important performance statistics for any oil company is the daily production volumes presented in its reports to shareholders that it has produced in prior years and the remaining reserves that it expects to produce in the future. The production trend is taken as a critical indicator by analysts and shareholders as to whether the company is growing, static or declining. This can have a significant impact on the stock price and underlying worth of the company.

An appreciation of this production reporting dynamic will help explain some IOCs behaviour and contractual preferences. The ability of IOCs to book barrels can and should be separated from the more fundamental issue of the division of underlying economic rent and in this context is of little relevance to the host Government.

IOCs take great care to ensure that they are able to ‘book’ as many barrels as possible. The term ‘book’ means that the company in question has rights to take delivery of and sell the production in question to third parties and as a consequence is able to report these barrels as part of its aggregate reported production. Once reserves are booked they fall onto the balance sheet of an oil company as an increase in the asset base or replacement of produced assets. This is attractive for investors and can consequently increase shareholders’ value, and the converse is true for companies who fail to replace reserves, something most upstream oil and gas management see as a significant driver at a strategic level when making investment decisions.

In simple terms, ‘booking reserves’ can refer to companies owning rights to the barrels. This perhaps explains why the concept is controversial (some State’s consider that they own the barrels and not investors). But in reality, it does not necessarily mean the same thing as either "title transfer of hydrocarbons" or "control". Furthermore, having the right to own the barrel is not that important in economic terms, the key issue is how the underlying value from the barrel is shared between the State and investor. If the level of taxation on a barrel is say 80% then the State receives the bulk of the value and it does not matter who technically owns or sells the barrel provided regulations are in place to ensure the barrels are sold at market value.

Besides, reported production is an accounting metric that is perhaps over simplistic as no two barrels are alike in terms of their underlying value; extraction costs vary widely as do the levels of taxation.

In large part the financial markets obsession with reported barrels is a problem of the IOCs own making. Financial analysts have been encouraged in their evaluation of the success or failure of company strategies and performance attach great importance to the overall reported production outcomes and forward projections. Production data is a simple and unequivocal metric which is easy to interpret, unlike the increasing complex financial reporting frameworks. Similarly the CEO’s of the leading IOCs also attach great significance to reported company production data and the aggregate reserves position as a proxy for the successful deployment and evaluation of corporate strategies. To a large extent this is a simple measure of whether the company in question has the ability to sustainably grow production. In particular is the IOC in question replacing all its annual production with new discoveries and field extensions?

There are no clear rules on the booking of proved reserves under different contract types and, given the wide variability in the specific details found in contracts, it is dangerous to generalise too much. But it is accepted that under concessionary Tax and Royalty regimes or PSCs, reserves may be booked. It is also clear that under a pure service agreement, they cannot be booked.

Concessionary regimes enable most of the production to be reported. For concessionary tax and royalty fiscal regimes the investor can typically report production and reserves for fields directly in proportion to his equity interest. Assuming a typical field has production of 20 million barrels per year and year end remaining reserves of 200 million barrels. Then if his equity stake is 25% he can book 50 million bbls of reserves and 5 million barrels of annual production entitlement. If a Royalty is applicable the above figures are often reduced by the percentage Royalty rate.

For Production Sharing Contracts, the outcomes in terms of booked reserves and production are different and depend on the oil price, cost structure, division of Profit oil and the oil price. The "booking" of reserves under PSC's (which is actually the "booking" of the oil to which the company will be entitled under cost-recovery and profit-oil sharing terms) has led to the anomaly that "booked reserves" automatically go down when oil prices go up, as the company's right to recover "cost oil" diminishes in volume terms. Higher prices translate into fewer barrels being required to remunerate cost oil as the barrels are worth more. Furthermore reduced cost oil means more Profit Oil available for distribution between the IOC and Government. The division of Profit oil may be fixed or might vary with production or field profitability. If the latter, then higher oil prices will engender higher economic returns. This in turn will induce a greater division of Profit Oil in favour of the Government. All these factors make it difficult to investors to predict their precise production entitlement particularly in an environment of rapidly changing prices.

Under risk service contracts it is rare for any production to be reported as company production.

The above discussion partly explains why IOCs typically do not favour risk service contracts as generally it is very difficult to book any barrels under these frameworks. IOCs therefore have a very clear preference for Tax and Royalty regimes or PSCs where the reporting implications and dynamics are more clearly understood and valued by investors. So faced with contractual frameworks that provide identical economic outcomes for both investor and host Government, the investor will tend to prefer the framework which maximises the ability to report and book barrels.

Whilst the drivers from IOCs are to an extent presentational, the concerns of the host country are political and often emotional. Control is a simple concept, you either have it or you don't, whereas taxation and the division of value and concepts of return on investment are less easily understood. Unfortunately the debate is rarely well informed with ownership being taken as a proxy for control and value. As explained throughout the report ownership and division of value are entirely separate issues, the IOCs could own all the reserves but it is of little importance compared to the critical issue of who collects the value from the barrels. Control can be devolved and policed through regulation, as is the case through the OECD, whilst value is controlled through the all important fiscal system. The PSC is a useful compromise between these competing agendas as it ensures the investor is only given sufficient barrels to remunerate his costs and provides an appropriate return. All the remaining barrels remain the ownership of the State. Under a Tax and Royalty system all the barrels remain in the ownership of the investor.

The issue of reserve ownership and control is analysed in detail in the following Section.

Section 7:

GOVERNMENT CONTROL AND REGULATION

How important is ownership?

Lessons and models: learning from different approaches

Oil sector control: time for new techniques?

The decision to invite IOC investors into Iraq is seen by Iraqis as profoundly political, controversial and one of the most difficult decisions to be made by the new fragile democracy. For some observers IOC investment and involvement in the upstream sector would be equivalent to the Iraqis surrendering control of the most valuable asset in Iraq.

Understandably for many Iraqis it is difficult to separate fact from emotion on such a sensitive issue but the reality is very different. According to some Iraqis, what the West sees as 'resource nationalism', the Iraqis see as 'resource patriotism'.

It is a fact that in all petroleum provinces the oil industry is very intensely regulated and 'control' is tightly defined. Many would characterise traditional 'tax and royalty' concessionary regime as liberal and conferring freedom of control on the Industry. But a close inspection of the typical regulatory environment leads to the opposite conclusion.

The North Sea, both the UK and the Norwegian Continental Shelves, can be used as an example to illustrate that even when the ownership of the oil and gas production is granted to the private oil companies, the Government maintains full control. In fact, not even a single well can be drilled in the British and Norwegian waters without Government consent and approval of the development plans and other critical operational decisions.

It is sometimes believed that the more a government allows private oil companies to operate and run its oil and gas sector, the more it cedes control and loses sovereignty. It is also believed that the government renounces its sovereignty under PSC as IOCs are entitled to a proportion of the oil produced, while it maximises its control under a Risk Service Agreement. That is why it is hardly surprising that this type of agreement is mostly in use in countries where the nationalist sentiment concerning hydrocarbons is the strongest. In theory contractual regimes enable governments to exercise more control over both petroleum operations and the ownership of production. In practice, this is less so.

Government control does not depend on the type of regime that is adopted. As the pioneers of privatisation in the UK discovered in the 1980s and 90s, moving from the old pattern of nationalized state ownership to privatised industries by no means led to weaker control. Conversely, full public ownership could mean loss of political control, poor accountability and the progressive transfer of direction and influence to unelected boards with their own powerful constituencies.

The clear lesson of that era, both for petroleum extraction in the North Sea and for other previously nationalized concerns, was that privatisation, and concessions granted to private enterprise firms, could be combined with the appropriate fiscal and regulatory systems to provide *more* and not *less* control and accountability than state ownership had ever afforded. The UK has had a successful oil and gas industry, for more than 30 years, knowing that the industry is fully privatised — the British National Oil Company (BNOC) existed up until 1982 when it was successfully privatised.

The US Gulf of Mexico is also run by IOCs, with hundreds of wells being drilled, state of the art technology being used and higher risks being taken to drill in harsh environment and deep water. Norway has one of the toughest fiscal terms among countries that adopt concessionary regimes. The country also has a powerful state oil company — StatoilHydro— a petroleum

fund worth more than $331bn and a healthy private industry. In none of these examples, where concessionary regimes are applied, had the government lost control. In contrast, governments were in a strong position to successfully exploit the competitive instinct of the oil companies, and benefit from the deployment of IOC's resources to build successful oil and gas industries within a relatively short span of time.

In the North Sea, the investor requires explicit Government consent for a wide range of critical decisions and is required to comply with an ever lengthening list of regulatory requirements in respect of day to day oil field management and more recently environmental protection. Examples of where Government consent is required or actions are necessary to comply with regulations include:

- Development of any oil and gas field
- Development plan including reservoir management
- Development of pipeline infrastructure and processing terminals
- Sale or assignment of interests to third parties
- Closure of production from any oil and gas field
- Decommissioning oil and gas fields
- Compulsory relinquishment of acreage after specified periods
- Approval of exploration well locations and well testing requirements
- Obligations to drill commitment exploration wells
- Commitment to develop discoveries within specified time limits or relinquish
- Field flaring levels, flare consent procedures
- Stewardship— scrutiny of mid or late life investment levels
- Health and Safety Environment (HSE) standards, inspections
- Environmental regulations, produced water, use of chemicals, drill cuttings etc
- Metering standards
- Emissions trading

The list is not exhaustive but provides a flavour of the rigorous control that the industry is subjected to in all the countries it in which it has a major upstream presence. The industry would expect that a similar level of regulation would be introduced in Iraq to enable the Iraq ministry and NOC to oversee effectively the operations of international investors.

This is all a question of balance. It is not in doubt that Government needs to exercise control over the critical strategic investment decisions such as the exploration for and development of new oil and gas deposits, nor that in the Iraqi case the Government, as it gathers strength, will wish to do so. However it is also important that it does not interfere in the day to running of the oil and gas fields or in the procurement strategy. This is because the State's tasks and skills differ from those required in day-to-day business operations. The 20th century demonstrated in country after country round the world how the State could improve performance and delivery by concentrating on genuinely public services whilst leaving business operations as far as possible to the enterprise sector, where necessary within the appropriate regulatory framework. There is no reason to suppose that Iraq's administration will find itself in any different position from that experienced by other governments.

While the validity of this approach, combining the vigour of competition and enterprise with the discipline of Government approval and control, is now recognised round the world the question is raised as to whether the fledgling Iraqi administration, as it struggles to reconcile the factions and establish greater security, will have the capacity to operate in this new kind of controlling role. It may well possess the skills, but will it have the political backing and resources to implement the necessary policies and regulatory regime?

The answer must surely be positive, despite the uniquely challenging circumstances and the recent history of Iraq. The task is one of politics and persuasion. Prejudices, often fed from

outside, have to be overcome and full confidence established by the Iraqi authorities in their own undoubted abilities to administer a modern and balanced oil programme.

The undoubted conclusion has to be that the pattern of ownership is not vital — though there is advantage in encouraging many players and promoting competition between them. It is the evolving nature of the partnership between the host state and private enterprise which determines success or failure. Each country must work out its own destiny in sensible and practical ways which respects its own national sovereignty and yet calls on the best qualities and expertise which the international oil industry can provide. This is what the North Sea experience confirms beyond question.

Let the final word come from another major oil and gas producing nation that started hesitantly on the road to hydrocarbons development but has turned its resource endowment into an unparalleled and world-class success. Norway is now recognised as the most prosperous country in the world giving its citizens an unparalleled standard of living as well as creating a sustainable legacy for future generations. How did they achieve that — here is an extract from the Norwegian Petroleum Directorate 'Fact Book':

"Right from the start, national administration and control over the petroleum activities on the Norwegian continental Shelf have been fundamental requirements. The challenge for Norway in developing its petroleum activities was to establish a system of managing the petroleum resource that would contribute to maximising the values for the Norwegian people and the Norwegian society... The cooperation and competition between the various companies on the Norwegian Continental Shelf have been crucial, as the companies have all possessed different technical, organisational and commercial expertise. This policy has contributed to ensuring that Norway today has its own oil companies and a competitive supplier industry, and that the nation is secured substantial revenues from the sector... Norwegian and international oil companies are responsible for the actual conduct of petroleum activities on the Norwegian Continental Shelf. Competition between oil companies yields the best result when it comes to maximising the value of the petroleum resources. At the same time, it is important that the authorities can understand and evaluate the decisions made by the companies. Therefore, Norway has established a system whereby oil companies carry out the technical work required to recover the resources, but their activities also require approval by the authorities. The approval of the authorities is required in all stages of the petroleum activities, in connection with exploration drilling, plans for development and operation and decommissioning plans for fields. In this system, the oil companies create the necessary solutions to recover the resources, while the Norwegian authorities ensure that these solutions concur with the goal of maximising the values of the Norwegian society as a whole."

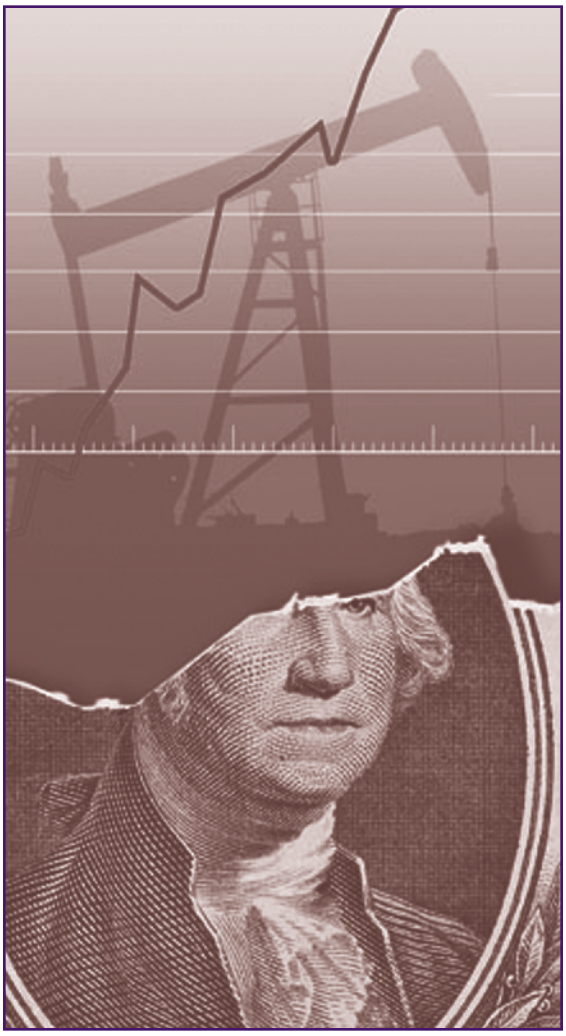
This is one model — a very successful model. The choice for Iraq is whether they wish to follow it.

Section 8:

THE PROSPECT FOR EARLY CASH: THE ROLE OF LICENSE AUCTIONS

How much could Iraq earn up front?

Making the best of the competitive instincts of IOCs



One of the many choices facing the Iraqi administration is the extent to which it desires early up front revenues from the oil and gas sector, in advance of new or incremental production and whether it should implement licensing policies that engender such outcomes. One such policy opportunity is to award licenses, either for exploration and or development, to IOC consortia on the basis of up front signature bonuses. The host Government establishes an open competitive process, with pre qualification, with the highest cash bidder securing the license. This is a popular vehicle in many counties and has the potential to raise many billions of dollars in upfront cash. With current high oil prices and strong industry cash flows, the sums that can be earned by host Governments from such policies are considerable. This is further augmented by the intensified competition between IOCs and NOCs for quality access opportunities. Those in Iraq could be seen by prospective bidders as of a world class, unique, scarce with a high expectation of premium bids to secure successful outcomes.

License allocation by competitive bidding has long been a preferred policy in the United States which has raised some $66 billion in money of the day (mod) from competitive license bidding from the Outer Continental shelf (OCS) in the period 1954–2006. This is equivalent to a staggering $178 billion in 2006 money. These sums are all the more remarkable given the long lead time between the award of offshore acreage and first production and the higher underlying cost structure, particularly in deep water. Furthermore many of these licenses will be unproductive if exploration success is not forthcoming. More recently this licensing approach has also been very successful in countries such as Angola, which in 2005 was offered over $1 billion in a signature bonus for a single block, again in an offshore environment More recently sums in the $ billions have been paid for acreage in the Arctic.

In an onshore low cost environment such as Iraq comparable or much higher sums should be achievable. The size of the bid of course corresponds to the underlying economics including the impact of the fiscal regime; the tougher the fiscal terms the lower potential signature bonus and vice versa. In evaluating the potential signature bonus the IOCs will determine the potential Net Present Value of the potential developments and offer a proportion of that value as the signature bonus, the perceived level of competition will also impact the magnitude of the bonus offered. The advantage to the State is that once the bonus is paid it becomes a sunk cost and will have no further impact on the project economics.

If Iraq policy makers wish to attract IOC investment they face a clear choice in this respect. Either:

- Offer a fixed set of fiscal terms and award licenses on the basis of the highest winning bid, or
- Award licenses on the basis of the fiscal terms bid by prospective investors, the bidder offering the highest Government take will secure the license.

The latter approach will in all probability result in tougher fiscal terms with higher Government take. However it will be many years before the State will see any incremental revenue benefit, compared to the former, as the impact of the tough fiscal terms will be not be apparent until many years of production have elapsed. There is also the risk that the fiscal terms bid by the IOCs are set so onerous that the prospective developments are uneconomic. In this scenario the fiscal terms may have to be renegotiated, particularly if prices fall and discoveries are smaller than anticipated. With the former approach, this is much less likely, the State can establish appropriate and competitive fiscal terms with the prospect that most developments will be commercial. Also the upfront bids, once paid, will have no further impact on the development economics as the costs become sunk. For Iraq this is not an all or nothing option, the Iraqis could for example use this licensing vehicle selectively for a limited number of licenses where competition is perceived as the most intense or perhaps as an early experiment to test what levels of interest and bids could be realised. The approach does not need to be limited to exploration and could be deployed for example for the development of existing undeveloped discoveries. A bonus could be paid on signing of a license with subsequent bonuses paid at first production and when production levels pass pre defined thresholds.

Signature bonuses have become increasingly common in transition economies for the award of licenses. The Kashagan license in Kazakhstan secured an upfront $175 million bonus paid in 1997.

It should be recognised that there are limits and some disadvantages to this approach. For example it is important that commitments are extracted from prospective investors to undertake work programmes in form of seismic acquisition, exploration and appraisal wells in defined time periods. Funds spent on signature bonuses are funds that might have been spent on a work programme. Despite these caveats Iraqi policy makers should give serious consideration to this licensing option. There is perhaps no better time to tap into the competitive pressures of IOCs and NOCs when the Industry is so preoccupied with securing resource access and when they are cash rich from the current record oil prices.

Section 9:

THE FISCAL CONTEXT

What choices for petroleum fiscal regimes?

How to design a competitive fiscal regime?

What is the best formula for Iraq?

Dangers and challenges

What is double taxation and how can it be avoided?

Petroleum Fiscal Regimes

The oil producing nations have a spectrum of frameworks to chose from for their oil and gas sectors; from complete state ownership at one extreme (such is the case in Saudi Arabia, Kuwait and Mexico) to total private enterprise operations at the other (like in the USA and the UK). Between the two extremes of pure state and pure private development a combination of the two often occurs. Most oil producing countries fall within that spectrum, the norm being a pattern of involvement by the IOCs, but in cooperation with the host country's NOC and within a clear framework of national control.

In the spread of varying relationships between governments and the oil industry, one can identify two basic and broad categories of agreements have that developed over the years — the concessionary systems and contractual agreements. The concessionary system originated with the very beginning of the petroleum industry (mid 1800), while the contractual system emerged a century later (mid-1950). Some argue that in concessionary regimes, oil companies are in a much stronger position compared with the contractual systems, where the government exercises a stronger control over the exploitation and production of the natural resource. But the reality which has emerged behind these different approaches is one of ideology and political fashion.

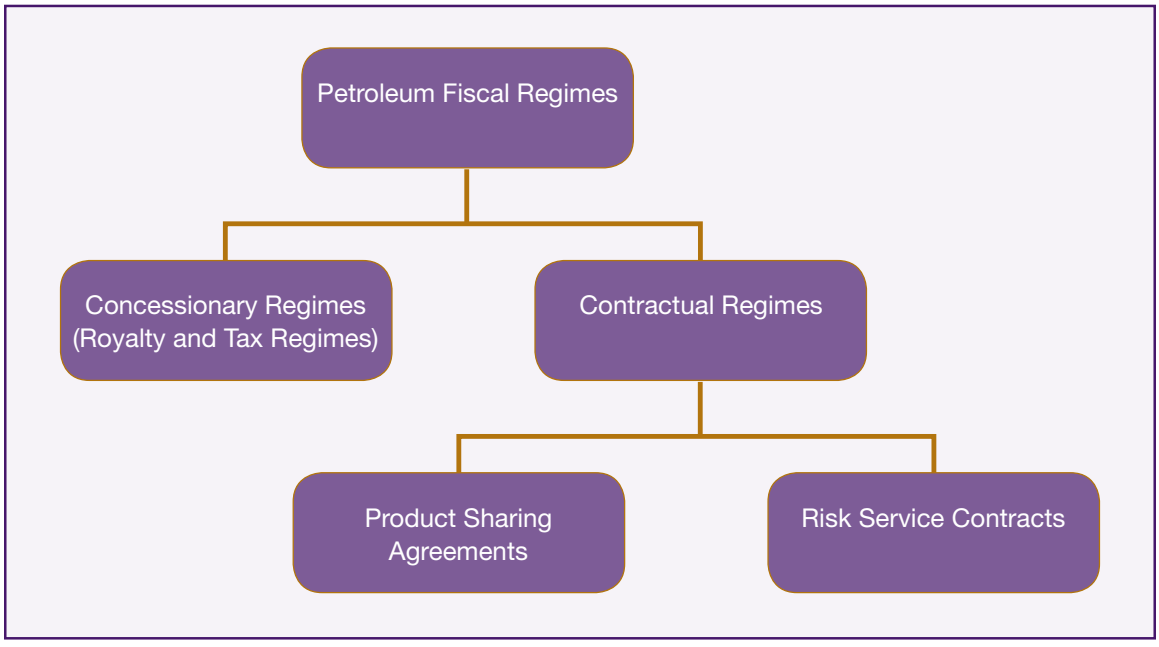


Figure 9.1: Petroleum Fiscal Regimes

Concessionary Royalty & Tax Regimes

A concession is "an agreement between a government and a company that grants the company the exclusive right to explore for, develop, produce, transport and market the petroleum resource at its own risk and expense within a fixed area for a specific amount of time[1]." In most oil producing countries using concessionary regime, the hydrocarbon reserves remain the property of the state until produced. Oil companies take title to produced oil at the wellhead and then pay the appropriate royalties and taxes. The company is entitled to ownership of the production and can freely dispose of it, subject to the obligation to supply to local market, if applicable[2].

Concessionary regimes are well established and widely accepted. The customary framework of taxing oil companies in a concessionary regime involves a combination of Royalty, income tax and special petroleum tax. That is why concessionary regimes are commonly known as 'Royalty/Tax Systems'.

Gross Royalty

Royalty can be a per-unit tax, which is a uniform fixed charge levied on a specified level of volume of production or an ad-valorem tax, which is a fixed charge levied on the value of the output (gross revenues). Royalty rates are generally set in a range from 10% to 20% but most are nearer 12% (1/8th) of production.

Royalty holds attractions for governments as they are relatively simple to administer, and provides an early revenue stream as soon as production starts. But as the tax is not profit related, it may deter marginal projects that are profitable on a pre-tax basis from proceeding. The regressive nature of Royalty — the lower the project profitability, the higher the effective tax rate — may cause operating income to become negative even when gross revenues exceed extraction costs and consequently can lead to a premature abandonment of the field. This is more likely to be a problem in a high cost basins and less of an issue on onshore low cost environments such as Iraq.

In an attempt to reduce some of these distortions, some countries have introduced a profit element in Royalties by having them depend on the level of production (like China) or in some cases oil price. This is known as a sliding scale Royalty. In this case, the Royalty rate will be low when production or oil price is low and vice versa, thereby decreasing the possibility of negative cash flows when production or oil prices are low.

Royalty is normally allowable as a deduction against other taxes such as production and income taxes.

Corporation or Income Tax

Income Tax systems usually consist of a basic, single rate structure, plus provisions for deduction of all costs items from the tax base, supplementary levies and tax incentives. The overall level of corporate income tax rates varies considerably from country to country. In many OECD countries the level is typically between 25% and 35%.

Most countries provide an incentive for exploration and development by allowing exploration costs to be recovered immediately and allowing accelerated recovery of development costs (tax depreciation), for example, over five years or less. Accelerated cost recovery brings forward payback for the investor and reduces his cumulative cash exposure. In addition to cost deductions, in most cases interest expenses and losses carried forward and/or back are commonly allowed in the computation of the tax liability. All forms of income tax allow relief for capital expenditure, but extra reliefs are sometimes given to provide incentives to develop high cost 'marginal' projects and are called uplift allowances on capital expenditure.

The income tax regime for oil and gas companies is generally the same regime that applies to all corporate activities for all industries in the country in question. Though the rate may be higher and the range of qualifying cost deductions may differ, the tax is levied at a corporate rather than oil field level, as such it is generally known as Corporation Tax or tax on corporate net income. Since income tax is a

[1] Johnston, 1998, p.296

[2] A broader type of concession, such as found in the United States, goes further and assigns rights of ownership to the actual reserves in the ground to the discoverer of those reserves

profit-based tax, it is also assumed to be neutral in its impact on different projects.

Double Taxation

It is important that the design of the fiscal regime takes into account the potential exposure to Double Taxation faced by prospective investors.

Double taxation occurs when a taxpaying entity resident on one country generates income in another country resulting in the same profit being taxed more than once in more than one country. In other words, it arises in the context of how income earned in a host country (for example Iraq) is treated for tax in the home country of the investor (the home country is where the investors corporate head offices are located).

Depending upon the nature of, and the interaction between, the fiscal regimes in the host country and the home country, which can adopt different definitions of taxable income or profits, investors may be liable to additional tax in the home country.

These sums can be very material, sufficient in extreme circumstances to render prospective investments uneconomic. Typically investors and tax officials from the host country work together to design the fiscal regime to minimise this exposure, whilst ensuring no diminution in tax take for the host country.

The wider implications of Double Taxation issues are discussed in more detail in Appendix 2.

Special Petroleum Tax

Many oil-producing countries following a concessionary regime also impose a special petroleum tax in order to capture a larger share of economic rent from oil production. The special tax is usually imposed as a supplement to the general corporate income tax but it is levied on a project or field basis rather than on aggregate company income. The tax is normally based on cash flow but is imposed only when cumulative cash flow is positive. Negative cash flows are carried forward and deducted from positive cash flows in later periods. The negative net cash flows may be uplifted by a minimum rate of return requirement and added to the next year's net cash flow. The uplift is often characterised as a proxy for financing costs. The accumulation process is continued until a positive net cash flow is generated. No tax is payable until the firm has recovered its costs inclusive of a threshold rate of return which is compounded from year to year. Tax kicks in only when positive cash flows emerge, the project investment is recovered and a threshold return on the investment is made. If costs rise or oil prices fall, taxable profits change in sympathy, as does the special petroleum tax burden.

Additional Payments and Measures

Other payments can also be made to the government in oil producing countries where concessionary regimes apply. These include Bonuses, which are lump sum payments made to the government. They can be Signature or lease Bonus, payable upon signing the agreement with the government or award of a lease, Discovery Bonus, payable when a commercial discovery is made, or Production Bonus, payable at an agreed amount upon the achievement of a stated level of daily production. Signature bonuses have a material impact on overall government take and life cycle economic returns to the investor. They are a one-off payment on signing a contract. They capture the resource value regardless of the success of exploration and production activities. Since the investment is made up front, once paid, they have no further impact on the future economic decisions and point forward returns to the investor. The sums can be very large (in Angola the bonus reached $1 billion per block of 4,100 Km2); they comprise a material proportion of overall government take, particularly if the acreage is unproductive. The discovery bonus is also a one-off fee. It is required after commercial discovery is declared and after the NOC has approved the IOCs development plan. Production bonuses, however, can be recurring. They are due when production reaches a certain level. They are normally on a sliding scale of production, therefore if daily production reaches a certain level the government takes a fixed sum, which increases if daily production reaches higher levels. Depending on the tax regime, bonuses may be deductible for income tax purposes.

Some countries ring-fence their oil and gas activities whilst others ring-fence individual projects. Ring fencing imposes a limitation on deductions for tax purposes across different activities or projects undertaken by the same taxpayer. In other words, all costs associated with a given licence or field must be deducted from revenues generated

within that field — not from other licences or fields. These rules matter for two main reasons. Firstly, the absence of ring fencing can postpone government tax receipts because a company that undertakes a series of projects is able to deduct Exploration and Development costs from each new project against the income of projects that are already generating taxable income. Secondly, as an oil and gas area matures, the absence of ring fencing may discriminate against new entrants that have no income against which to deduct Exploration or Development expenditures.

Contractual Regimes

Under the typical contractual based systems, the oil company is appointed by the government as a contractor on a certain area. The title to the hydrocarbons remain with the state, hence all production belongs to the government, while the IOC executes petroleum operations in accordance with the terms of the contract and operates at its own risk and expense under the control of the government. The IOC also provides all the financing and technology required for the operation.

The two parties agree that the contractor will meet the Exploration and Development costs in return for a share of production or a cash fee for this service, if production is successful. If the company receives a share of production (after the deduction of government share), the system is known as a Production Sharing Contract (PSC) — also known as Production Sharing Agreement (PSC)[3] — which is a binding commercial contract between an investor — the IOC — and a state. A PSC defines the conditions for the exploration and development of natural resources from a specific area over a designated period of time. Under a PSC, the oil company takes title to its share of petroleum extracted. This is important to the companies as it permits them to book reserves and report the production contribution as part of its global financial reporting to shareholders.

If the IOC is paid a fee (often subject to taxes) for conducting production operations, the system is known as a Service Contract, also called Risk-Service Agreement. The latter is called so because in a Service Contract, the host government (or its national oil company) hires the services of an international oil company and in the case of commercial production out of the contractual area, the oil company is paid in cash for its services without taking title to any petroleum extracted. Some early service contracts were signed by Petroleos Mexicanos (PEMEX) in the 1950s. While some service contracts are disguised PSCs, especially with regard to ownership of the resource, the main differences between the two contract forms are the remuneration of the contractor and the control over operations.

In contractual regimes, the oil company bears all the costs and risks of Exploration and Development. It has no right to be paid in the event that discovery and development do not occur. However, if there is a discovery the company is allowed to recover the costs it has incurred, and this is known as Cost Recovery or Cost Oil. The investors typically receive the majority of early revenue from the project, known as cost oil, as compensation for the cost of exploration and development.

Cost Recovery is similar in outcome to cost deductions under the concessionary systems. It includes mainly unrecovered costs carried over from previous years, Operating Expenditures, Capital Expenditures, Abandonment Costs and some investment incentives. Financing cost or interest expense is generally not a recoverable cost. Normally, a pre-determined percentage of production is allocated on a yearly basis for cost recovery. However, in general there is a limit for cost recovery that on average ranges from 30–60 per cent of Gross Revenue, in other words, for any given period the maximum level of costs recovered is 60 per cent of Revenue, although contracts with unlimited cost recovery are also in existence (see Indonesia, Bahrain and Algeria for instance).

Many PSCs specify annual cost oil allowances either on a sliding scale or state that this variable is biddable or negotiable up to a certain maximum value. Full cost recovery occasionally comes with a time limit attached to it. The share of production set aside for cost oil will decline after, say, five years. In this sense it works similar to a tax holiday. Unrecovered costs in any year can be carried forward with interest to subsequent years. Also, some contracts allow these costs to be uplifted by

[3] In some countries, like Libya, PSCs are also called Exploration and Development Production Sharing Agreements or EPSCs

an interest factor to compensate for the delay in cost recovery. Investment credits or uplift may also be provided to allow the contractor to recover an additional percentage of Capital Costs through cost recovery. The more generous the cost recovery limit is the longer it takes for the government to realise its take. There is usually a ring fence on petroleum activities, hence all costs associated with a particular block or licence must be recovered from revenues generated within that block.

Royalties can also feature in PSC regimes but many will argue that the same economic impact can be secured by adjusting Cost Oil limits which also ensure an early flow of revenues to the State. Royalty is paid to the government before the remaining production is split. Nevertheless, an alternative to Royalty is to have a limit on 'Cost Oil', to ensure that there is 'Profit Oil' as soon as production commences. Such a limit on cost recovery has a similar economic impact to a Royalty, with the government receiving revenue — its share of Profit Oil— as soon as production commences.

The principle of Cost Recovery applies to both a Production Sharing Contract and in Risk-Service Agreement. However, the basis of the contractor's remuneration after it has recovered its cost differs in type.

In a PSC, the remaining oil after the oil company recovered the costs of the project (Cost Oil) is termed "Profit Oil" or "Production Split" and is divided between the host government and the company according to a pre-determined percentage negotiated in the contract. The split can be a fixed profit-oil split, linked to production rates or a progressive split linked to project profitability, i.e. to Rate of return — ROR — or R-factors. Under the ROR systems, the effective government take increases as the project ROR increases. The government is guaranteed early revenues due to the operation of the cost oil ceiling which ensures there is always a minimum quantity of Profit Oil to be shared between the investor and the State in each year. The elements determining the R-Factor vary from one country to the other, but normally both revenue and cost are included in the equation. As such, the R-Factor can be broadly defined as the ratio of cumulative net earnings to cumulative total expenditures. The R-Factor is calculated in each accounting period and once a threshold is reached, a new tax rate will apply in the next accounting period. The objective of the ROR and R-Factor is to link the sharing between the Government and the contractor to profitability. Profit oil is usually, but not always taxed.

In some countries, the government has the option to purchase a certain portion of the contractor's share of production at a price lower than the market price. This is called Domestic Market Obligation (DMO). There can also be an additional government take in form of Bonus Payments, whether Signature Bonus or Production Bonus. Most PSCs allow for bonuses to be tax deductible but they are not allowable for cost recovery.

Royalties, cost oil, profit oil and production bonuses can either be levied as fixed shares of production or on the basis of sliding scales. The latter method is becoming standard procedure. The two most common ways of calculating payments using sliding scales are based on either average daily production or R-factors.

Over time PSCs have changed substantially and today they take many different forms. One cannot refer to, say, a typical Asian or a typical Eastern European contract. Terms vary between one country and the other. But in its most basic form a PSC has four main properties. The IOC pays a royalty on gross production to the government, if applicable. After the royalty is deducted, the IOC is entitled to a pre-determined share of production for cost recovery. The remainder of the production, so called profit oil, is then shared between government and IOC at a pre-specified share. The contractor then has to pay income tax on its share of profit oil.

In the case of Service contracts, the contractor carries out development work on behalf of the host country for a fee. The government allows the contractor to recover the costs associated with development of the hydrocarbon resources. Additionally, the government pays the contractor a fee which is agreed upfront. All production belongs to the government. Since the contractor does not receive a share of production, terms such as production sharing and Profit Oil are not appropriate even though the arithmetic will often carve out a share of revenue in the same fashion that a PSC shares production. The fixed fee remuneration — Service Fee — of the contractor can be

subject to tax. It is analogue to taxable income in a concessionary system and Profit Oil in a PSC. The remuneration fee under a service contract is usually determined using project performance indicators linked to actual production rates and based on pre agreed capital budgets. Service contracts are also known as risk service contracts or risk contracts. The term risk is added because the oil company puts up all the capital and risks being exposed to cost overruns for which typically it is unable to recover.

It should be noted that in exceptional circumstances the remuneration can itself be in the form of oil, and this is indeed the arrangement that has been provisionally agreed in the case of four recent one —year service contracts made between the Baghdad Ministry of Oil and four major IOCs — Total, Shell BP and ExonMobil.

Over time PSC's have changed substantially and today they take many different forms. Service Contracts have also taken many forms. TAC and Buyback are two variations.

i. Technical Assistance Contracts (TAC) or Technical Service Agreements (TSA)

These contracts are often referred to as rehabilitation, redevelopment or enhanced oil recovery projects. They are associated with existing fields of production and sometimes, but to a lesser extent abandoned fields. The contractor takes over operations including equipment and personnel if applicable. The assistance that includes capital provided by the contractor is principally based on special technical know-how. These arrangements are suitable for small companies as they provide low risk situations with opportunities for a company to leverage technical expertise, and they are usually applied to marginal fields.

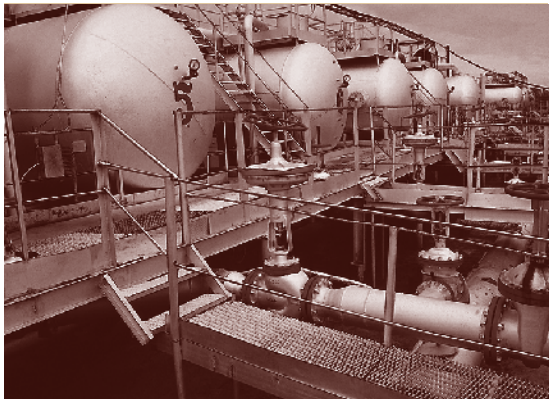
This kind of arrangement is more characteristic of countries where the state has substantial capital but seeks only expertise. These arrangements can be quite similar to those found in the oil service industry, where the contractor is paid a fee for performing a service, such as drilling, development or medium-risk exploration services. Hence they are suitable for service-providers. Furthermore, despite the reduced risks, cost and timing estimates as well as fiscal terms are critical. Many countries try to tighten the fiscal terms on enhanced oil recovery projects because of the reduced risk. However, these projects require careful screening as enhanced oil recovery can be very limited and costly in marginal, depleted fields. If fiscal terms are out of balance, no amount of technical expertise can salvage a project.

Generally these contracts are not favoured by IOCs and their track record is one of very limited success. The short term nature of these contracts and lack of access to project risks/ upside materially diminishes the appetite of IOCs to invest and deploy scarce resources to such ventures. An IOC is unlikely to deploy leading edge technology or assign significant numbers of experts to project where there is no long term leverage to project performance. Perhaps a good example is Kuwait where over a number of years the authorities have been unable to make there mind up as to whether to permit IOC access to major projects. IOCs have over a period of years patiently participated in a number of tightly defined small scale technical assistance programmes with the expectation that this would lead to a substantive long term role. The anticipated IOC participation has not been forthcoming and the Kuwait petroleum sector is now suffering from lack of investment and access to leading edge technology much to the frustration of all parties involved.

A particular concern for Iraq is that a significant proportion of the young skilled work force has left the country in recent years for safer employment overseas. Additionally the average age of employees in the Iraq NOC is over 50 and this demographic bulge will need careful management. Clearly skilled Iraqi's need to be encouraged back to Iraq but meanwhile the IOCs must be encouraged to make up for shortfall and assist in training a new generation of skilled Iraqi technicians across the full spectrum of petroleum operations. This is best achieved in the framework of a long term contractual relationship.

ii. Buyback

Under the Buyback agreement, the arrangements with foreign companies "shall in no way entitle the companies to any claims on the crude oil[4]". The scope of work to be carried out by the oil company is set in a development plan, which normally forms the basis of the technical bids for the project. The period of time from the effective date of



the contract until final commissioning is referred to as the 'development phase', which ends when all development operations have been completed by the contractor in accordance with the buyback contract and all wells and facilities described in the development plan have been installed, commissioned, started up, tested and handed over to the national oil company. During development operations the contractor acts as the field operator under the control and direction of a joint management committee comprising a number of representatives from the contractor and the national oil company. During this period, the contractor funds all capital and non-capital expenditures and all operating costs incurred in the performance of development operations. After the successful completion of the development operations, operatorship of the field is transferred back to the national oil company for production operations, at the Handover date.

A buyback may offer the IOC an exploration contract which will not necessarily be converted into a development contract even if commercial discovery is declared. The agreements have a relatively short duration of between five and seven years. Capital cost ceilings can only be exceeded for new additional work approved by NOC. The extra expenditure is then added to the initial capital costs and repaid under the amortisation period of the contract. The IOC receives its project expenditure plus a fee. The latter is some percentage of total capital costs excluding bank charges and operating costs. Another important feature of the buyback agreements is the treatment of price risk. If the oil price drops significantly resulting in a low level of revenue that is not sufficient to cover the IOCs monthly entitlement, NOC may reduce its share of net revenue. But it will not allow its share to fall below a certain 'critical' level. If this sacrifice is still not enough to meet the IOCs requirement the amortisation period will be extended.

Sharing the Wealth — The Hard Choices

Petroleum taxation is a subject of endless complexity. It involves balancing the two competing rather than complementary objectives of the two principal players in the upstream sector of petroleum industry: the Government, the natural owner of the hydrocarbon resource, and the international oil companies. Governments normally seek to generate high levels of take from oil related activity while oil companies want to ensure an appropriate, predictable and sufficient level of profitability in their operations.

Since taxation removes a considerable slice of the producers' profits, oil companies prefer fiscal systems that result in a competitive overall tax level thereby allowing attractive post-tax returns and high sustainable levels of investment. Governments of oil producing countries face important challenges when designing a tax system that meets the two fundamental objectives; namely to ensure a fair share of revenues for themselves whilst simultaneously providing sufficient incentives to encourage investment. The need for balance between taxpayer and tax-levying authority is unavoidable but hard to achieve in practice, especially since the concept of fairness, like beauty, is subjective. It has different meanings to different people.

As such, it is not surprising that the public debate is inclined to jump rapidly to conclusions, based on 'emotional judgement' rather than sound economic analysis. The analysis of petroleum fiscal regimes round the world leads to the following guiding principles:

It is All in the Design

There can be favourable and unfavourable contractual arrangements, good and bad PSCs, good and bad concessionary systems. But what does good or bad mean and on what are the measurement criteria based? Judgment has to be deeply informed by both experience and by foresight. Fiscal regimes are rarely static. What might be considered an attractive regime when acreage is licensed can turn against the investors when developments come on stream, oil prices rise or government policy changes and vice versa. Ultimately this assessment can only be made at the end of the basin when one can more precisely determine whether economic recovery has been

maximised, whether the State and investors have secured a fair share. Of course policy makers can't wait that long and tend to rush to judgement too quickly. The best guide in terms of stewardship is to ensure that the regime remains competitive — this will deliver maximum investment at the same time as an appropriate share for the nation.

Between 1994 and 1995, Russia signed several PSCs in order to stimulate foreign investment in geographically isolated and technologically complex hydrocarbon projects and boost its oil and gas production. The Russian PSCs of the 1990s are sometimes used to illustrate the defects of some PSCs. Indeed, the Russian PSC's had several weaknesses. That said, this doesn't mean that *all* PSCs are poorly constructed; it simply means that the PSC's that were signed in Russia were with the benefit of hindsight unbalanced in the light of the cost overruns and high prices that emerged. Their terms were judged by the authorities to have favoured one party, the IOCs, over the Government. The Russian PSC's were signed during a period of very low oil prices. In fact, the 1990s witnessed the lowest levels of oil price, reaching $10/bbl back in 1998. Unusually the Sakhalin PSC contained no State participation directly or indirectly with the result that the State was entirely reliant on taxes to secure any benefit from the project. The key mechanism to deliver tax revenue was from the Profit Oil which is formulaically linked to project Rate of return. Again unusually the project cost oil was 100% ensuring that the state would secure little or no revenues until project payback was secured. The project delays and rapid escalation in development costs that transpired meant that cost oil increased at the expense of profit oil and the rate of return declined to the extent that the Profit oil would never escape from the lowest tranche of State take. In effect the state found that it was taking a disproportionate burden of the project delays and cost overruns. This ultimately lead the State to intervene and recast the PSC terms to ensure a better balance of reward between investors and the State and most significantly the State became a direct equity participator in the project. Had the State been an equity participator from the outset then arguably the tensions around the project may not have occurred. Additionally the designers of the fiscal regime should have structured the terms to ensure a minimum flow of revenues to the State from the outset.

Another important point related to the design of the fiscal regime is that although some regimes may have similar apparent structures and tax rates, their impacts on oil projects' and companies' profitability and Government take can be quite different. One cannot make judgements about the effectiveness or strengths of a fiscal regime, simply by looking at the tax rate. Several factors, such as fiscal reliefs and the process of calculating the tax base — or simply the way the fiscal model has been designed — can lead to significant differences among fiscal packages, while different structures and regimes can produce the same results in terms of revenue and tax 'take'. The only way to compare a fiscal regime in overall terms is to derive the project Government take defined as the Net Present Value of total Government revenues as a proportion of pre-tax revenues. Government revenues in this context include all taxes, royalties, profit oil and bonuses paid to the Government.

Consider the UK, Australia and Norway, which have all adopted concessionary regimes.

The first impression that one gets when looking at their fiscal terms is that a certain harmonisation exists between the three regimes. None of the selected regimes now apply Royalty — this was prevalent at the start of the basin but was progressively abolished to create a profit related regime. In each case a royalty was imposed when the oil province in question first opened up for production. But in each case, also, the royalty element was progressively abolished and replaced by a profit related regime.

In all three regimes the income tax rate is around 30 per cent. (However, in the UK, with the additional 20 per cent Supplementary charge imposed in April 2002, the UK now has the highest income tax rate at 50 per cent). This income tax is the general tax that applies to all companies operating in the three countries respectively. In Australia and Norway a special resource tax also applies at a rate that varies between 40 and 50 per cent. The three countries provide tax incentives and extra expenditure

[4] Barrows, 2000, p.105

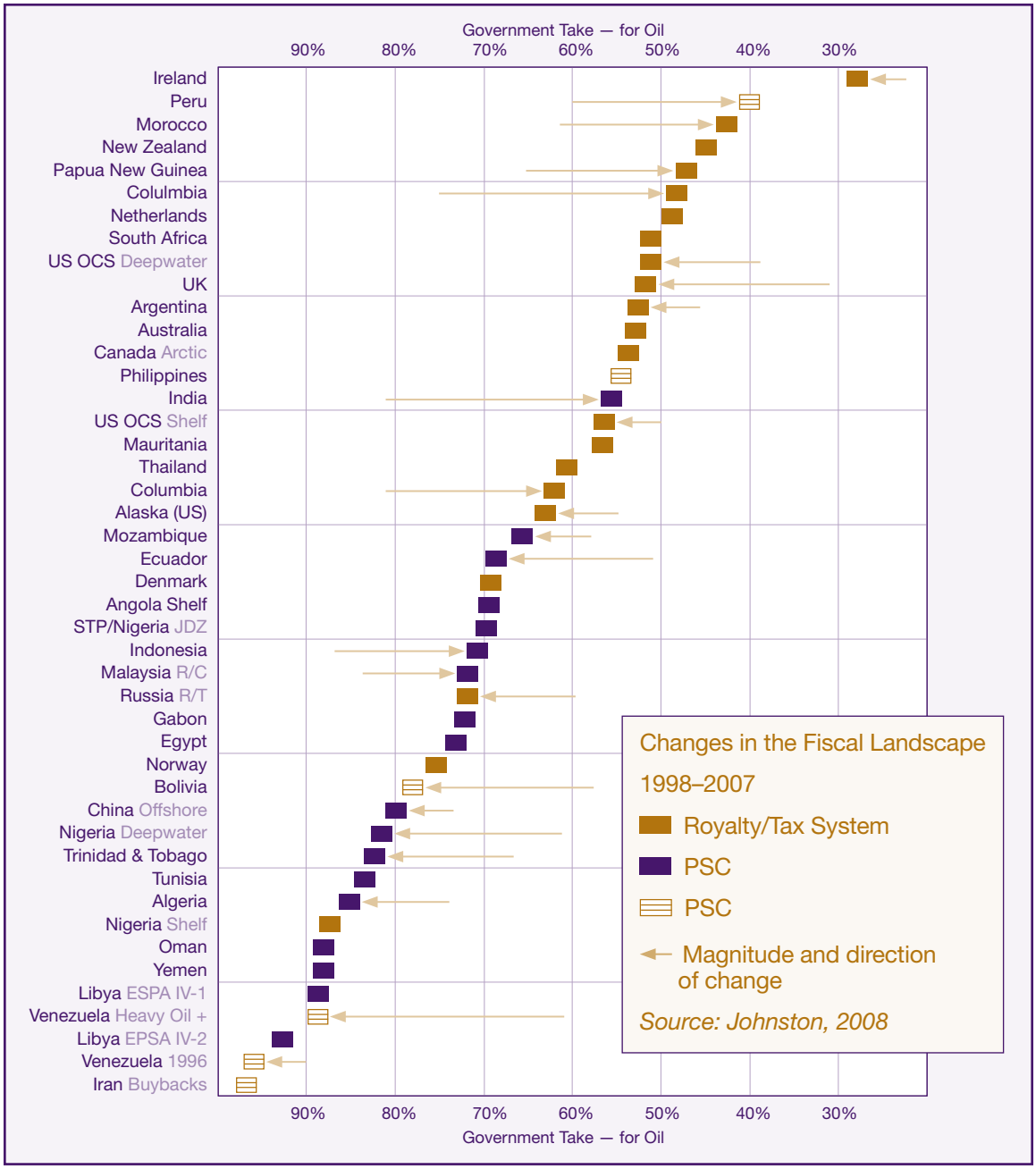


Figure 9.2: Government Take

reliefs. Hence taxes are typically paid only when Net Cash Flow begins to turn positive.

Nevertheless, the economic outcomes in terms of Government take differ markedly because of different elements such as the treatment of expenditures, abandonment costs and the interaction of various taxes. For instance, in the UK, no project pays any tax until payback is reached; this is a uniquely favourable arrangement. In Australia Abandonment costs are not deductible expenses. In Norway, the Special Tax is not deductible from the Income Tax base.

Additionally, while it might be expected that the toughest fiscal terms from a company standpoint are likely to be found under contractual regimes and less onerous terms are expected under concessionary regimes, the reality can be quite different. Very strict fiscal terms can be found under concessionary regimes, such as Norway where Government take is 78%. Economically speaking, the type of contract and the entitlement to ownership are rather of legal and political significance. It is difficult to reach a general conclusion about the level of government take simply by considering the fiscal regime.

Figure 9.2 shows the spectrum of government take (in percentage) in major oil producing countries. It can be clearly seen that some countries with concessionary regimes can have high take while others with PSC's can have a relatively low take. Additionally, the countries that adopt risk service agreements tend to be the ones which have failed to attract foreign investment. The result is that the production that flows from these contractual arrangements is very small compared to production volumes that flow from PSC's and concessionary regimes.

It can of course be the case that initial service-type agreements with the IOCs are treated as a precursor to more substantial contracts later on in the stage of a nation's oil industry development. The decision already noted above by the Iraqi Government to let out four new no-bid service-type agreements to ExxonMobil, to Total, to Shell and to BP, is an example of this approach, which may or may not lead to more substantial arrangements when the new Petroleum Law is fully operational.

Finally, it would be inadequate to describe a regime with low tax rates and low government take (in percentage) as weak and a regime with high tax rates and high government take (in percentage) as strong. Much depends on the objectives of government policy. A country may have low tax take for a number of reasons, namely, high costs, small volumes, high geological risk, basin maturity, the need to attract more investment to compensate for perceptions of high fiscal risk and the belief in a low tax environment for business in general.

Some Angolan PSC are often described as 'onerous' — the onerous components including relatively low and fixed cost oil as well as high income tax plus high signature bonuses to secure the initial concession. However, these elements are somewhat balanced by the absence of royalties and an IRR-factor based sliding scale for profit oil (the higher the secured rate of return the higher the Government share of Profit oil). Also the income tax may be paid by Sonangol on behalf of the IOCs. Most importantly, Angola promises large discoveries offshore. Evaluations such as 'tough' or 'lenient' are relatively meaningless if one does not discuss profitability at the same time. In the UK, the remaining reserves to be exploited are smaller and more technically challenging than those developed in the past. A high level of government take is not prudent in cases of high-risk exploration and high-cost development, or for those provinces with remaining modest petroleum potential, as is the case in the UK Continental Shelf as the cost of producing oil can overwhelm any price incentive.

Shaping the Revenue Flow

Since the state is the basic owner of all a nation's natural resources it should receive a fair and equitable payment for all concessions, licences to exploit or any other 'rights' transferred to operating entities. Whether these entities are themselves state-owned bodies, or part state-owned companies, or companies entirely within the private sector.

Petroleum taxation has traditionally generated substantial revenues for governments. In the UK, more than $464bn in taxes (2006 money terms) has flowed to the Treasury between 1968 and 2006, thereby contributing to healthcare, education and various other services funded by government. In Norway, the industry paid $485bn in taxes (2006 money), contributing to a remarkable legacy — a petroleum fund worth more than $331bn. Much bigger sums have flowed into the coffers of major Middle East oil producer governments, as well as into Russian state revenues.

Altogether, Sakhalin 1 project is expected to yield $52.2 billion for the Russian government by the time the PSC expires in 2054. In the USA, where all operations are run and controlled by private oil companies, the Fed continues to earn substantial sums from lease sales. Angola secured over $1 billion in a signature bonus for a single block back in 2005, before any production started. But, in countries where IOCs have no or limited role to play — the latter being under service contracts — the financial — and other — benefits accruing to the governments are constrained. Payments of signature bonuses for instance are not applicable, as companies are unlikely to bid upfront large sums for what they believe are unattractive terms. As such, if it is early revenues Governments are seeking to sustain their economies without overstretching government's budget, then service contracts may not be the best answer.

In countries like Saudi Arabia and Russia, the NOCs have access to abundant resources domestically and are mainly focused on the self-sufficient development of those national resources. These NOCs exploit their resource base both as a means of supporting the national economy and as a tool to sustain their country's national importance as a major oil supplier. However, the list of less successful NOCs is much longer. NOCs normally have to meet costly non-commercial obligations that can hinder the NOCs ability to raise external capital and to compete at international standards. NOCs for instance can favour excessive employment and/or be forced to sell their petroleum products to domestic consumers at subsidized prices. With the recent sharp increases in world crude prices the question of subsidies has received considerable political attention, leading, in some case to government-authorised rises in retail oil products, notably gasoline. The Chinese authorities' decision to allow gasoline prices to rise by 40 percent is a striking example of this new approach.

These outcomes interfere with the national firms' ability to produce at a technically efficient level, to maximize the overall value that could be obtained from their oil resources. In consequence there is under-investment in reserves. The resulting effect will be stagnation in capacity growth and an inability to maintain or grow the countries' oil production capacity. Subsequent stagnation in oil and gas development is normally a disadvantage for oil producing nation, as it will clearly involves missing the opportunity of selling the additional oil and gas it could have produced had it sustained its production growth.

Pemex, Mexico's state oil monopoly, is one of the world's largest oil companies. However, the company is facing serious financial pressure, a mounting debt, reaching a staggering $42.5 billion (as of 2008). The company is the Mexican government's cash cow; it pays out over 60% of its revenue in royalties and taxes, and those funds pay for a third of the federal government's budget. If oil prices drop or there are no major new discoveries of crude, that could spell big trouble for Pemex — and Mexico's finances. This is a serious problem today as the company's proven reserves are dwindling, and drilling activity is declining. This is in stark contrast to the US side of the Gulf of Mexico where the sustained growth in production and development activity continues. Since 1992, oil companies have drilled more than 2,100 wells at depths greater than 1,000 feet in the U.S. gulf. Over a similar period Pemex has only drilled a handful of wells in the deepwater GoM. With the federal government draining its coffers, Pemex doesn't have enough money to invest in serious exploration. This led the Mexican Government to declare that the Mexican NOC must work with IOCs to boost sagging production, gain access to better equipment and tap deep-water oil reserves in the Gulf of Mexico. However all that is on offer to the IOCs at this stage are risk sharing contracts and it is unlikely that these arrangements will prove attractive to investors. Particularly when in the adjacent Gulf of Mexico basin under US jurisdiction traditional concession terms are available which offer a more commercial proposition.

Fiscal Stability

Fiscal stability is a highly desirable, although not always achieved, attribute of petroleum fiscal regimes. Oil and gas projects are long term projects; they have inherent levels of risk present at every stage — from exploration to abandonment. Unstable fiscal regimes negatively affect the confidence of investors in government policy; if a tax system changes frequently and in an unpredictable manner, it may seriously affect future development projects as it increases political risk and reduces the value placed by investors on future income streams. If the variation of taxes over project life can be minimized — that is if the tax regime is stable — there is one less variable to worry the investor. One risk factor is either reduced or eliminated. If fiscal stability cannot be constitutionally guaranteed, as is the case in most OECD countries, then investors have to live with the fiscal risk. However this is acceptable provided that the fiscal risk is compensated for by a lower level of Government take. This has been the experience in the UK, a very unstable regime with frequent changes but over time a competitive tax rate.

It could be argued that because fiscal terms are fixed upon signature of the contract between the government and contractor, contractual systems offer a more stable environment than the concessionary systems. This particularly applies to PSCs as risk service contracts tend to be of much shorter duration.

However, many concessionary regimes round the world have been relatively stable. But while stability of the tax regime is often advocated, in reality it cannot be fully achieved. Circumstances are constantly changing. A certain degree of flexibility has to be allowed in any tax system if it is to respond to differing conditions and to evolve as a result of major changes in the external environment. This is not restricted to concessionary regimes. Although PSC's are based on long term contracts, governments are in full control of changing the terms of the contract. Typical examples are the Russian PSC in Sakhalin and the Kazakh PSC in Kashagan. Governments seeking stable revenue flows will adjust tax regimes to suit their needs.

Emphasis on stability is sometimes considered as favouring private investors at the expense of locking governments into fixed terms. This is not necessarily the case. Stability of the fiscal regime is not only important for investors; it is equally important to governments. A tax system that has some level of predictability and reliability enables governments to know how much revenue will be collected and when. Stable government revenue clearly assists with reliable expenditure forecasting and budgeting. Additionally, if governments are unable to deliver fiscal stability for political and constitutional reasons then the additional fiscal risk created will be required to be remunerated via a higher return to investors. Thus unstable fiscal regimes will in the long run be required to offer to investors a lower level of government take than if more stability was on offer.

Administrative Burden

In theory, tax regimes should be simple to understand and inexpensive to administer. Tax should be levied on a well-defined tax base that is simple and easy to collect lowering the compliance burden for both tax payer and collector. Transparency is equally important; the more transparent the means by which the government obtains revenues, the better informed the investors and the less the scope for manipulation and administrative discretion — behaviour which is bound to increase industry's perception of risk.

In reality, tax regimes are rarely simple. But some countries unnecessarily complicate their fiscal regimes, leading to extra administrative burden and costs. Furthermore, the assessment of the economic outcomes of a complex regime is likely to be burdensome, potentially confusing and leading to misplaced judgments and conclusions. All fiscal regimes can be susceptible to this danger. But in general concessionary regimes are less costly to administer than other regimes, given the need for less auditing and oversight. Besides, the government does not need oil marketing department/personnel unless it takes a share of the petroleum itself.The role of the government is to set the legal framework under which the oil companies will operate, and to collect fiscal revenues. That said, this does not necessarily mean that all concessionary regimes are simple. Compared to the UK and Australian regimes, the Norwegian petroleum fiscal regime is significantly simpler. Again, it all depends on the way the regime is designed.

Risk Issues

Oil exploration and development projects are characterised by large capital investments, long lead times and high risk. Risk is present at all stages of the project's life cycle, including the exploration, development and production stages. Risks can be political, exploratory (chance of failure), technical (reserves and cost estimation), economic (oil and gas prices), or commercial (fiscal risk). Geology is not the only determinant of risk. Geologic concepts are uncertain with respect to structure and reservoir characteristics. Several million dollars may be spent on a venture that turns out to be unsuccessful because no commercial quantities of oil have been discovered. But there are also other uncertainties affecting economic evaluations. These relate to costs, probability of finding and producing economically viable reservoirs, and oil price. During the exploration period, IOCs face the following uncertainties in the exploration period: no discovery; discovery is not commercial; or cost increase. The latter can be due to several factors. Previously unknown characteristics of the deposit may require the use of more expensive technologies. The same reason can lead to the necessity for an extension of the initial exploration period. This has knock-on effects. The longer it takes to explore the field the later production starts and the lower the returns to the investor and the State.

Under a PSC, the contract is signed (and signatory bonuses can be paid) before the IOC has had the opportunity to explore the oilfield on

offer. Only when oil is produced can the IOC recover its exploration expenditures. Meanwhile, financial circumstances might change and make borrowing more costly. That is why the IOC has a strong incentive to accelerate the exploration and development phase to secure an early return on up front capital. The state, on the other hand, has no direct financial risk during the exploration phase but it has to monitor that the IOC complies with the work obligations specified in the contract (number of wells to be drilled, depth, technology etc).

Since the IOC bears the entire exploration risk it will try to ensure that the contract terms allow for sufficient rewards in the development phase of the project. If the contract never enters into its production stage, the IOC has no way of recovering its exploration costs. On the other hand, if commerciality is declared and production begins, the IOC will want to recover its costs as early as possible.

During the production stage, apart from the obvious reservoir risk IOCs face two additional uncertainties: cost increase, and price decrease. Contrary to the exploration uncertainties, risks in the development period are normally shared by the IOC and its host government or NOC. What differs is the extent to which these uncertainties affect the partners. In the case of cost risk, if NOC refrains from taking up its participation option, a cost increase is largely but not entirely borne by the IOC. Say the cost recovery limit is 50 percent. A rise in costs then means that the IOC needs more time to recoup its expenditure. The longer it requires the maximum cost oil the longer both the IOC and the government have to wait before they can realise their take. The government's risk depends largely on its participation. If costs change significantly this will affect the amount of cost oil and/or the length of time during which the IOC requires the maximum cost-oil allowance. This in turn has an impact on the volume of production available for profit oil and thus on the government's profit oil.

Price risk refers to sudden significant changes in oil price. A low-price environment may result in the non-exploration of some oilfields, and the non-profitability of existing operations. The level of price risk depends on the extent to which the contract is flexible to accommodate price changes.

The government's main concern is that the contracted IOC applies best-practice methods during both stages in order to maximise total production. They can ensure this by monitoring the operation and by taking up their participation option. The IOC, in order to minimise their risk exposure, will want to recover their costs as early as possible. They also prefer contracts to display a degree of flexibility, possibly in the form of contract elements being linked to rates of return. But the IOCs also fear that the government as the sovereign may impose adverse tax changes or price controls. PSCs were originally devised to protect weak states from the IOCs. Today, however, PSCs are generally considered as protecting IOCs from the political risks associated with upstream investment in unstable and developing countries. By establishing the terms and conditions of exploration and development for the life of the project, PSCs are designed to protect foreign companies from risks such as arbitrary tax legislation, expropriation and unpredictable regulation. The most common PSC response to sovereign risk is international arbitration.

However, PSCs are not necessarily stable since one or even both signatories may want to renegotiate at some point in time. The inherent instability of contracts may result in some projects not being developed although they are economically attractive in general. The uncertainties over risk and reward-sharing prevent one or both parties from going ahead with the venture.

Contracts/Licenses Duration

Oil and gas projects are by nature long-term, with much of the investment and costs being incurred upfront. The exploration and appraisal stages, in particular, can last many years. There is also a significant time lag, often of many years, from the initial discovery of oil or gas reserves to the time of first production. Exploration and development activities have often taken ten years or more and even then it may take another twenty or thirty years to produce all recoverable reserves.

Service Agreements are short-term, normally lasting for nine years or less, compared with up to 20 to 30 years under a PSC and perhaps 50 in a concessionary regime. As such, under a PSC arrangement, the contractor receives profit throughout the life of the contract, which is normally the life of the field, whereas under

a Risk Service Agreement the contractor cost recovery and profit remuneration end at the Handover date. Furthermore, in the Service Contract, the contractor may have little incentive to reduce the long-term costs, since the field is likely to be under the control of the government.

This is a major limitation of the Service Contract, because a long-term partnership with a contractor may result in better overall field performance and much more value for the state than in the short-term approach. Under a Service contract, the IOC's interest is bound to be short-term. IOCs are bound to lack incentives to use new or proprietary technology or deploy their best people as the fixed fee and the short duration of the contract offer little upside or reward for superior performance. They tend to maximize output extraction in the first few years of the operation in order to recoup their investments within a scheduled time, without attention to an optimum recovery schedule over the reservoir's lifespan. However in a situation where the contractors' involvement in a given project was, say, 15 or 20 years, they might be willing to use new and more expensive technology for longer-term gains. For many IOCs these sort of contract formulations are 'loss leaders' in the hope that the initial contract will facilitate a constructive relationship with the host country that will lead to a follow on long term contract based on a PSC.

If Iraq or any other country wants to see whether the Buyback contract works, they can compare the situation in Iran over the last ten years. Iran's buyback contracts can be used to illustrate the problems above. Iran has been suffering from declining production — often failing to meet its OPEC quota. The country also suffers from low rate of recovery from existing fields and little wildcat exploration, and it desperately needs new technology, expertise, and capital. With a short-term investment requirement of US$ 15 billion and a total of US$ 70 billion for the next 10–15 years, Iran will need all the help it can get. Without sufficient investments by IOCs, Iran will not be able to improve its production capacity. Also, without sufficient capital input, Iran will also not be able to invest in the improvement of its domestic energy sector, which will remain a drain on its export capacity.

Concessionary Regime	Production Sharing Agreement	Risk Service Agreement
IOCs: • have exclusive right to explore and produce at own risk and expense • own production • often pay Royalty and Surface rental to Government • pays taxes on profit • own equipment • have right to export hydrocarbons • risk capital	The Contractor: • gets a share of production, usually in kind • r holds title to some oil (cost oil & Profit oil) • shares the risk with the • State management control • Often limit on IOC cost recovery • Royalty is common • Tax stability	The Contractor: • shares the risk with the Government • gets a share of Profits usually as money • never holds title to oil • risks capital, gets $ fee • State management control • Often limit to IOC cost recovery
State: • management control • reward is function of production and price	State: • owns barrels and facilities • takes production • shares in reward and risk	State: • owns barrels and facilities • takes all risk • Used by few States

Table 9.1: Summary

Section 10:

SUMMARY AND RECOMMENDATIONS

It is the Iraqi people who should and will decide

A petroleum fiscal regime that fits Iraq

Putting the pieces together

Summary

Iraq is at a turning point in history; a country that is emerging from decades of isolation, wars and internal conflict. These terrifying conditions held back what was once one of the greatest nations in the Arab world — a nation that once enjoyed the most educated and talented Arab population, that was once envied but today is pitied. But all that can change provided today's opportunities are not squandered. Iraq is a country in transition, and if the right policies are implemented, Iraq can bring back glory, pride and riches to its all its people.

But today the Iraqis are wounded, hence they are vulnerable to those who pretend to be their friends but are in fact their real enemies. These are the ones who are promoting the wrong policies in order to serve their own agendas. Their voices tend to be heard because they use the arguments that appeal to the general public, who lack energy and time to investigate the soundness of those arguments. The Iraqis are tired of war and more uncertainties in their lives. They want to be able to think about the future of their children without fears and worries. They need hope. But this is a dangerous phase as one can easily grasp any idea that promotes an end to all that humiliation and promises a better future. These are false prescriptions that will lead to more misery. The Iraqis are resourceful people, and it won't take them long before discovering that they have been misinformed. But they cannot afford to waste more time to discover what many other nations discovered long time ago.

A critical issue that is debated on a daily basis in the Iraqi and international circles is the future of oil, because oil is the backbone of the Iraqi economy and society. The development of the oil sector in Iraq will bring in the urgently needed financial and human resources to monetise the potential to develop the wider economy and salvage the country from its present economic ruin and poverty. This in turn will help with the security situation.

Iraq has crucial decisions to make. The question facing the Iraqi people is: how best to maximise the economic potential of the hydrocarbon resource for the nation? Should they go all out for a significant expansion in oil production and export? Or are there arguments for a much lower rate of depletion? Are they going to move forward on their own or will they bring in IOCs/foreign investment? The choice of the course of action will determine the future of Iraq.

The objective of this study is to provide a comprehensive and objective survey to aid Iraqi policy makers with their choices. Of course, the final decision is solely for the Iraqi people but it is important that such critical decisions are made on an informed and objective basis free from political dogma and from the pre-conceived, and often irrational, ideas of the past, which deprived Iraqis of prosperity.

The study offers a menu that the Iraqis can consult. It presents options and it is based on robust and impartial economic analysis. The study reviews all contractual options that could be used to maximise the Iraqi hydrocarbon potential. It does not attempt to impose one single course of actions; different options, opportunities and conditions are considered. It does not take sides; it simply considers the contractual framework that will serve best the Iraqis interests. The study's main conclusion is that a menu of contractual frameworks, matched to the nature of the opportunities and tailored to Iraq's unique needs, will provide the optimal solution.

This conclusion has been reached after a meticulous examination and analysis of various fiscal frameworks from both a theoretical and practical perspective. In order to maintain simplicity and make it accessible to a wide audience the study avoids presenting an detailed economic analysis of fiscal regimes round the world. But this by no means affects the validity of the arguments made.

The reader is presented with ten sections, including this conclusion. It starts by considering the current situation in Iraq and the vision for the Iraqi nation. It addresses questions such as: at what pace does Iraq want to develop its oil resources? What is Iraq's production ambition and what are the possible scenarios for the next decade? What level of investment is required to achieve the various goals that have been enumerated? How much can and should the State accomplish on its own and what are the consequences and possible alternatives? What role can the INOC play in achieving this? Can new forms of partnership between the state oil company (INOC) and investors from outside be designed and what role will the IOCs play in such a partnership? If this is the way forward, how should the IOCs adjust their procedures and policies so as to maximise the value to Iraq from their involvement? How can IOCs' involvement ensure that the Iraqi Government's control and sovereignty are respected and sustained free from external influences? What are the realities of different fiscal arrangements? Which arrangement suits Iraq the most?

Iraq has world class reserves but has struggled to maintain its pre-conflict production capacity of 2.8 to 3.0 million bbl/d, due to the deteriorating security situation, lack of investment, and continuing acts of sabotage. Still, with oil prices comfortably exceeding US $100, the country is benefiting from higher revenues even at this modest level of production, but much larger sums would accrue if production could be increased. Besides, no one can guarantee that oil prices will remain high. Additional production is essential to supply growing domestic demand and support exports and most importantly to rebuild the whole economy. Substantial resources are needed to provide the basic infrastructure and the services needed to increase Iraqi welfare.

There is no technical reason why Iraq cannot produce up to circa 6 to 8 million bbl/d by 2020. Some people question whether that is possible or desirable. The answer depends on the course of actions the Iraqi government will take. If it wanted, Iraq could be one of the largest oil producers in the world by 2020. Iraq can chose between three approaches. First, there is a go-it-alone strategy, where the Government authorities formulate and finances investment themselves and execute it through INOC. The second option is complete dependence on IOCs. The third is co-operation between INOC and IOCs, ideally in new and practical ways specifically designed to meet Iraq's priorities and needs.

The study's conclusion is that if Iraq wants to enhance production and bring in the much needed capital, outside support will be essential; the strains on internal investment resources will be too great if the 'go-it-alone' strategy is adopted. On the other hand, counting on IOCs only is neither an acceptable nor a practical arrangement. The winning formula is the hybrid solution involving both INOC and the IOCs. This is the route which round the world has proved to be the most commonly adopted strategy; and which all experience suggests can meet the required goals and satisfy political expediency.

The development of a successful hydrocarbon sector in Iraq, as in any other oil and gas producing nation, should be built upon three essential pillars. These are: a strong capable NOC, constructive and sensitive IOC's operations, and a framework of good governance which delivers the right fiscal and legal contexts. If one of these pillars is missing, the foundation of the sector will be weakened.

Attracting IOC investment is about accelerating the pace; IOC investment creates space for State resources to be diverted to other priorities as well as providing access to early revenues. The industry worldwide is already investing around $400bn per year, so $10 – 20 bn per annum for Iraq seems fully attainable within five years. The Government need to comprehend what elements IOCs take into account when making investment decisions. These elements can be designed to maximise the contribution of IOCs and generate large sums upfront long before production takes off, while ensuring IOCs long term commitment to bringing in their best technology and know-how.

An important choice that the Government has to make is about the fiscal arrangement. Although fiscal regimes are grouped under two categories — concessionary and contractual regimes — a very wide spectrum of relationships exists between host governments in oil producing countries and IOCs. On the extremes, one finds either 100% private ownership of the hydrocarbon resource or absolutely no involvement of private companies. However, the majority of oil producing countries have developed arrangements which are in between with a strong role for the domestic NOC hand in hand with incentives for IOCs — each with its own fiscal terms and arrangements.

An ideal fiscal regime exists just in theory, and what works in one country does not necessarily work for another. It is very dangerous and misleading to generalise about fiscal arrangements. Each country must design what suits its policies and objectives. Iraq offers a range of opportunities, from producing large fields, to fields awaiting developments to new exploration. Each of these requires different fiscal terms. Concessionary arrangements are unlikely to be adopted for political reasons. The issue remains about the choice between PSCs and risk service agreements. There are basic differences between those two arrangements which can lead to significantly different outcomes. Most of oil producing nations which have chosen to adopt contractual fiscal regimes use PSCs.

There are a rich variety of examples and models that Iraq can consider in designing its contractual arrangement. The question remains as to which ones are more appealing to Iraq: the Libyan or Angolan regimes or the Iranian and Mexican regimes? Which one is likely to generate the most benefits to the Iraqi nation? In deciding which way to go, the priority is to avoid dogmatic assumptions and simplistic associations of one particular regime with a specific political doctrine or pattern of governance. Some argue that adopting PSCs will be to surrender to the 'West'. But even Syria, one of the hostile countries in the region to Western influence has for many decades encouraged IOCs through PSC arrangements.

Finally, in the interests of Iraq itself, and of clear thinking about the future, an overshadowing myth about the recent past has to be punctured and dismissed. Objections to IOCs involvement in Iraq continue to be voiced on the grounds that the oil majors are somehow pushing to invest in Iraq at the behest of the US/British administrations to recover the cost of the conflict. A moment's reflection shows how far the reality is from the mythology. Net of costs, the Iraqis are likely to secure through taxation circa 80% plus of the value of any barrel of oil extracted. The benefit to IOCs will be limited to the return on investment for risks incurred and to the oil supply chain, though arguably the latter will benefit equally whichever contractual route is followed. The benefit to the Governments of the US and other Western (or Eastern) powers is simply the mutual advantage that will flow from Iraq selling its higher oil production to hungry world markets. This is of more value to Iraq than to the consumers. If Iraq can become a reliable and valued supply of crude oil it can become a country of influence in the Middle East and beyond to rival Saudi Arabia and take a proud and leading position in the region and in global affairs. It is possible. The right and balanced policies and priorities can take Iraq along that path to a better future.

Recommendations

It merits repetition that it is for Iraqi people and through them their elected representatives to shape all the decisions with respect to development of their petroleum resources. There are many models that could be followed which may or may not require investment by IOCs. However without seeking to appear unduly prescriptive the author has taken the opportunity to create a possible framework indicating how IOC investment should be encouraged and how the economic rent can be distributed.

The important principle is for the fiscal and contractual regimes to be matched up with the nature of the opportunities. Given the range of potential opportunities in Iraq from redevelopment of existing fields, to the development of undeveloped discoveries and possible exploration there is no one fiscal structure that could or should be designed to cover all such investment opportunities. Of course Iraq has already taken many recent decisions to encourage production from existing fields and these should be built upon.

The suggested approach is therefore to move towards a model which is both hybrid and novel, as well as being carefully tailored to Iraq's conditions and Iraq's best interests. Its features are as follows:

- **Existing fields in production:** To encourage investment in existing fields the preferred framework, already being adopted by the Iraqi's in current negotiations with IOCs, is based on combinations of technical assistance and risk sharing framework. For opportunities in producing fields the level of technical risk borne by investors is much less than for less mature opportunities. It is therefore unlikely that PSCs would be appropriate except perhaps for the less mature fields, where required investment levels are significant with lengthy payback periods. It should be recognised that generally investors have a limited appetite for such technical service or assistance contractual frameworks which are often viewed as short term and offer limited upside potential. Many investors simply view such contracts as 'loss leaders' to establish a foothold in the country and build a relationship with the NOC and Government representatives in the expectation of shaping access to more productive and long term opportunities. They also offer very limited opportunities to 'book' reserves or production.

- **Undeveloped discoveries:** For these opportunities investors face significantly more risk — in particular reservoir risk, completion risk for the facilities, infrastructure, geological risk and a lengthy period between investment and payback. However, in such cases the company concerned is not facing exploration risk since the fields in question are already discovered, though some appraisal risk may remain. For such opportunities the Iraqi's could consider the PSC framework in combination with the requirement for IOCs to offer an upfront signature bonus. In order for IOCs to secure the contract they would have to offer the largest bonus, appropriate fiscal terms would be set in advance of the bidding process by the Iraqi administration. These may differ for each discovery being offered for competitive bidding though many of the features would be common. With Iraq being recognised as possessing world class reserves with low unit extraction costs the overall levels of Government take in any contract can be set at high levels whilst still preserving basin competitiveness. It is envisaged that the overall level of Government take would be typically in the range 75% to 85%, amongst the highest of any oil producing province. The scale of opportunities across Iraq and the expected competition between IOC bidders (and foreign NOCs) is now so intense it is probable that very many billions of dollars could be raised by such an approach. It is not unrealistic to suppose that up to $20 billion could be raised from this approach with a five year period. Of course this does not have to be an all or nothing approach and it would be prudent for the Iraqis to experiment with some early bidding rounds to assess what could be realised from such a method.

- **Exploration:** Clearly exploration involves more risk and a PSC contractual structure would seem the most appropriate. The fiscal framework could follow very closely the

model outlined above for developments. Signature bonuses would still form part of the contract award process though the sums achieved would be less than for a development opportunity, it is also important that bidders offer ambitious work programmes to ensure swift and efficient exploitation of the acreage on offer.

- **NOC participation and funding:** Consistent with the aspiration to grow NOC capability it is highly desirable that the Iraqi national oil company takes a minimum equity stake, say circa 25%, in all future contracts awarded to foreign investors. This ensures that the State has a direct involvement in the decision making inside the joint venture and can learn from the Operational experience. It will also foster better alignment between the aspirations of the investors and the State. This will help strengthen the State's own operational capability and assist the dissemination of best practice management in the fields of oil field procurement, reservoir management, commercial competence, technology deployment and the creation of a reasonable and prudent operator skill set. Such a minimum equity position in Iraq's oil fields will place a considerable funding burden on the State. It is therefore recommended that the pre first oil investment requirements for the State's equity be fully funded pro rata by all the IOCs in each contract. This is a familiar arrangement in most countries ambitious to swiftly create a world class NOC. The State's share of all investment (including exploration, appraisal, seismic, development capex, bonuses) is carried by the IOCs and repaid with interest out of the State's share of Profit oil. Such arrangements will ensure that the cash flow profile for the State will always be positive. The State's share of the rent from the petroleum sector will therefore consist of not only the taxation yield but the dividend stream from the State company.

The above are ingredients or options from an 'a la carte menu' which can be selected in various combinations to construct a competitive and enduring relationship between the State of Iraq and its agencies and the best IOCs. This is the preferred framework which can assist Iraq in moving swiftly towards the delivery of its ambitions for the petroleum sector.

Section 11:

KEY MESSAGES

This study analysed many questions often raised in various circles about the future of Iraq's oil and gas sector. After an extensive study of the country's conditions and of various fiscal arrangements, the main messages of the study include the following:

- The recommended policy for Iraq is to implement an enabling fiscal and regulatory framework which lifts oil production substantially, swiftly and sustainably. The increased revenues should be used to restore the physical and social infrastructure of the country. This is the best investment and the best use of its ample resources which Iraq can make on behalf of all its peoples.
- To achieve this goal, Iraq will need to draw on the skills and energies of the Iraqi State authorities ***and*** on the best and most advanced resources from the private sector, both domestic and international.
- Dissenting voices counselling lower oil output targets and the rejection of foreign investment and involvement in the oil industry must be avoided as not being in the best interests of the Iraqi people either in the short term or the long term. Those who reject IOC investment, however well intentioned, are the real enemies of Iraq.
- Most oil producing countries are open to IOC investment, and have benefited greatly from such visionary policies.
- Recognising Iraq's unique conditions, and within the evolving dynamic shaping the world's oil industry, innovative arrangements need to be devised to satisfy both legitimate national aspirations and oil company needs.
- The keys to success can best be depicted as resting on three strategic pillars: an effective NOC, new partnership arrangements between NOCs and investing IOCs, and good governance in the host country, based on principles of transparency, a competitive fiscal regime and an open and well-administered regulatory framework.
- The essence of these new arrangements is that the Iraqi Government must always be fully in control, with company operations taking place within a tightly regulated framework.
- Government sovereignty can and must be fully secured. External IOC investment in no way diminishes or sacrifices State control. Effective regulation is key to effective state control of the oil resource.
- IOC investment is a means to an end. It is the key enabling factor in allowing Iraq to achieve its goals, become a nation of major influence in the region and create wealth for all.
- A hybrid contractual pattern offers the best approach for Iraq. This will match fiscal and

contractual structures to the nature of the opportunities, has the potential to yield early bonus revenues through the new kinds of PSCs.

- For existing fields Technical service Contracts may be suitable. However their short term duration and limited access to project risk and upside diminishes their appeal as vehicles for delivering access to IOC best practise and technology.
- Iraq should be able to establish some of the toughest fiscal terms in the Industry to match its world class resource base.
- Myths or assertions that Iraq will be exploited by IOCs are wide of the mark and do not accord with real Iraqi interests. The notion that Iraq will be exploited by foreign investors is as facile as it is offensive to the intelligence of the Iraqi's. They have the capability to put in place a robust and effective regulatory and fiscal regime that provides Industry with a competitive framework but leaves Iraqi with the vast majority of the economic rent.
- Today's oil price environment and competitive IOC dynamic presents an opportunity for Iraq to secure very competitive contractual terms.
- IOC investment will enable Iraq production to grow more rapidly, and in a more balanced way, than Iraq could achieve on its own.
- The key issue is how the value of the barrel is shared. If the tax rate is 85% it does not matter who physically owns the barrel.
- Iraq should be open to foreign investors from a wide spectrum (IOCs, NOCs large and small from all nations). More players equals more investment, a need for all and room for all.
- If IOCs bring capital investment to the Iraqi oil industry on a large scale, that frees up resources for the State. Deploying Iraqi financial resources represents major opportunity cost that can be avoided.
- IOCs will need to be ready to commit themselves and their resources to Iraq for the long term and to invest heavily and determinedly in the new partnership proposals on offer.
- The decisions and pathways to the future in Iraq and its oil industry are for Iraq people to make alone without outside interference, either political or commercial, or from the West or the East.

Appendix 1:

CASE STUDIES

Case Study Angola

Context

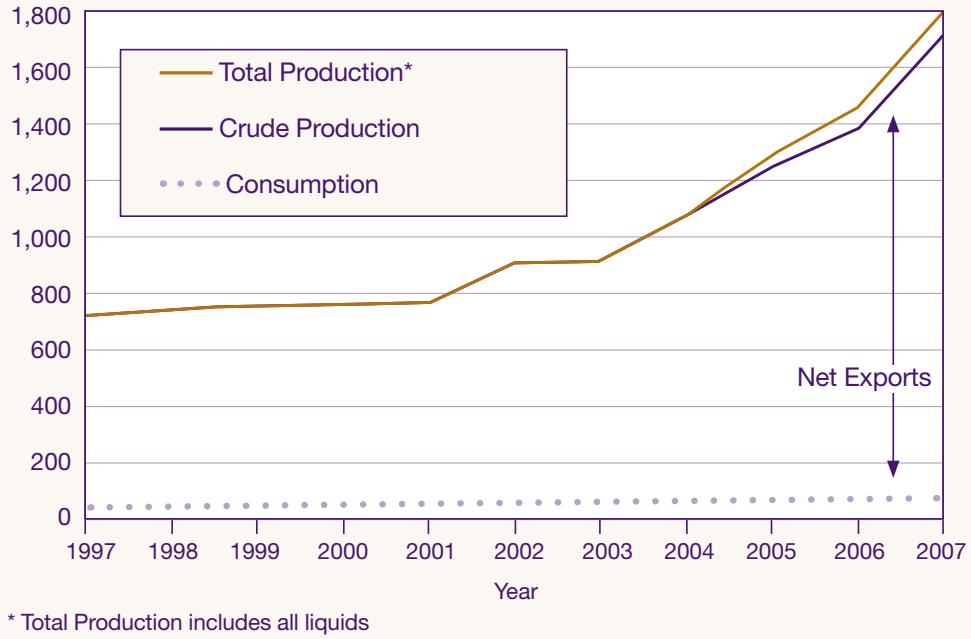
Angola is a long established petroleum province with exploration and production activities that can be traced back over 100 years. However sustainable activity in the petroleum sector did not really get into gear until the 1980's, several years after independence and the end of the civil war. Initial efforts were focussed on the onshore production and shallow water provinces and by 1990 production had reached nearly 500 thousand bbl/d (mbpd) . However, the real success story for Angola is the deep water which was licensed in the early 1990's and has resulted in a series of world class discoveries. Many of these are now in or soon to enter production. As a result Angolan production is on steeply rising trend passing 1.7 million bbl/d in 2007 and expected to reach 2.5 million bbl/d by the early years of the next decade.

Much of this success is down to the enlightened polices of the Angolan Government which consciously encouraged inward investment from the IOCs by offering a stable and competitive fiscal regime based on production sharing contracts (see below). The authorities have also mined the competitive instincts of the IOCs by awarding licenses on the basis of the largest signature bonus. In the 2005/6 licensing round a single block attracted a remarkable $1.1 billion signature bonus offer. Angola has raised considerable up front revenues from the IOCs in signature bonuses over the years. In 2007 Angola received in excess of $18 billion in revenues from the petroleum sector (including Sonangol) according to official figures from the Angolan Ministry of Finance. The tax yield will rise significantly once investors have recovered costs and Government Profit oil rises in line with predetermined economic triggers.

Production

The chart below clearly illustrates the rapid increase in production since 1997, nearly all of this from the deepwater sector. Onshore production from Cabinda is now mature and accounts

Angola's Oil Production and Consumption, 1997–2007



* Total Production includes all liquids

Source: EIA, International Engergy Annual; Short-Term Energy Outlook

for around 500 mbpd of the total. Estimated reserves in existing discoveries are approximately 10 billion bbls at the end of 2007.

Investment

Capital expenditure in Angola averaged around US$1 billion per year during most of the 1990s. Deepwater investment began in the late 1990's and by the turn of the decade, deepwater was the single largest area of investment. Capital expenditure over the five year period, 2007 to 2011, is forecast to reach over US$33 billion, the majority of which will be spent on deepwater projects. Annual capex levels have steadily increased from around $2 billion in 2000 to $5 billion in 2008 and $14 billion p.a. by 2015. The vast majority of this expenditure is made by IOCs.

State Oil Company

About to celebrate its 30th anniversary, Sonangol has built a solid reputation in the oil industry both in Angola and abroad. This is a direct result of strong relationships with the wide range of oil companies which operate, or which have interests and investments, in Angola. As a signal of Sonangol's capability the company secured its first Operated license in 2003. Most of Sonangol's exploration costs are carried by the IOCs and reimbursed with interest from its share of production.

Fiscal Regime

The fiscal terms for each PSC are confidential and tailored to expected opportunities from each license area. Nevertheless there are many common features and similarities between contracts are greater than differences. Typical features are:

- No Royalty
- Cost oil 50%
- Uplift — 40% of capex
- Depreciation 4 years straight line
- Profit Oil splits are formulaically linked to an earned project rate of return

Typical IRR based profit splits are given in the table below. This became the basis of all licenses awarded since 1991. Prior to this date the Profit splits on PSC's were linked to cumulative production.

Angola's Profit Oil Splits

Rate of Return	State Share	Contractor Share
Nominal %		
Less than 15%	25%	75%
15% to 25%	35%	65%
25% to 30%	55%	45%
30% to 40%	75%	25%
Over 40%	85%	15%

- Income tax 50%

The benefit of this fiscal structure is that the Government take will automatically rise as the project profitability increases, either as a result of higher prices, higher reserves or lower costs. This aligns the requirements of investors, for downside protection and the needs of the State to capture the project upside. It is notable that countries such as Angola with such responsive or progressive fiscal terms have not needed to intervene to increase Government take with higher prices. This will happen automatically.

Verdict

Most commentators would regard the Angolan fiscal regime as being a successful model to emulate. The terms have resulted in a fair distribution of value between investors and the State and have clearly encouraged a sustained high level of investment from IOCs across a wide spectrum of activity from exploration through development. The Angolans have also cleverly exploited the current competitive pressures in the Industry for exploration access and have secured some spectacular signature bonuses. The progressive features of the fiscal regime have enabled it to formulaically provide the price upside to the State whilst preserving the important fiscal and contractual stability to investors. The provision of uplift for capital investment is an important feature to provide incentives for investment. The fiscal mechanism does however mean that for most contracts the current high prices will result in very high marginal tax rates for new and incremental investments which will not reduce if prices fall in the long term. This may provide a disincentive to late life investments and may require modification if optimal recovery is to be assured.

Case Study Azerbaijan

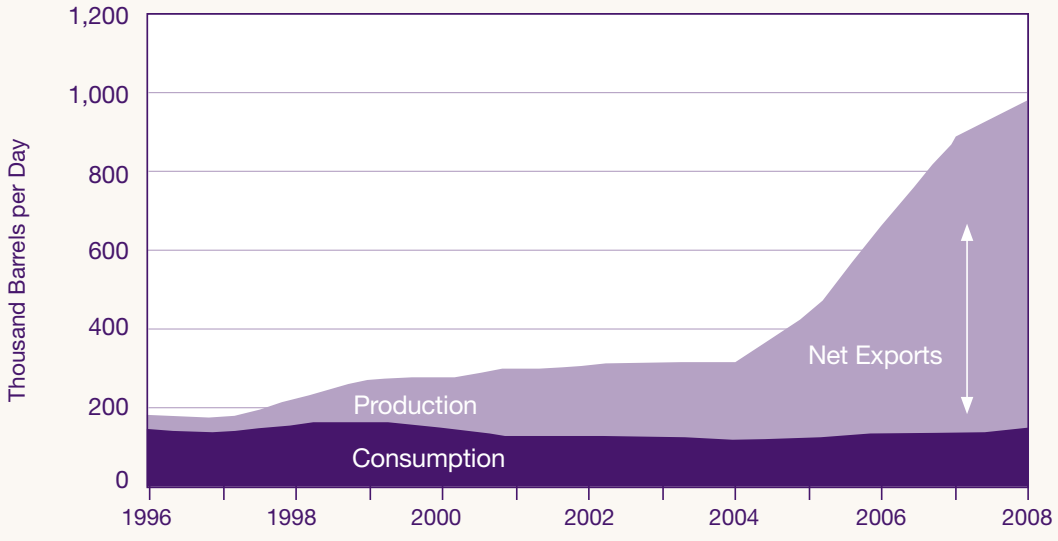
Context

Azerbaijan has a very long history of oil production which can be traced back over 150 years to the 19th century, more recently the country was one of the most important producing provinces in the FSU and in 1941 produced nearly 475 mbpd . Production during most of the last century was focussed onshore with a gradual move to the shallow offshore but this is now a mature area and production levels have steadily declined from the late 1960's. Following independence in the early 1990's attention moved to the deep water Caspian and the prospective development of the giant Azeri field which was discovered in 1987. The new administration was financially stretched and determined that the State oil company, SOCAR, did not have the necessary financial and technical resources to develop such a challenging deep water field efficiently and swiftly. A better option was to access the resource of overseas investors in the shape of the international oil Industry. The development of the field was put to international tender and was awarded to consortium of IOCs in 1994. Development proceeded rapidly and first production commenced in 1997 and quickly ramped up to nearly 800 mbpd during 2007 and is expected to exceed 1 million bbl/d by the end of 2008. The development of the Azeri field also required the construction of export infrastructure and the BTC pipeline linking the Caspian to the Mediterranean, covering a distance of nearly 1800 kms, was constructed swiftly and commenced operations with first oil shipments in 2006. The involvement of IOCs in Azerbaijan is almost a text book case of how the interests of IOCs and the State can by working together creatively deliver stunning success for all parties. Tax receipts from the Azeri project approached $10 billion in 2007 and will rise significantly in the coming years.

Azerbaijan also has significant gas reserves and production commenced from the Shah Deniz field in 2006. Gas from the phase 1 development is sold to local markets and to Turkey and Georgia. Subsequent phases may take gas to Europe.

Production

The chart below clearly illustrates the rapid increase in oil production since 1996. Initial reserves for the Azeri field and satellites were estimated at 5.4 billion bbls. Recent statements by the Operator BP suggest these could be increased to nearly 9 billion bbls. Plateau production of around 1 million bpd is now expected to be maintained from 2009 through 2019 much longer than originally envisaged due the deployment of latest technologies and better reservoir understanding. BP have also remarked that in Alaska the Prudhoe Bay recovery factor



*Source: EIA, International Petroleum Monthly.

has increased from 40% at time of development to 56% today, similar trends in recovery factor improvement are behind the upgrades to Azeri production. This is an instructive and tangible demonstration of the benefits that flow from IOC involvement who are able to transfer best practice learning's and technology deployment based on evolving global experience.

Investment

The Azeri field has already absorbed some $25 billion in capex which represents the bulk of investment in Azerbaijan in recent years. Investment levels at the turn of the decade were less than $1 billion p.a. but now average in excess of $4 billion p.a. Recent offshore exploration drilling in the Caspian has been disappointing and it is unclear how much potential beyond the large existing developments remains.

State Oil Company

SOCAR was created in1992, to manage oil and gas production, refining, exports and imports on behalf of the State. The company has taken over the most important oil and gas production enterprises in Azerbaijan and SOCAR is responsible for negotiating projects with foreign investors. SOCAR also holds a direct working interest in all of the PSC's signed in the Azeri sector to date. Some of these interests have been diluted in exchange for purchasers funding SOCAR's share of development expenditure. The scale of direct SOCAR involvement in PSC's is typically from 10–50%. IOCs are usually required to carry the working obligations of SOCAR through one or more phases of the contract thereby reducing SOCAR's funding requirements. In all of the recently concluded contracts, SOCAR is carried by IOCs through the exploration phase. In 2002, the Government of Azerbaijan approved plans to reorganise SOCAR as a joint stock company with a view to a possible part privatisation of the company of the order of 15%, this has yet to occur.

State Oil Fund

The State Oil Fund was established in December, 199 it has already accumulated nearly $ 3.3 billion in value. The philosophy behind the creation of the oil fund is to ensure 'intergenerational equality of benefit with regard to the country's oil wealth, whilst improving the economic well-being of the population today and safeguarding economic security for future generations'.

Fiscal Regime

The Azerbaijan fiscal regime is based on PSC's though there are considerable variations in design. Most are profit related and have the Government share of Profit Oil lined to objective measures of field profitability. This ensures that as project returns increase then so will Government take. Most have common features such as:

- No Royalty
- Signature and production bonuses
- Cost oil 100% for opex, up to 50% of balance for Capex
- No uplift
- Depreciation — 5 years straight line
- Income tax varies, most contracts have income tax paid by SOCAR, others are subject to income tax at 25%.

- Profit Oil splits linked to rate of return or R factor.

Typical Example of Profit Oil Division:

Real ROR (%)	Government Share (%)	Contractor Share (%)
< 16	30	70
< 22	55	45
> 22	80	20

The marginal Government take in the above example will range from 30% to 80% and some contracts in Azerbaijan will take the marginal tax rate towards 90% once the top tranche of Profit Oil is triggered.

The distinctive feature of this fiscal structure is that the Government take will automatically rise as the project profitability increases, either as a result of higher prices, higher reserves or lower costs. This aligns the requirements of investors, for downside protection and the needs of the State to capture the project upside. The potential drawback of such regimes is that the progressive feature of the fiscal regime is one way and cannot be reversed unless the earned IRR falls — very unlikely unless a massive mid project life is committed. The R factor alternative can trigger falls in Government Profit oil more readily, this is important if late life investment is to be encouraged.

Verdict

There is probably no better modern example of a successful fiscal regime than that for the Azeri field. It is in the process of delivering fabulous wealth for the people of Azerbaijan whilst providing appropriate incentives and returns for investors. It has also responded, without need for intervention or modification, to a near tenfold increase in the price of oil since its formulation by automatically delivering much of the upside to the host nation. The contract has also delivered much needed up front revenues to the State via various bonuses, significant Profit Oil from first production and equity cash flow from State oil company SOCAR who's development costs were carried by IOCs. Of course no regime is perfect and from now on investors face a 80% plus marginal tax rate (irrespective of the oil price) which in the medium and long term risks making some more marginal investment uneconomic particularly if oil prices retreat.

Case Study Qatar

Context

Qatar is one of the undisputed success stories of the Middle East with the nation rapidly consolidating its position as the world's leading supplier of LNG. Currently Qatar supplies 17% of global LNG, this will increase to 27% by 2010 on the back of a doubling in LNG output. The transformation is remarkable; 10 years ago Qatar's share of global LNG exports was under 2%.

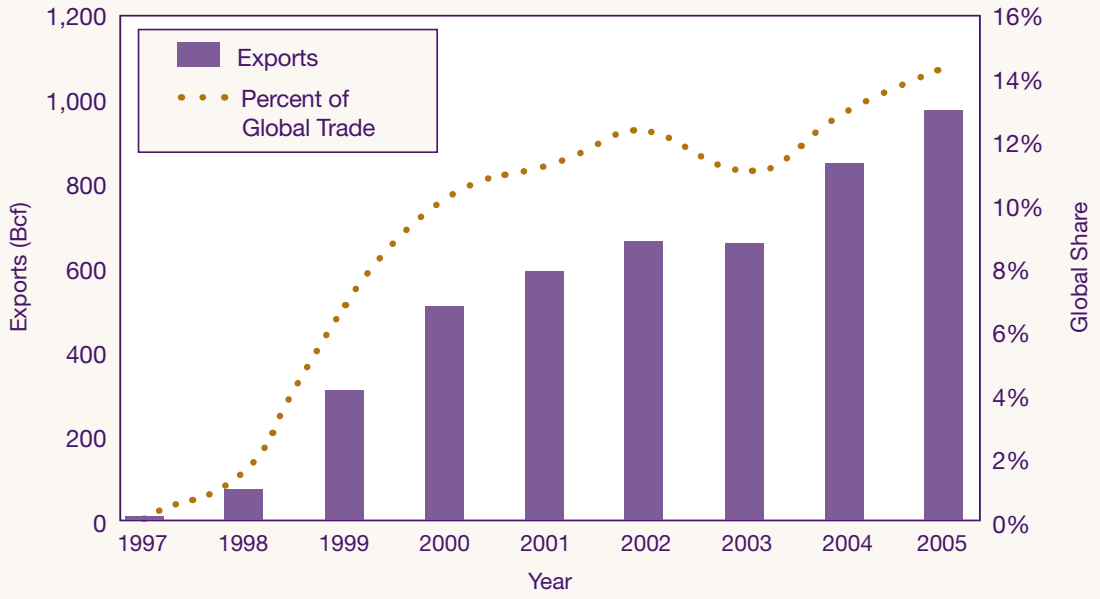
To feed the growing LNG business gas production is on course to increase 12 fold in the period from 1998 to 2013 reaching a plateau of over 20,000 million scfpd. At this level Qatar will become the world's 4th largest gas producer. At the end of 2007 Qatar's proven gas reserves were 907 tcf the world's third largest after Russia and Iran. Proved Oil reserves were 27 billion barrels and oil production is planned to be increased from under 1 million bpd through the 1990's to circa 1.8million bpd by 2010. Qatar is also a leading player in Gas to liquids (GTL) projects with some 175 mbpd of capacity under development.

These are impressive statistics for a county with less than 1 million inhabitants. Qatar is on track to become one the wealthiest nations on the planet. How has this can been achieved are there lessons for other resource rich nations?

Policies

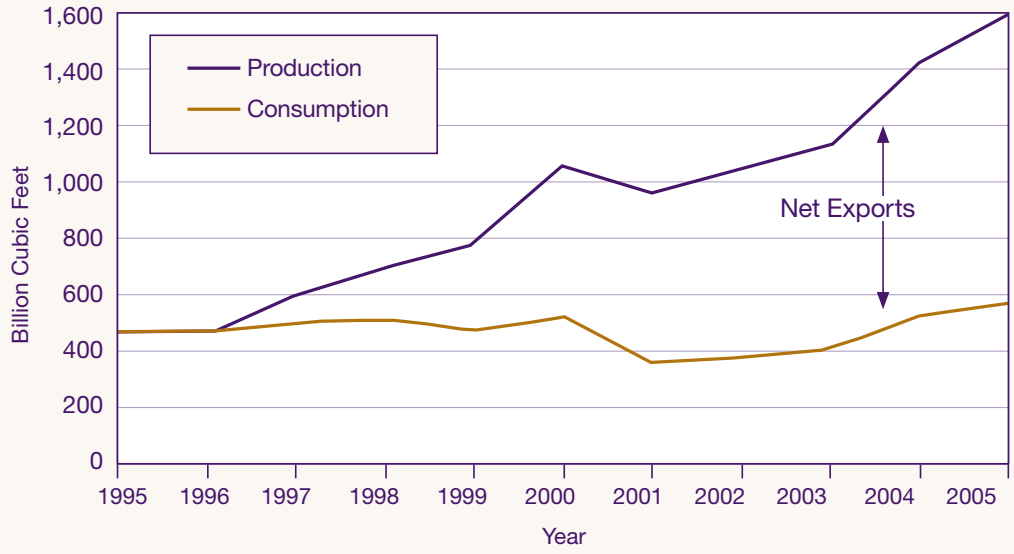
Much of the success of the Qatar petroleum Industry is down to the Government policy of encouraging foreign investment through the formulation of stable regulatory and fiscal policies in the context of a forward looking pro market economy. This has resulted in securing the sustained interest of the world's leading IOCs and the development of leading edge technologies to commercialise Qatar's hydrocarbon resources. At the same time the capability of the State oil company Qatar petroleum (QP) has been strengthened by ensuring that QP holds the majority equity in all the upstream contracts. The high QP equity interest ensures alignment with the IOCs in each venture, gives QP a high degree of control and enables them to learn best practice and technology deployment from IOCs. Qatar is a member of the World Trade Organisation (WTO) and hosted the Doha trade round.

Qatar's LNG Exports, 1997–2005



Source: EIA Natural Gas Monthly (Aug. 2006); EA Natural Gas Information 2006

Qatar's Natural Gas Production and Consumption, 1995–2005*



* 2005 is provisional

Source: EIA International Engergy Annual 2004; 2005 data from CEDIGAZ

Production

The bulk of Qatar's expected future increases in natural gas production will come from projects related to the massive North Field which was discovered by Shell in 1971. The field holds more than 900 Tcf of proven natural gas reserves and is the world's largest non-associated natural gas field. The North Field is a geological extension of Iran's South Pars field, which holds an additional 280 Tcf of recoverable natural gas reserves.

In 2005, the Qatari government became worried that the North Field's natural gas reserves were being developed too quickly and placed a moratorium on additional natural gas development projects pending the results of a study of the field's reservoirs. This assessment is not expected to be completed until after 2009.

State Oil Company

Qatar Petroleum (QP) plays a dominant role in the countries oil and gas sector. QP is a leading upstream producer of natural gas and also plays an important role in downstream projects. Most new natural gas developments in Qatar tend to be large-scale projects linked to LNG exports or the promotion of downstream industries that utilize natural gas as feedstock. Therefore, foreign company involvement has favoured IOCs with the technology and experience in integrated mega-projects.

Qatar's LNG sector is dominated by Qatar LNG Company (Qatargas) and Ras Laffan LNG Company (RasGas). RasGas is 70 percent-owned by QP and 30 percent-owned by ExxonMobil, while the Qatargas consortium includes QP, Total, ExxonMobil, Mitsui, Marubeni, ConocoPhillips, and Shell. In each case, the exact equity structure varies from project to project. The LNG companies handle all upstream to downstream natural gas transportation themselves, while the Qatar Gas Transport Company (known as "Nakilat", which means carriers in Arabic) is responsible for shipping Qatari LNG.

Fiscal Regime

Most production from Qatar is taxed under PSC's with the remainder under tax and royalty frameworks. The PSC terms vary from contract to contract but have many common features. The Government Profit Oil varies from 35% to 90% depending on the level of production and project profitability. The low levels of Government Profit share will typically only apply during the early years of the project whilst production is ramping up and costs are being recovered, once this phase has been passed the levels of Government profit Oil will increase rapidly. Once production exceeds the equivalent of 80mbpd Government share of Profit Oil will be above 80%. Overall levels of Government take on specific projects are high and typically range between 65% and 87% for most PSC's. The level of take on oil projects tends to be towards the high end of this range.

Case Studies: Countries where IOC investment is restricted

Context

Whilst the success stories surrounding those countries that have embraced and encouraged IOC investment are well known and understood those countries where IOC investment is less welcome, actively discouraged or subject to unstable Government policy are less visible. It is perhaps instructive to examine the reasons and consequences for those nations that seek to severely restrict investment by IOCs. One of the observations is that such anti IOC investment policies are rarely permanent and tend to follow the colour of the ruling regime. Periods of open investment are often followed by the opposite driven by for example high oil prices, a left wing anti west agenda or a perception that the country can succeed on its own once the IOCs have laid the foundations. Perhaps the best examples of such countries where IOC investment is less welcome include Iran, Mexico and Venezuela. This is not to imply criticism of the Government policy of those countries as this is clearly the expressed wish of the Government and its supporters. However in pursuing entirely domestic solutions to the development of the oil & gas sectors does limit access to leading edge technology and the benefits of external resources and expertise. The impact of such constraints depends upon the nature of the in country oil & gas opportunities themselves. For low cost onshore opportunities the impact may be modest, but for high risk technology intensive projects the impacts will be more fundamental and enduring. A good example is Mexico where the involvement of IOCs is minimal; the State oil company

Pemex simply lacks the expertise to develop the vast potential of the deep water Gulf of Mexico.

Of course the situation on each country is different. For example to a considerable extent investment in Iran's oil & gas sector is constrained by US Government sanctions and the extraterritorial reach of such policy which effectively prevents most OECD based companies from investing in Iran. Nevertheless even without the constraints of sanctions Iran's policies in respect of IOC involvement are a long way from competitive. Investors struggle to shape a viable business case for sustained investment. For Venezuela again the constraints here seem to be political. Government policy towards IOC investment changed dramatically with the election of Chavez in 1999 who reversed the open and liberal policy of his predecessor. The fiscal terms in Venezuela have always been amongst the toughest in the world but the enormous hydrocarbon potential and proximity to North American markets and Industry expertise in Houston made Venezuela a natural destination for foreign investors.

MEXICO

Mexico has a long history as one of the leading oil producing nations in the world. This was largely built upon the success of its onshore oil business and has largely been in the hands of and within the technical competence of the State oil company Pemex. The onshore oil business is now mature and Mexico needs to exploit the deep water potential in Gulf of Mexico if it is to arrest the Industry maturity. Mexico's territorial waters cover a significant part of the deepwater Gulf of Mexico (GoM). Hitherto, exploration activity has been minimal with only six well drilled, this is in stark contrast to the US GoM which has seen something of a boom over the last decade. Many of the deep water (water depth in excess of 1000 feet) statistics for US GoM are inspiring, for example:

- In the last 5 years annual well spuds were in the range 120 to 150
- In 2007, 24 of these wells were in water depths in excess of 7500 feet
- 12 deepwater discoveries in 2006 and 6 in 2007
- 72% of GoM oil production in 2007 was from deep water
- A record 15 rigs were active in ultra deep water (>5000 feet) in 2007

By analogy with the US GoM Mexico's acreage is regarded as being particularly prospective. Significant oil discoveries are anticipated here in the future. State oil company Pemex has only recently turned its attention to the deepwater, its resources having been focused on cheaper shallow water and onshore projects. Pemex has ambitious plans to drill more deepwater wells in the future, including several ultra-deepwater wells. However, the company has minimal technical expertise in the deepwater and, in addition, the high cost of such drilling activities work will make funding any exploration program, let alone any follow on development projects, a major challenge. Pressures are building on Mexico and it urgently needs to revitalise its oil and gas sector. In 1997 Mexico's proved oil reserves of 48 billion bbls were the second highest outside the FSU and Middle East. At the end of 2007 proved reserves had collapsed to 13 billion bbls whilst most other leading producers have recorded increases in proved reserves over the same period. The underperformance is crystal clear.

The obvious policy response is to create Joint ventures with IOCs and tap into their expertise. However such progressive policies are hugely controversial within Mexico, which has a long history of eschewing foreign investment in the oil & gas sector. Nevertheless the current challenges to reverse the decline in oil production is stimulating significant in country debate which may ultimately lead to some new relationships with IOCs. Ultimately the continued fall in Mexico's oil production may be the catalyst. Oil production in 2007 was over 5% lower than the previous year and is destined to fall further unless provinces such as the deep water GoM can be opened up. The success of the US GoM shows what can be achieved by the private sector with the right fiscal and regulatory framework.

IRAN

The proven oil reserves in Iran at end 2007 stood at 138 billion bbls and are second only to those of Saudi Arabia. They are comparable to those of its neighbour Iraq. Despite the vast potential

Iran's production has been static in the range 3.5 to 4.4 million bpd for the last decade. In the mid 1970's production briefly reached 6 million bpd before declining back to under 2 million bpd in the aftermath of the revolution. Iran also has world class gas resources, in particular the giant South Pars gas field, but their exploitation is being frustrated by a combination of the US sanctions regime and very uncompetitive fiscal terms. In contrast across the border in Qatar, which shares ownership of the South Pars field, designated the North field, development progress is much swifter. This progress has been engendered by significant involvement from IOCs aided by a competitive fiscal framework. It is difficult to say how much more investment might have flowed to Iran in the absence of the sanctions regime, clearly more but perhaps not significantly more. Iran only offers IOCs fiscal frameworks based around service contracts and buybacks which offer very tightly defined marginal returns. Investors are typically unable to book reserves from these contracts or share the reservoir and price risks. Investors are simply not offered sufficient long term incentives to maximise deployment of technology and expertise.

The Iranian authorities estimate production growing from around 4.2 million bpd in 2007 towards over 5 million bpd by 2015. This level of growth is believed to require upwards of $10 billion in incremental investment over the next decade. These production targets are very ambitious, not because of the resource potential which is clearly present, but due to the poor fiscal incentives on offer for IOC's participation and constraints on resources within NIOC. The ongoing delays in the award of buy-back contracts for major developments, schedule slippages in active projects, depletion rates in the onshore giant fields (6–10% p.a) and the political sensitivities of IOC involvement in Iran, combine to make the production vision very ambitious. It is clear that Iran is underachieving its potential in respect of oil & gas production, its vast resource base could easily support production levels close to double today's levels. However it is clear that Iran cannot achieve this relying on its own resources and expertise. There is however little near term prospect of a change in approach whilst sanctions persist and the current regime perpetuates the rigid contractual approach to IOC investment.

VENEZUELA

Venezuela has the largest proven oil reserves outside the FSU and Middle East and at the end of 2007 stood at 87 billion bbls. Resources in heavy oil, which are second only to Canada, have the potential to materially increase this figure to well in excess of 100 billion bbls. Despite this resource potential, production growth has been disappointing. Oil production has steadily declined over the last decade with an acceleration of the decline rate over the last few years. Production declined over 7% in 2007 to stand at just 2.8 million bpd. In contrast the Russian federation with less proved reserves produced over 3 times this amount. The policies of the Chavez administration towards international investors are believed to be contributing to acceleration in the decline of oil production. A series of punitive tax increases and effective expropriation of assets through compulsory equity transfers to PDVSA has caused huge disruption to operations and damaged investment programmes. A number of investors have left the country and are seeking redress through international courts.

The contrasting fortunes of the oil Industry can be strongly correlated with Government policies towards international investors. The pre Chavez liberal approach up to 1999 and the more protectionist or nationalistic policies of the curren Chavez regime.

Pre Chavez

The low point in Venezuelan production was reached in 1985 when only 1.7 million bpd were produced. This prompted PDVSA to launch its "La Apertura" process to attract foreign investment back to the country. A succession of license rounds during the early 1990's secured considerable interest from IOCs and most of the leading international companies established a presence in the country. Moreover, during the 1990s PDVSA embarked on an aggressive investment program of its own with a view to radically increasing production. In 1997, the optimism of the era lead to a vision to increase production from 3.3 million bpd at end 1996 to over 6 million bpd by 2006. This expansion was undertaken against a background of very steep natural decline from PDVSA's fields of around 25% per annum. Venezuelan production climbed during the 1990s from 1.99 million bpd in 1990 to a peak of 3.3 million bpd in 1998.

Chavez Regime

In 1999, with the new Chávez Administration firmly committed to adhering to its OPEC quotas, PDVSA was forced to shut-in production to comply with its allocation, and national average production for the year fell by 9% on 1998 levels. Significantly, this coincided with a period of substantial cuts in PDVSA's budget that saw total annual investment drop from over US$5.4 billion in 1997 to less than US$2.5 billion in 2000. These cuts were initially a result of the oil price collapse, but were maintained by the new government long after the oil price had recovered. Consequently, essential field maintenance was neglected.

The majority of PDVSA's operations nationwide were shut-in during December 2002 and January 2003 as a result of the nationwide general strike.

On 1 April 2006, PDVSA regained control of the 32 'Marginal Fields' that were licensed to the private sector during 'La Apertura' in the 1990s, taking a majority stake in all upstream projects.

In addition to the compulsory transfer of equity to PDVSA the Chavex regime introduced a succession of tax increases. Royalties have been increased to 30%, from zero in some cases and 16.6% in others. Income tax has been increased from 34% to 50%. Most recently in April 2008, Venezuela authorised the introduction of a windfall tax to help the state increase its revenue from high oil prices. The new tax takes 50% of incremental revenues when the price of benchmark Brent exceeds US$70/barrel and 60% when Brent exceeds US$100/barrel. It is deductible against income tax and relates to exports of crude and products. The impact of the tax is complex but marginal tax rates exceed 90% when the oil price remains above $70. In some fields which produce low quality crude the marginal tax rate approaches 100% and the exceptional progressive nature of the windfall tax causes project values to fall with higher prices.

In the light of the sustained agenda to curtail the scope of IOC activities and the racketing up of the tax burden Chavez plan to increase oil production to nearly 6 million bb/d by 2012 does not look achievable given the reduction in competitiveness of the basin.

Summary

This brief summary of just three countries highlights the negative impact on investment and production if IOC involvement is rejected or marginalised. Of course each nation is entirely free to choose its preferred policies for the exploitation of the oil & gas sector. It is unfortunate that political dogma often obscures and complicates a debate that should simply focus on economics and an appropriate division of the rewards. Other countries could also be discussed and Libya is a remarkable example of how a very recent decision to embrace IOCs has in a short time lead to a rapid inflow of investment and interest from IOCs. Others could easily follow Libya's lead.

Appendix 2:

DOUBLE TAXATION ISSUES

Companies carrying out activities overseas must deal with the effects of both foreign taxes and the home country treatment of the overseas income. Double taxation arises when countries have different definitions of taxable income or profits. It also arises when a taxpaying entity resident on one country generates income in another country resulting in the same profit being taxed more than once in more than one country.

The host country is where the IOC is investing, the home country is where we expect to find its corporate head office. The treatment of overseas income tends to differ in each home country so different IOCs may have different fiscal design preferences. The clear objective is common and that is to eliminate or minimise the impact of home country taxation of overseas, already taxed, income. To the extent that additional home country taxation is payable this represents double taxation and has the undesirable impact of reducing the attraction of investing in the overseas location. Generally there is a common interest between the IOC and the host country to design the fiscal regime is such a way that reduces or eliminates the impact of home country taxation.

Relief from Double Taxation comes from treaties between Governments; the most common remedy is where companies are allowed to offset home country corporate taxes with tax credits from foreign paid (host country) taxes. In order for companies to be eligible to claim the foreign paid taxes as tax credits in their home country, the foreign paid taxes must be deemed to be a "Creditable Tax". Certain items are deemed to be

Double Taxation Relief	No Relief	Exemption	Credit	Deduction
Taxable Profits in Host Country	100	100	100	100
Host Country Tax at 30%	-30	-30	-30	-30
After tax Income in Host Country	70	70	70	70
Home Country Tax Basis	100	100	100	100
No Relief	0			
Exemption		-100		
Deduction				-30
Taxable Profits in Home Country	100	0	100	70
Home Country Tax at 35%	-35	0	-35	-25
Credit for Host Country Tax			30	
After Home Country Tax Income	65	0	95	46
Gross Income before Tax	100	100	100	100
Less: Host Country Tax	-30	-30	-30	-30
Less: Home Country Tax	-35	0	-5	-25
Net Income after Tax	35	70	65	46
Total Taxes paid	65	30	35	55
Effective Total Tax Rate	65%	30%	35%	54.5%

Table Appendix 2.1: Double Tax Relief Example

"Non-Creditable" for Double Tax relief purposes, such as Royalties. Instead they may qualify for a deduction in the home country.

In order for the host Country Tax to be a creditable tax in the home Country it typically must meet the following criteria:

- It must be a true tax on "profits"
- It must be calculated after full deductibility of costs
- The tax imposed must be imposed by Law and not voluntarily
- The tax liability remains the obligation of the taxpayer.
- The tax must be paid to the State, and not to State owned companies/entities. (i.e. paid to the Ministry of Finance)
- There must be documentary (receipts) evidence of the tax payments made
- The Taxpayer must be permitted to utilize any losses before arriving at a tax payable amount

Relief from Double Tax Comes in Three Basic Forms:

- Exemptions
  - The profits are taxed in one country and are exempt from tax in the other country.
- Tax Credits
  - The income taxes paid in the host country are creditable against income taxes in the home country of residence. This results in the effective tax being the higher of the two country's tax rates.
- Deduction
  - Taxes paid in the host country are deductible as an expense again income taxes in the home country of residence.

Table Appendix 2.1, found on page 65, provides an illustration as to the how these different systems work in practice. Clearly the exemption regime is the most attractive but the Credit system comes close if the difference between the host and home country tax rates is small.

Tax Paid PSCs or Pay-On-Behalf Taxes Under PSCs

In the normal scheme of things a contractor produces oil or gas and pays a royalty to the state for the right to win oil or gas, some form of additional profits tax or state profit share, and then pays income or profit tax (usually in cash) on the net profit remaining to them. In some jurisdictions the state wishes to lift a greater share of the physical production, rather than receiving taxes in cash — in such cases it is common to see royalty payable in kind. Some countries with PSC regimes go still further and include a requirement for the NOC or another government body to pay income tax on behalf of the PSC contractor. This is achieved by the state retaining an additional share of the production from a field (commonly referred to by accountants and analysts as "tax barrels"). The tax is then discharged by (usually) the NOC paying the contractor's tax out of the proceeds of disposal of the tax barrels.

The key concern among contractors is that these "income" taxes paid on behalf should be creditable against income or profit taxes payable in their home country. In order to secure a credit the tax paid on behalf should generally have the character of an income tax (ie a tax on net profit). The key elements are the same as those summarized above in the section on Double taxation plus:

1. the PSC must specifically state that the company is subject to income tax;
2. the PSC should make clear that tax paid on behalf of the company or by the company is income tax;
3. the company must prepare a tax return that shows revenue, costs, profit and income tax expense;
4. the company must be legally liable for income taxes until relieved of that obligation by payment itself or by a third party;
5. the tax must be based on a measure of profits and must be payable to the appropriate finance ministry or taxing authority;
6. the national oil company or other body paying the tax on behalf of the contractor

must not be able to offset the tax paid against its own tax liability or other obligations.

One of the consequences of the paid-on-behalf mechanism is the requirement for a "gross-up" of the tax liability in order to arrive at the correct rate of tax.

Failure to calculate paid-on-behalf taxes correctly using a gross-up approach leads to tax leakage — that is the contractor's home country tax authorities take a part of the project reward, which leads to less favourable terms for the host state as the contractor has to compensate for the loss of value through poor tax design.

		No Tax	Creditable tax	Tax paid-on behalf (no gross-up)	Tax paid-on-behalf (grossed-up)
Gross revenue	A	100.0	100.0	100.0	100.0
State profit share	B	60.0	60.0	76.0	76.0
Contractor profit share	C	40.0	40.0	24.0	24.0
Local tax at 40%	D		16.0	9.6	16.0[1]
Net "profit" after local tax	**E**	**40.0**	**24.0**	**24.0**	**24.0**
Home country taxable profit[2]	F=D+E	40.0	40.0	33.6	40.0
Home country tax at 30%	G	12.0	12.0	10.08	12.0
Credit for local tax	H=max (D,G)		12.0	9.6	12.0
Net home country tax liability	J=G-H	12.0	0.0	0.48	0.0
Total tax liability	T=D+J	12.0	16.0	10.08	16.0
Contractor overall net profit[3]	**F-T**	**28.0**	**24.0**	**23.52**	**24.0**

Table Appendix 2.2: Illustration of tax-paid-on-behalf gross up calculation

Notes:

1. This is calculated as Profit Share x Tax Rate / (1 – Tax Rate) ie C x 40% / 60%in order to generate a tax credit at a full 40% rate and so avoid residual home country tax.
2. The starting point for home country taxation is the local pre-tax profit, so any local income taxes are added back.
3. The best case in this example is the no-tax case. Once a local tax is introduced the overall contractor profit falls to 24. Under a pay-on-behalf system it is important that the tax is calculated on a grossed-up basis, as otherwise the tax credit may be insufficient to fully shelter the home country liability and there will be tax leakage. The gross-up solves this issue and is equivalent to a normal system where the contractor pays their own taxes.

Appendix 3:

DISTRIBUTION OF PETROLEUM FISCAL REGIMES

Both concessionary and contractual regimes are the dominant exploration and development agreements while few countries use risk service contracts. This points towards the efficiency of concessionary and PSC's as institutional arrangements for risk sharing.

	Tax & Royalty			Production Sharing Agreements			Service Agreements	
Africa	Angola	Ghana	Nigeria	Algeria	Eritrea	Nigeria		
	C African Rep.	Madagascar	Seychelles	Angola	Gabon	Senegal		
	Cameron	Malawi	Seria Leone	Benin	Guinea	Sudan		
	Chad	Mali	Somalia	Cameron	Kenya	Tanzania		
	Congo	Morocco	South Africa	Congo (Br)	Liberia	Togo		
	Gabon	Namibia	Tunisia	Cote D'ivoire	Libya	Tunisia		
		Niger		Egypt	Madagascar	Uganda		
				Eq. Guinea	Mauritana	Zambia		
				Ethiopia	Mozambique			
Europe	Austria	Greece	Poland	Albania				
	Bulgaria	Hungary	Portugal	Croatia				
	Czech Rep	Ireland	Romania	Malta				
	Denmark	Italy	Spain					
	Faroe Islands	Netherlands	Turkey					
	France	Norway	UK					
AsiaPacific	Australia	New Zealand	S Korea	Bangladesh	Laos	Nepal	Philippines	
	Brunei	Pakistan	Thailand	Brunei	Malaysia	Pakistan Off		
	Japan	PNG	Timor Gap B	Cambodia	Mongolia	Sri Lanka		
				China	MT JDA	Timor Gap A		
				India	Myanmar	Vietnam		
				Indonesia				
FSU	Latvia			Azerbaijan	Kirgizstan	Ukraine		
	Kazakhstan			Georgia	Russia	Uzbekistan		
	Russia			Kazakhstan	Turkmenistan			
Latin America	Argentinia	Costa Rica		Aruba	Guyana	Trinidad &Tobago	Brazil	Mexico
	Bolivia	Falkland Is		Belize	Honduras		Chile	Panama
	Brazil	Paraguay		Cuba	Panama	Uruguay	Ecuador	Peru
	Columbia	Trinidad &Tobago		Gustemaia	Suriname		Haiti	Venezuela
							Honduras	
Middle East	Neutral Zone	Turkey		Bahrain	Israel	Syria	Iran	Kuwait
	Qatar	UAE		Iraq ?	Oman	Yemen	Iraq ?	Saudi Arabia
				Jordan	Qatar			
North America	Canada	USA						
	Greenland							

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Dr. Carole Nakhle is a research fellow in energy at the Surrey Energy Economics Centre (SEEC), University of Surrey – UK. She is based in London and specialising in international petroleum fiscal regimes, world oil and gas market developments, and energy policy and security.

Dr. Nakhle, who was born in Lebanon, has travelled widely in the major oil-producing countries. She has been on energy related exploratory visits to the Arctic and the North Sea. She is an expert commentator on energy policy developments both in the EU and in Asia and has exchanged views with energy policy-makers and political leaders in the Middle East, Japan, Taiwan, Hong Kong and Europe. She has also visited, and has close links with, personnel at the IAEA (Vienna), at the OPEC Secretariat and at other international institutions and think-tanks.

In addition to her role at SEEC, her project and advisory work has included presentations to H.M. Treasury, to the Netherlands Foreign Ministry, to the IMF, and at top level meetings of Norwegian officials and energy executives in Oslo. She is also a senior consultant for Middle East Consultants International Ltd.

She is a member of the International and British Institute of Energy Economists and gives keynote talks at international conferences on energy issues. She is regularly interviewed by international TV and radio channels. She is the director of 'Women in Energy' and member of the Technical Advisory Group of the Renewable Energy Foundation and of the prestigious Windsor Energy Group which brings together oil industry leaders, OPEC officials and ambassadors and energy industry economists and academics.

Dr. Nakhle is trilingual, in spoken and written Arabic, French and English. She has published numerous papers and articles on petroleum fiscal regimes, energy security and the distribution of oil wealth. Her work has appeared in various journals and newspapers including Energy Policy, OPEC Energy Review, International Energy Law and Taxation Review, the International Herald Tribune, Financial Times as well as in leading Arabic newspapers. Her work is valued by the media. She makes regular appearances on Fox Business News, Al Jazeera, Press TV and both BBC radio and television.

She has published two books. The first, "Out of the Energy Labyrinth", on energy security and climate change, published by I.B.Tauris, was out in May 2007 and is co-authored with Lord Howell, the former UK Energy Secretary and currently the spokesman on foreign affairs in the House of Lords, UK. The book has been published in English, Japanese, Arabic and Turkish. Her second book, entitled "Petroleum Taxation: Sharing the Wealth", published by Routledge in April 08, takes the reader step by step through the entire petroleum taxation story.

About SEEC:

SEEC has a long-standing international reputation for conducting original energy economics research and overseeing a vibrant postgraduate programme. The Centre attracts a large proportion of the department's PhD students and runs a unique MSc programme in Energy Economics & Policy.

Since being established SEEC has produced research papers across the whole spectrum of energy economics, including the international oil and gas market, North Sea oil & gas, energy efficiency, UK & international coal, gas privatisation & regulation, electricity privatisation & regulation, measurement of efficiency in energy industries, energy & development, energy demand modelling & forecasting, and energy & the environment. SEEC now also encompasses the theoretical research on regulation previously housed in the department's Regulation & Competition Research Group (RCPG) that existed from 1998 to 2004.

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