GULF INTELLIGENCE

*We Facilitate Knowledge Exchange*

**Second Quarter 2013**


# Energy Outlook

*Game Changers in Post Easy E&P Era?*

Thegulfintelligence.com



# CONTENT


# "A Positive Outlook as Brent Crude Still Hovering Around $100 a Barrel"

**OIL PRICES** may have retreated to their lowest level since mid-2012 in April on concerns over sluggish global economic growth and traditionally weaker second-quarter demand. But Brent crude's average price still remained at about $110 a barrel during the first four month of the year. This may be somewhat below the $118-a-barrel-average in the corresponding period a year earlier but is very much in line with the $110 average predicted for 2013 by senior industry executives who participated in the Gulf Intelligence Survey at the Doha Energy Forum. With OPEC forecasting demand in the second half to be much higher than in the first half, prices are likely to stay well above the $100-a-barrel level for yet another year. This bodes well for those seeking to exploit unconventional resources such as shale oil and for Gulf states including Qatar to move ahead with capital-intensive energy developments.

**Sean Evers**
Managing Partner, Gulf Intelligence

# Two Years in Office & the Game Changers to Come

**His Excellency Dr. Mohammed Bin Saleh Al-Sada, Minister of Energy & Industry, Chairman & Managing Director, Qatar Petroleum with Moderator Sean Evers, Managing Partner, Gulf Intelligence**

## SECTION A
## 'TWO YEARS IN OFFICE'

**SEAN EVERS (SE)** The last time we had the pleasure of sitting here, you had recently taken office and we talked a little bit at the time about what you saw the priorities to be - I just like to revisit some of those. Two years ago you shared with us that Qatar would seek further exploration opportunities and expand the existing reserve base through either new concessions or through the expansion of existing ones – could you provide an update on the results of these efforts?

**DR. MOHAMMED BIN SALEH AL-SADA**
The effort of exploration has been intensified at two fronts: The new blocks … and we have six such active blocks at the moment being explored. There are five companies actively conducting studies in these blocks, covering widely diversified geological locations both onshore and offshore. As you know, it takes relatively a long time to get all the results and turn them to tangible projects. However I can tell you that we have already started getting some positive findings. The first one is from an area called 4N. We are still assessing to what extent can the gas from this area be monetized.

> "I think we will see more long-term partnerships and long-term cooperation between IOCs and NOCs, between IOCs and IOCs. And likewise, we can see a trend now. National Oil Companies are talking to NOCs because that demarcation line is fading away now, because national companies are becoming international companies."

The other front is revisiting our existing fields. This is a very big exercise and involves virtually all of our producing fields. The first field is Bul Hanine, where we completed the studies and the program for the implementation has just started. It will double the existing production from 45,000 barrel a day to almost 90,000 barrel a day. The study of Dukhan field is about to finish. Within a few months, we should be in a position to declare the execution plan and gauge the extent to which we can add to the recoverable reserve. It is a very active front. We will continue that way adding additional exploration blocks. Overall we are very much satisfied with the results to date.

**SE** What is the role of enhanced oil recovery - how important do you think EOR techniques will be going forward for the development of new fields and for improving recovery rates of the existing fields?

**DR. MOHAMMED BIN SALEH AL-SADA**
The development of science and technology has helped us a lot. You know, in the old days, companies left oil fields because of the recoverability limit. Often it was left at 40% recovery levels. Today, with the development of technology, this limit has been actually stretched to a higher percentage and we are capturing these opportunities and revisiting oil fields. Worldwide, if you look at how much technology contributed to the recoverability and the addition of reserve – there has been a substantial reserve increase over the years; these were added not because of the new finds, but due to the enhanced oil recovery rate made possible by improved technology. In Qatar, we are not an exception. We are capitalizing on the science and technology development in this field and believe that down the road, there will be further development which will add to our reserve and boost the efficiency of our recoverability.

**SE** The inevitable question that follows is the status of the moratorium on the North Field. What does that look like now, in a sense looking out 12, 24 months?

**DR. MOHAMMED BIN SALEH AL-SADA**
The moratorium is there because of obvious reasons. Basically, our job is to monetize our natural resources. We would like to increase the production and add more projects. The reality is that we have a huge reserve, but we take care of the reservoir management. If you speak to the Petroleum Engineering Department in Texas A&M Qatar, they will tell you how much emphasis reservoir engineers put on the reservoir management. There's a huge deposit and there is no doubt that the reserve is huge. The only thing is how to manage the production appropriately. We more than doubled the production within four years. From 2009 to 2012, we went from 10 billion standard cubic feet per day to almost 20 billion standard cubic feet, over a very short period of time.

To study the performance of the reservoir and to tap further potential of all our producing wells requires detailed assessment of the field data coupled with top-desk reservoir modeling studies. We do not have a long history of many of our wells because they have started production recently. In fact, some of them related with our latest projects are in the process of commissioning to add to our overall production like the Barzan project phases one and two scheduled to commence production in 2014 and 2015 respectively..

**SE** So it is essentially a time issue, just having enough years to see how the field performs with this current scale of production?

**DR. MOHAMMED BIN SALEH AL-SADA** The bottom line is that we need the decision from the reservoir engineers. We look for the technical answer, rather than any other answer, because our job is to monetize the natural resources, provided that we monetize it safely and reliably.

So this is where we are. We need to closely monitor the basic production parameters of all our wells like production rate, liquid yield, sulfur, CO2, etc. These parameters are being constantly looked at and incorporated into their respective output models. We would love to see a positive result from analysis of these massive fields which could be further developed without hampering the productivity of the fields over a very long time – stretching perhaps over 100 years. We give utmost priority to preserve their longevity.

**SE** If indeed there was further opportunity to extract from this great reserve, would that opportunity be presented to existing projects or new Greenfield opportunities?

**DR. MOHAMMED BIN SALEH AL-SADA** The decision whether we go greenfield or brownfield will be determined by the studies; individually, which one is more economically viable. I don't think we will have any difficulty making such a decision.

**SE** How does the current cap on the North Field and need for more supply impact your goals for greater investment in the downstream sector?

**DR. MOHAMMED BIN SALEH AL-SADA**
Downstream is extremely active at the moment. Perhaps, you know the development of the North Gas Field gave us the opportunity of looking at major value-added projects. Feedstock required for these major projects already existed and we are making use of that, namely we have the ethane, the LPG, the naphtha, and the condensate. And currently, we have a number of projects underway such as Al-Karaana, which will use C2 and C3.

The nature of downstream actually is that it allows for more diversification by utilizing the products of existing plants as feedstock to go further downstream, catering to the small and medium industries

QAPCO is our flag ship local petrochemical company which has attained a stature of a reliable, world-class petrochemical manufacture and supplier. We have recently partnered with Shell on one such downstream petrochemical project for which front-end engineering and design has been undertaken. And another project is for the first time awarded to a local company, for which we are all proud of. It became mature enough, competitive enough, and won on competitive basis this new project for petrochemicals.

We can see it as a breakthrough for a local company to compete with international companies on an equal basis and win a major petrochemical plant, which is more than the size of its existing facilities.

**SE** What is your opinion on the growing trend of NOCs becoming IOCs – and in particular the plans for Qatar Petroleum International being the INOC vehicle of Qatar?

**DR. MOHAMMED BIN SALEH AL-SADA**
This is an important pillar of our strategy - to expand internationally, and for that we established Qatar Petroleum International. Qatar Petroleum International has all the ingredients for the success, including the strategic support of the government as QPI is positioned to help diversify Qatar's economy from within our industry.

**SE** Do you see the partnership model internationally having a different composition than the partnership model domestically?

**DR. MOHAMMED BIN SALEH AL-SADA**
We look at it case by case. And when we partner outside, obviously the level of our contribution to the project, be it feedstock, financial, technical operations, or marketing, these are the elements our partners evaluate. It is similar to what we do internally. We look at these elements of participation and study them closely. We are very much open-minded about the level of partnerships and we determine it through exhaustive study case by case.

The economic viability of the projects, the added value to the partners and to the community where we will establish these projects are the determining parameters of our partnership model. We are open-minded about the geography - we don't have any preferred geography in the world as long as those projects are viable and add value to all stakeholders.

**SE** Renewables has become a big topic across the world, and also increasingly in the Gulf and Qatar as well i.e. we are seeing a nuclear power plant being built next door in the UAE and projects committed to solar energy etc - I'd like to just get your thoughts on where you see Qatar's renewable strategy?

**DR. MOHAMMED BIN SALEH AL-SADA**
The way we look at renewable energy is that it is a very important complimentary source of energy. The world is growing in population and standard of living - both these factors increase the consumption of energy hugely. In order to keep an acceptable level of GDP, world GDP, we will need all sorts of energy and a little bit more. So, we are not exceptional here in Qatar.

Part of our National Vision 2030 is to support the environment in all facets. And our effort in renewable energy is diversified, while it remains in the inception stage. You will find it across the full spectrum of renewable.

Qatar is building the first poly-silicon plant which will produce the raw materials for solar energy. It's the first in the Middle East. And thanks to Qatar Foundation and their partners, the plant is due to start production next year. The solar energy production, Kahramaa and its partners are to start utilizing those spaces which will be available. And some of them are available especially covering the mega water storage tanks. Testing facilities close to where we are now to select the best technology to suit our environment. As you know that our environment suffers from humidity and dust, so the best technology is being tested, and, again, in collaboration with Qatar Foundation. We have the Mesaieed, the Sahara Project. It's a pilot using solar energy to desalinate water and cultivate some vegetation. It's up and running and its results are very encouraging.

**SE** What are your views on the development of nuclear power in the region?

**DR. MOHAMMED BIN SALEH AL-SADA**
I can see the trend because countries are open-minded about the peaceful use of nuclear. There are a few factors interacting together in the process of decision-making on whether one country would go ahead with nuclear or not - the economics, the safety and environment, and the regulatory framework. So here in Qatar, we keep open doors and we are constantly looking at these interacting factors.

The peaceful use of the nuclear is the sovereign right for any nation, and some Middle Eastern countries like the United Arab Emirates have already chosen to go ahead. You mentioned Saudi Arabia, and I don't rule out any other country to come and start nuclear power generation provided that it is strictly for power generation under the international laws and regulations, taking utmost care of the environment and safety in the design and operation of such plants.

## SECTION B
## 'GLOBAL GAME CHANGERS'

**SE** The energy world is facing a range of game changers - NOCs are becoming IOCs; super majors are offloading downstream assets; we're seeing the rise of independent energy companies pioneering exploration in different parts of the world; service companies are moving upstream.

We saw the industry transform itself 10 years ago in the wake of $10 oil, and now we are seeing signs of a news transformation in the wake of $100 oil - what do you think will be the destination of these changes?

**DR. MOHAMMED BIN SALEH AL-SADA**
These changes actually are very much a reactive response to a number of parameters. One of them is what you just said, $100 barrel of oil. But other parameters like efficiency, like meeting particular technical challenges, like complementing each other. Some companies are good in oil, others are good in gas; and they need to complement each other. So there are a number of reasons where those companies actually come and join forces.

I think we will see more long-term partnerships and long-term cooperation between IOCs and NOCs, between IOCs and IOCs. And likewise, we can see a trend now. National Oil Companies are talking to NOCs because that demarcation line is fading away now, because national companies are becoming international companies. An example is the QP with the arm of QPI. And you can see this trend is going worldwide. That old theme of a clear demarcation between national and international oil companies is, I can tell you, it's fading away.

But we are crossing borders of each other now, and that line hardly exists now. The notion of IOCs vis-à-vis NOCs is an old issue. I don't think it's worth being given enough attention



at the moment because there's a conversion now in objectives and we are complementing each other. I can see a long relationship to be established in that next NOC summit.

**SE** How does the proprietary technology, that typically has been anchored in the international industry space, how do you see that aligning with the new partnership model?

**DR. MOHAMMED BIN SALEH AL-SADA**
This is an important parameter for a long-term partnership certainly between NOCs and IOCs. But NOCs, many NOCs, in the world do acquire their own technology nowadays. And when we talk about technology, technology is really wide and no one on earth can say, "I am independent, independent technically." They must need technology from somebody else for an aspect or two or more of their industry. And this is where a long-term collaboration is going to come.

**SE** What role does the transfer of knowledge have as part of a long-term partnership between IOCs and NOCs?

**DR. MOHAMMED BIN SALEH AL-SADA**
Yes. I can see that, an important one, in fact.

When it comes to partnership, there is a tradition of looking at partnerships and evaluation. Each project will introduce a list of its own parameters, like the technical know-how, the operational experience, the marketing, the financial soundness. Now from one project to the other, these parameters will have different weights. From one era to the other these parameters will have different weight. For example, in Qatar many years back, the financial element was so important because we were looking at somebody to help financing the project to the extent that sometimes we called on the partner to pay, to lend us the equity. Now, we moved so much in that area that sometimes we partner with a partner who is, if you like, of less credit rating than ours, because our credit rating is excellent. We are double A.

But their strength could be in some other aspect. So we look at these projects case by case.

**SE** What is your view on the emergence of East Africa as one of the world's new energy suppliers?

**DR. MOHAMMED BIN SALEH AL-SADA**
East Africa has good reserve. There is no doubt about that. And they will certainly contribute to both the international energy security and maybe even more importantly, to their domestic economy because they need a lot of development domestically. But we went through that phase many decades ago when we started this sector of oil and gas. And we know how much it takes to develop from scratch. You need the infrastructure, you need the regulatory framework, you need the know-how, you need so many things to turn the reserve into reality and successfully monetize the reserve. So stability is an important factor. I think in East Africa, perhaps they look at these important elements and I hope they look at them so that they can navigate through this journey successfully.

**SE** Could you see the potential for East African gas to come into the Gulf to meet the soaring regional demand?

**DR. MOHAMMED BIN SALEH AL-SADA**
The Gulf region has a good potential to serve itself by itself. But I don't rule out this possibility of having some importation from anywhere else in the world including East Africa. But there is more potential to get the gas from within this region. And probably the second potential supplier could come a lot earlier than East Africa. But I think the region has enough gas for the foreseeable future. But it will depend on the mechanics of the global market.

**SE** What are your views on the shale opportunity that has emerged in America - some people call it a revolution, others call it a natural evolution, what do you think its impact will be?

**DR. MOHAMMED BIN SALEH AL-SADA**
Shale gas is a reality, and certainly the U.S. experience is clearly significant. It was the technical evolution which led to this revolution, especially in the U.S. at the moment. Shale gas is known for many, many decades and the technology used is not a big bang type of technology. It's the combination of known techniques of horizontal drillings, coupled with fracturing, with a successful combining of these known tools which took place over, if you like, maybe 30 years or so. That led to the shale gas revolution in the U.S.

But there are still some misunderstandings about the gas. Shale gas or conventional gas, eventually it's the same gas. It goes to the same industry. Chemically it's the same. But, the incremental increase from now to 2035 of gas production worldwide, shale gas represents 50% - the other half is still conventional gas. The conventional gas has a longer track record. Shale gas still has some, if you like, some unknowns. They are reality definitely; but they are not as developed.

The environmental unknown is still under debate, will that contaminate ... will that operation contaminate water aquifers or not. The other issues include reservoir modeling of these types of reservoirs, which is not yet fully developed. Shale gas economics is still under review as presently it is supported fully by the liquids because of oil price.

And gas is being flared, so it's a byproduct. Now, will that trend continue in the U.S. and is all of the remaining shale gas going to depend on the economics of the liquids, or will they have to go for leaner gas? In that case, today's level of gas price will not be sufficient to develop the capital of projects.

The pace at which the shale gas is likely to develop in the United States and elsewhere will answer the question on what impact it will have on gas prices, on LNG prices.

But we can see huge diversity in the infrastructure available in different parts of the world. The U.S. comes definitely at the forefront. Some finds in other parts of the world is far from being ready to be developed because the infrastructure is not there and the other element of economics is so important. The policy of the United States, energy policy of the United States, how much the United States is prepared to export gas? That's another issue, the pace at which they develop their shale gas and to what extent they are prepared to have LNG plants dedicated for export.

The other parameter which is so important but is ... I mean it's not looked at, if you like, with enough attention in my opinion is the demand. So we are always talking about the added capacity on supply. Yes, it is true. Not only shale, but conventional gas; but the development, the need for the gas, the demand is increasing more than any other energy form.

It is for the first time that we have, if you like, an advantage of helping the CO2 negative impact on climate change. The thesis for many years was that the world has to bear the consequences, the economic consequences. We have to sacrifice the economy in order to salvage the globe. But this piece is not valid anymore. Natural gas can give an immediate 50% reduction in CO2. ■

# NOCs Will Continue to Evolve, Seek New Partnerships

**By Ahmed Abdulqader Al-Ahmed, Executive Director Upstream, Qatar Petroleum International**

**MUCH HAS BEEN** said about the evolving role of national oil companies (NOCs). Today – unlike 40 years ago – NOCs control the bulk of the world's hydrocarbon reserves. Over the past decade or so, NOCs' capabilities have grown and – thanks to a sustained period of high energy demand and prices – their need for external financing has shrunk. In many ways, this has given NOCs greater clout in defining their strategies and choosing partnerships. Today, they may choose to compete or partner with international oil companies (IOCs) in investment opportunities and projects across the globe.

Being state owned, the first and foremost role of NOCs still remains that of fulfilling government directives, developing local resources and supplying energy to the domestic market at affordable prices. NOCs' motto may be summed up best as 'protect my resources, support my people'. This is and will continue to be the main differentiator between an NOC and commercially-focused IOCs.

However, as the industry continues to undergo a period of profound change, NOCs including Qatar Petroleum – via its international investment arm QPI – have begun to extend their reach beyond national borders. This is partly driven by the desire to gain access to new resources and markets for their products on the one hand, and to new technologies and know how on the other. But it also comes in response to a change in dynamics, for example in the global gas market, in light of the U.S. shale boom.

The shift resulting from unconventional resources such as shale oil and gas having become commercially feasible to develop has tangibly affected international energy markets. The U.S. is set to become a gas exporter over the next 10 years and a leading oil producer on the back of the country's shale revolution.

For NOCs that once targeted the U.S. as a prime destination for liquefied natural gas (LNG) exports, it means they will have to adjust their strategies and find new markets for their product. At the same time, a rising number of NOCs are seeking to participate in North America's shale developments in a bid to gain access to technologies such as hydraulic fracturing.

The changing market dynamics we're witnessing today are likely to bring about an era of new kinds of partnerships between the different industry players – NOCs, IOCs, and independent and oil service companies. Collaborations will take place on all levels as the various industry participants seek to leverage their different skill sets, both in terms of technology as well as manpower.

This is of great importance, in particular at a time when the industry is confronted with a serious skills shortage and the ongoing need to advance technologies that facilitate the extraction of hydrocarbons from the rising number of harder-to-access reserves. This trend in turn is also fuelling the need to invest in research and development (R&D), which is another area where cross-sector cooperation is desirable and likely to intensify as the industry seeks to advance on the technology front.

Since QPI's establishment in 2006, the company has engaged in partnerships with both IOCs and – more recently – NOCs. In Mauritania, for example, QPI is involved in an upstream project with oil major Total, while in Singapore, it has entered into a downstream joint venture with Shell. QPI has also struck a deal with national incumbent PetroVietnam to develop a joint-venture petrochemical complex in the Southeast Asian state.

For NOCs, partnerships with IOCs will continue to be an important element when formulating their future strategies. IOC expertise is and will be needed in particular on large-scale, complex projects with high technology input or in the midstream and downstream sectors, where specific technology and access to markets is required. There is likely to be more partnering as well between NOCs and the independent players. The latter have been the main driving force behind the technological advances that triggered the North American shale boom. As such they are potential partners on projects where their capabilities and access are required for NOCs to obtain a foothold.

"The changing market dynamics we're witnessing today are likely to bring about an era of new kinds of partnerships between the different industry players – NOCs, IOCs, and independent and oil service companies. Collaborations will take place on all levels as the various industry participants seek to leverage their different skill sets, both in terms of technology as well as manpower."

The same is the case for oil service firms. As technology ownership has seen a substantial shift from IOCs to the smaller service players over the past 10 years, the latter will increasingly take on more prominent roles that in the past would have been filled by IOCs – but on a rate basis rather than through equity participation.

There can be little doubt that NOCs and their relationships with the other industry stakeholders will continue to evolve – just as the industry at large will. For NOCs, fulfilling their governments' national agendas will remain the prime focus. International partnerships and engagements will serve that goal by enhancing NOCs' internal capabilities, developing local expertise and diversifying their portfolios to gain access to new resources and markets. ■

***Ahmed Abdulqader Al-Ahmed, Executive Director Upstream, Qatar Petroleum International***

# Qatar's R&D Ambitions: Challenge and Opportunity

**By Soren Frank, Director of Maersk Oil Research & Technology Centre, Qatar**


**FEW COUNTRIES HAVE** pursued their ambitions as rigorously and successfully as Qatar in the past two decades. The Gulf state has become one of the world's leading hydrocarbons producers and tops the list of global LNG exporters. Having established itself as a global energy hub, the country is now gearing up to take the next step by building up the country's research and development (R&D) capabilities as it seeks to transition from a hydrocarbons-based economy into a knowledge-based one as part of its National Vision 2030.

Building on its foundations in the energy sector is a logical extension of Qatar's existing capabilities. Leading international oil companies are ubiquitous and have contributed know how and technology to the country. In recent years, the government's focus on education has attracted some of the world's leading universities to set up shop in Doha, while local universities have been upgraded. Projects such as the Qatar Science & Technology Park and the unveiling of the Qatar National Research Strategy (QNRS) in October 2012 are testament to the government's commitment to its vision.

To be sure, Qatar had been committed to R&D for some time, having allocated 2.8% of its gross domestic product (GDP) annually since 2006 to promote research, technology and innovation. But where there had been a more fragmented approach to R&D in the past, there are now five key pillars consolidated under the umbrella of the QNRS with a focus on: enterprise; energy and environment; computer sciences and information technology; health; and social sciences, arts and humanities.

The consolidation is aimed at aligning and linking all projects and research visions in Qatar. As such, implementation of the strategy will require close collaboration of three key stakeholders: academia, industry and government.

For the oil industry this means building on its existing R&D engagements in the country to address challenges of relevance both locally as well as internationally, and in line with the QNRS. This could be anything from the advancement of enhanced oil recovery (EOR) techniques to making seawater desalination more efficient to helping lower Qatar's carbon footprint. Maersk is already working closely with universities in Qatar such as Texas A&M as part of this challenge. Other oil companies are involved in similar programs.

However, establishing Qatar as a global hub for energy R&D will require deeper collaboration. Traditionally, the goals and objectives between academic research and industry R&D are quite distinct: while academic research aims to enhance global knowledge by publishing its findings, industry R&D is not concerned with publication but set to be applied in 'real life', i.e. commercialized. Bridging this gap will be essential.

From an industry perspective, it is important that universities focus on applying their research. A key element in achieving Qatar's transition to a knowledge-based economy—and a key performance indicator (KPI) for an energy R&D hub—will be creating value from investments into university research that's being conducted, i.e. ensuring that it is being brought to the market commercially.

Getting IOCs to collaborate in joint R&D projects with universities may not always be feasible. IOCs are looking for technologies that are going to differentiate them from their peers and therefore may be reluctant to enter research projects that also include competitors. This does not mean collaboration is out of the question: cooperation can happen where the oil industry has a common interest in developing knowledge, for example in environmental or water issues.

In other cases, IOCs may consider specific areas to be differentiators and thus rule out collaboration. With this in mind, creating a platform that helps identify the areas where collaboration for joint industry projects is feasible will be an important element going forward.


"A key element in achieving Qatar's transition to a knowledge-based economy—and a key performance indicator (KPI) for an energy R&D hub—will be creating value from investments into university research that's being conducted."

Another key ingredient needed to create a knowledge-based economy—and one that's keenly anticipated by the industry—is the introduction of PhD programs at Qatari universities. For it is at the advanced study level that knowledge is being created, in turn providing the foundations for Qatar's planned transformation away from a hydrocarbon economy.

It won't be an easy task but, importantly, the key foundations for building an energy R&D hub are in place: the government is committed to foster knowledge creation for its citizens; IOCs are engaged in and committed to contributing to Qatar's transformation; a network of local and international universities as well as research centers already exists and continues to evolve.

With that in mind, academia, industry and government agencies now have to take concrete steps to build on these foundations and take the necessary steps to build an energy R&D hub of international recognition. This is as much a challenge as it is an opportunity to create technology breakthroughs in the energy industry out of Qatar. ■

***Soren Frank, Director of Maersk Oil Research & Technology Centre, Maersk Oil***

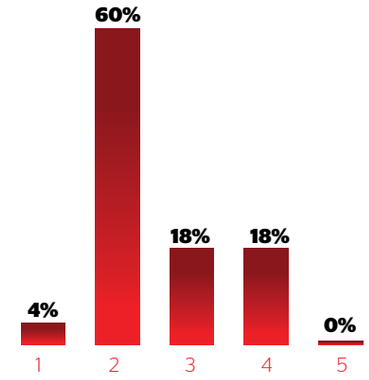
# Survey Says - Commodity Supercycle is Taking a Break Before Soaring to New Heights

Oil prices will average $110 this year, the commodities super cycle may take a break but won't come to a halt, and the ongoing evolution of NOCs and independent players will continue to be key game changers for the industry – these findings from the Gulf Intelligence Survey conducted at the Doha Energy Forum among senior oil executives give an exclusive insight into their thinking on what's driving the industry in 2013.

**OIL PRICES MAY HAVE** retreated to their lowest level since mid-2012 in April on concerns over sluggish global economic growth and traditionally weaker second-quarter demand. But Brent crude's average price still remained at about $110 a barrel during the first four month of the year. This may be somewhat below the $118-a-barrel-average in the corresponding period a year earlier but is very much in line with the $110 average predicted for 2013 by senior industry executives who participated in the Gulf Intelligence Survey at the Doha Energy Forum. With OPEC forecasting demand in the second half to be much higher than in the first half, prices are likely to stay well above the $100-a-barrel level for yet another year. This bodes well for those seeking to exploit unconventional resources such as shale oil and for Gulf states including Qatar to move ahead with capital-intensive energy developments.

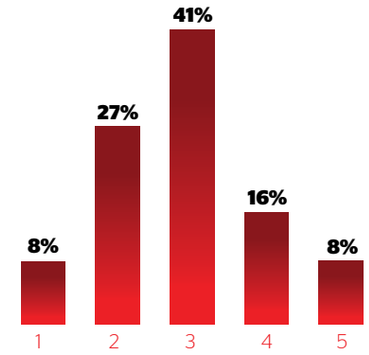
Q1. The year has started with a bit of an optimistic bounce as yet another fiscal cliff is averted - what price will Brent Crude Oil average this year?

1. $120 a Barrel
2. $110 a Barrel
3. 100 a Barrel
4. $90 a Barrel
5. $80 a Barrel



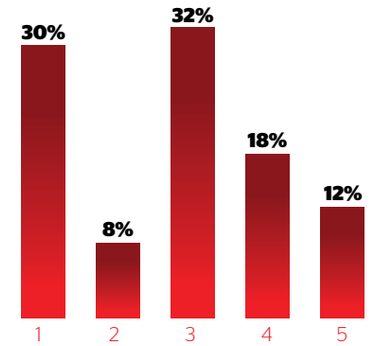

Q2. Never in the modern history of the global economy has the price of so many commodities – from oil, to metals, to agriculture – risen as much and stayed as high for so long. The price increase has come to be known as the commodities super cycle: a rare period of higher costs underpinned on the demand side by the industrialization and urbanization of emerging countries, notably China, and on the supply side by years of under investment during the 1980s and 1990s. Is the commodity super cycle over?

1. Yes
2. No
3. Taking a break, before soaring to a new plateau
4. Won't end as long as central banks are printing money – QE5?
5. It doesn't matter as Brent has permanently transitioned to triple digit price



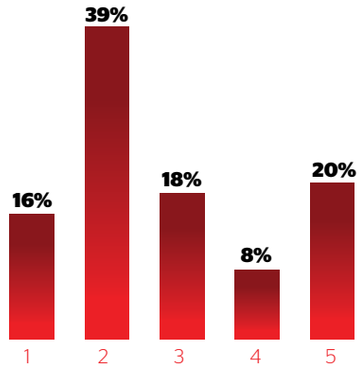

Q3. In the wake of $10 oil in the late 1990s we witnessed significant consolidation in the energy industry with a wave of M&A activity redefining the sector. In the wake of $100 oil we are witnessing a new transformation, less defined perhaps but equally as dramatic – which of the following will be the most significant game changer to watch?

1. NOCs are becoming IOCs
2. Supermajors are slimming down
3. Independents are now the primary risk pioneers
4. Service companies and trading firms are taking on IOC activities
5. The premise of the question is bogus



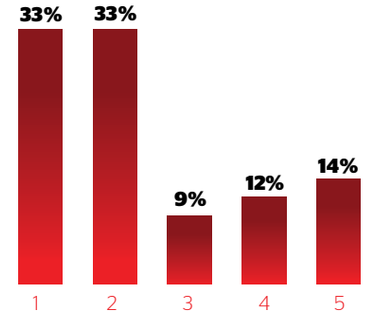
Q4. One way to get a handle on the enormity of potentially producible hydrocarbons contained in shale formations is to estimate how much recoverable oil and gas remain within the source rocks in which they were generated as compared to how much producible oil migrated into "conventional" reservoirs - for every barrel of crude oil in conventional reservoirs that constitute the bulk of global crude oil reserves of 1.3 trillion bbls there are 8 bbls of potentially producible oil equivalents remaining in the source rock that generated that 1 bbl of conventional reserves – Is this already a Game Changer…?

1. Only in the U.S.
2. All over the world
3. Will only be a global game changer if U.S. grants export licenses
4. That could lead to the establishment of a global benchmark gas price
5. Not a global game changer



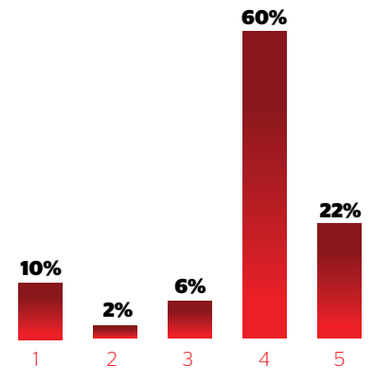

Q5. In 2000, shale gas represented just 1 percent of American natural gas supplies. Today, it is 30 percent and rising. The U.S. now seems to possess a 100-year supply of natural gas, which is the cleanest of the fossil fuels. This cleaner, cheaper energy source is already replacing dirtier coal-fired plants. Chemical companies rely heavily on natural gas, and the abundance of this new source has induced companies like Dow Chemical to invest in the U.S. rather than abroad. Who amongst the following will be the biggest winner in this so called shale 'revolution'?

1. U.S. consumers
2. U.S. manufacturers
3. Energy companies
4. China, which has largest shale gas reserves
5. Asian consumers as LNG/gas prices will fall



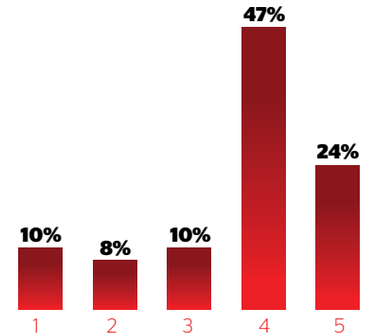

Q6. The International Energy Agency's most recent World Energy Outlook predicted that the U.S. will become energy independent and lead the world in both oil and natural gas production within a decade, overtaking Saudi Arabia and Russia. America's shale oil boom, together with Canada's oil sands and Brazil's offshore oil, make it hard to deny that the Western Hemisphere's energy power is gaining. How will U.S. foreign policy change over the next decade in this new era of energy independence?

1. U.S. will become less willing to provide military security in the Middle East
2. Already seeing impact with Obama "Asia Pivot" policy away from Mideast
3. Arab Spring to ensure U.S. engagement with the region for another generation
4. U.S. will continue to protect the Gulf energy exports for at least a decade as U.S. still vulnerable to global energy price swings/ spikes
5. No change as energy independence is a myth, and anyway U.S. hasn't imported much energy from the Mideast for some time.




Q7. As a rule of thumb, the probability of a deepwater oil and gas exploration well hitting a discovery in a frontier petroleum region is about 20 percent. But offshore Tanzania and Mozambique in the past two years, there have been 24 discoveries from just 27 wells - Who will be the biggest losers from this latest black-gold rush in East Africa sitting on doorstep shipping routes with Asia?

1. The development of Australian LNG
2. Qatar LNG exports to Asia
3. OPEC influence of global markets
4. East Africa, as the region gets dragged into resource conflicts, boundary disputes and corruption
5. Nonsense, everybody's a winner!



# Meeting Demand on New Silk Road: New Partnerships & Sharing Technology?

**Panel Discussion with:**

- **Ahmed Abdulqader Al-Ahmed, Executive Director Upstream, Qatar Petroleum International**
- **Jos Evens, Senior Vice President, Gas & Power Marketing, ExxonMobil Qatar**
- **Sabeur Mansar, Vice President Commercial & NBD, Qatar Shell**
- **Hamad Al Khayyat, General Manager, Oil & Gas Division, Siemens WLL, Qatar**

**Moderator - Kate Dourian, Editor in Chief Middle East, Platts**

**KATE DOURIAN** In the wake of $100 oil, we appear to be witnessing another industry transformation: NOCs are becoming IOCs, super-majors are slimming down, independents are pioneering risk and service companies are taking on IOC activities. Where do you see QPI's role in the wider world and how do you see us going forward from here?

**AHMED ABDULQADER AL-AHMED** Let's talk first about the industry transformation. This will have significant impact on everyone, including IOCs, super-majors, NOCs, independent players, and the service sector. Before talking about QPI, I would like to highlight two main partnerships. We have a partnership between IOC and NOC. Companies like QPI want to go international to increase their portfolio, to secure reserve resources; and also to get exposed to technology and expertise by partnering outside Qatar. The other partnership is with NOCs, which is very important and, I think, going to increase in coming decades. We work together with Petronas and PetroVietnam for example.

Now, there is other partnership potential with the smaller independent players. The importance of these independents shouldn't be underestimated. They are the ones who started the shale gas revolution in the U.S. NOCs in general could work together with these independents and form joint ventures or even invite them to come to their home countries to test or approve technologies. As for the role of the IOCs, at the end of the day, we need their expertise. We cannot play this game alone and have to have some support from the IOCs. That's why the IOC-NOC partnership will remain and continue.

**KATE DOURIAN** You're involved in downstream in Asia, but is that more to your liking now - the small independents and the technology aspect?

> "Companies like QPI want to go international to increase their portfolio, to secure reserve resources; and also to get exposed to technology and expertise by partnering outside Qatar."
>
> **AHMED ABDULQADER AL-AHMED, EXECUTIVE DIRECTOR UPSTREAM, QATAR PETROLEUM INTERNATIONAL**

**AHMED ABDULQADER AL-AHMED** At QPI, we look at it case by case. Also, QPI is a growing organization and we're learning every day and trying to improve our strategy. We look into different kind of opportunities, upstream or downstream, at oil and gas opportunities. Because QPI is the international arm of QP, QPI is going to be the vehicle that takes QP to international segments. So we look into everything.

**KATE DOURIAN** Would you consider shale for example?

**AHMED ABDULQADER AL-AHMED** Shale gas is in our strategy. We cannot ignore shale gas or shale oil. It's a matter of finding the right opportunity at the right time.

**KATE DOURIAN** And you're talking abroad, not necessarily here?

**AHMED ABDULQADER AL-AHMED** Everything at QPI is abroad.

**KATE DOURIAN** Would anybody else like to comment on future partnerships?

**SABEUR MANSAR** It's a matter of finding a good partner so that you have complementary skills and strengths coming together. There is also a transformation happening. Partnerships are now evolving more into what I would describe as strategic cooperation partnerships because sometimes they're focused on areas like research and development, expansion policies or opportunities around the globe. At the very end, we have to find new supplies and bring them to the market economically to meet global energy demand.

**KATE DOURIAN** We're talking about trillions needed for investment. But are we investing in the right places? Are we happy with the level of investment that's being made in upstream to meet future demand and at current prices?

**SABEUR MANSAR** Are we investing enough? We are doing our part. I know that my colleagues here are doing their part as well and this is really how we get together, the NOCs, the IOCs, the independents, the government, they have to play a key role ensuring that the policies are right, that the environments are there to allow us to make these long-term investments, and that we engage with the public. The public needs to accept certain choices that we are making. At the end of the day, we are supplying


energy because there is a demand for it from the public, because this is to sustain the way of our life. This is to lift more people out of poverty. And I think the public needs to accept certain choices around future technologies and the trade-offs that those will entail.

**HAMAD AL KHAYYAT** The hunger for upstream investments will be there. For example, you cannot stop drilling today. You have existing fields; you need to maintain production. So you need long-term investment. There's exploration: you still have to look into new areas to sustain future production. So this is something that you cannot stop and investment in upstream will continue.

**AHMED ABDULQADER AL-AHMED** It needs to make sense to NOCs or IOCs. If the technology will cost me, for example, $100 to get the shale gas out and the price in the market is $60, it doesn't make sense. I will not go ahead and exhaust all this.

**JOS EVENS** This is a long-term business and an extremely capital-intensive business. Some fundamentals have to be in place and stay in place like stability but also market fundamentals in terms of supply and demand. One of the components is technology on the upstream side, making sure supplies can come to the market is a key part. If you look at the long-term forecasts, what you see is that even with all the supplies we are planning and investing in, also on the demand side, there is a big component of energy efficiency required. In order for OECD countries to keep their energy demand relatively flat, energy efficiency in these countries has to increase significantly. This also involves technology requirements in [power] co-generation or transportation. So I think you have to look at the total equation.

**KATE DOURIAN** When I look around in this region where we have 60% of the world's crude oil reserves and 40% of the natural gas reserves, and I look at where – if I was an Exxon or a Shell or a Total – would I go? Qatar is one of the few places where you have these production-sharing agreements that are attractive. Kurdistan is attracting a lot of interest. But Kuwait doesn't really want any foreign oil companies for now and until they can formulate their policy nobody is going in there. Saudi Arabia: no upstream except for gas and we haven't really heard much about that. And the UAE? We're still waiting to hear about the concessions. So where do you go?

**JOS EVENS** From the demand side, looking at the growth and aspirations of countries around the globe, demand is strong and will

stay strong for the long term. That's why, just to meet all these aspirations, it's not only about even finding sufficient supply opportunities; it is also about energy efficiency on the demand side to find a balance. If we move to the supply side, a lot of people think of it in terms of conventional energy production. Conventionals will remain a very important part of the overall supply portfolio globally. This means on the one hand, finding new global resources and about optimization of existing resources. Then there is this entire area of unconventional gas and unconventional oil and there are opportunities. But again, the two most important elements for me are: stability because this is a long-term investment; and market fundamentals because I'm a strong believer that if the market environment is there, investors will come and find the right opportunities. This will provide the supply and demand balance on the long term.

**KATE DOURIAN** So if you could go anywhere in the world, where do you think you would get the maximum benefit for your business?

**HAMAD AL KHAYYAT** As a technology solutions and equipment provider, we see a need to position ourselves and tap into the eastern hemisphere. China is a growing market that works from two perspectives: one is to meet growth demand there and there's big demand. And secondly, there is potential to compete globally from that basis as well.

**SABEUR MANSAR** The key question is not really about deciding where we go on the map; the fundamental question is where can we add value most to the host country, to those specific resources? We are very happy to step aside from a resource if we believe that others can do a better job than us. We are more of a gas company now than we're an oil company; we produce more gas than oil. The key focus is on integration. When you have plenty of resources, the question becomes what will you do with the gas? It's about having the technologies to convert that gas into what the customer needs. In Qatar, for example, we have Pearl GTL. It allows the State of Qatar another monetization route and complements liquefied natural gas. We can also use the gas and convert it into chemicals or put it into the mobility sector. Floating LNG is another example. Again, we have specific capabilities, which would be very suitable to certain fields where conventional development wouldn't produce as much value or would have too much of an environmental impact. So the answer is, it's about deploying your strength in the areas where you can add most value in a sustainable way to the host country and to the natural resource.

**AHMED ABDULQADER AL-AHMED** It really works on a case by case basis, also for QPI. We don't have preferred geographic areas or locations. We look at the opportunities and their merits, as well as the right partners. Alignment between NOCs and IOCs is also something very important. For example, NOCs' motto is more 'protect my resources, support my people', whereas IOCs – and I don't want to speak on behalf of them – have a different motto in that they need to maximize and to increase their shareholder value; they need to maximize their production at low cost. So these are two different goals and objectives. We have to have a proper alignment between both parties so that at the end of the day we end up meeting our mutual goals.

**AUDIENCE MEMBER: ROB SHERWIN, SHELL** We've talked a lot about the technology and the investment that's going to unlock these resources. The industry often finds that the constraining factor on developing projects, the thing that delays them and that indeed makes companies simply walk away from opportunities, is the non-technical risk. Shale gas is the perfect example of where some countries have simply locked in that opportunity at the moment as a policy decision. How can IOCs and NOCs work together to solve these non-technical risk challenges?

**SABEUR MANSAR** Let me use the US as an example. The US now has this opportunity with shale gas and one of the critical discussions there is what to do with this opportunity. You can provide a climate to unlock it, meaning you provide the benefits but find that correct balance where on the one hand you can have your domestic priorities being met, while also providing the opportunity for the long-term investor to step in and make a mutually beneficial gain with that. Partners play a role. Let's assume you have a partner, not only with the US but an outside partner. From a government-to-government perspective, where these new supplies and opportunities might fit in, even from a global perspective, this is where NOCs can bring additional value.

**AHMED ABDULQADER AL-AHMED** I think the NOCs, given the link with the government, arguably are in a better position when it comes really to policy setting. For example, the government-to-government links that exist could be leveraged further, and really take innovation beyond technology. We could be thinking about innovation in the way that we work together in a partnership and how we face up to some of these emerging and new challenges.

**AUDIENCE MEMBER: ALEX SCHINDELAR, ENERGY INTELLIGENCE** The question was raised about shale gas and its potential sustainability over time. There are a few issues such as will the U.S. export the dry gas, is it economic to produce dry gas in these situations? From the companies who will be investing in these areas, do you share those potential concerns about the sustainability of the shale gas revolution? Have we gotten too excited about it?

**HAMAD AL KHAYYAT** It's a reality; what's uncertain is, as always, the scale and the timing. If prices remain at the level that we see today, it's more about looking at different ways of monetizing those molecules. It's about having the flexibility to really deploy different monetization routes. I think the investments and taking bets on certain technologies gives you that flexibility. The trick for us is really to be prepared, whatever the scenario is, so I think if the gas prices surge again, it's a good investment. If it stays depressed, we look at turning it into something else; be it liquids or putting it in the mobility sector or turn it into petrochemicals.

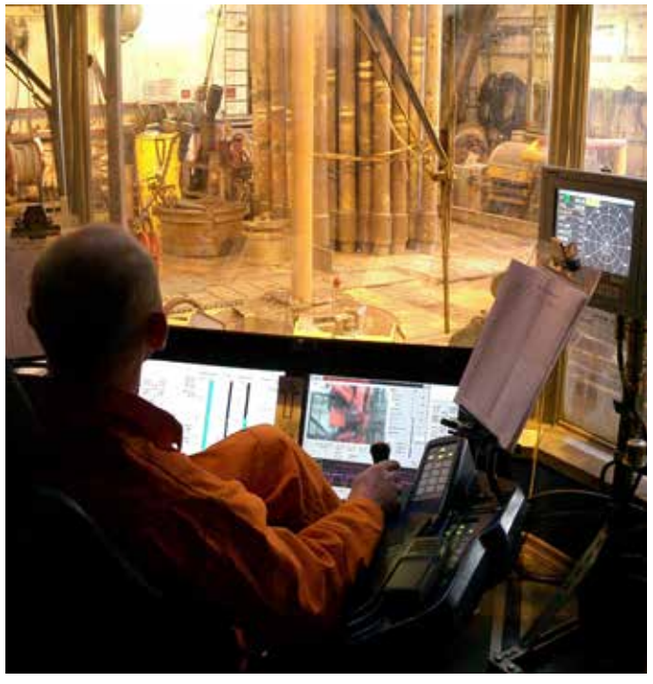
**JOS EVENS** Let me address in the sense that yes, we think that shale gas and shale oil, the unconventional supplies, will be the determining factor for the future. We are convinced of that. To what degree and the speed and the pace will be determined by market fundamentals. Personally, I'm still positive about it, because if I look at certain key performance indicators on drilling wells, making wells producible and getting the volume out, all these key performance indicators are improving. This makes me comfortable that from a cost of supply perspective, these supplies will be more and more competitive. Liquids are, of course, an important component. But still, I would make the point that this unconventional gas, associated liquids, and unconventional oil are three kinds of buckets. If you have unconventional gas and you provide sufficient market outlets for that gas in the form of – let's say LNG – then of course it has a stimulating effect on the development of unconventional gas. We are very positive about it and I think everything's lining up; just a few political hurdles need to be taken. ■

# Digital Oil Field is the Way – And the Middle East is Right on it

**By James McCallum, CEO, Senergy**

**IN FORMULA ONE,** where fractions of a second determine success or failure, making the best decisions in the shortest possible time is critical. Thanks to the introduction of ever-more powerful software and hardware capable of analyzing massive amounts of data within milliseconds, Formula One drivers and their race teams are better placed than ever before to making these decisions – and boost performance. Granted, F1 is still very much about the driver but it's also one of many examples of how technological advances are transforming the way we operate and make decisions every day in order to optimize business.

> "It is not too bold an assumption to make that the inclusion of DOF knowledge transfer will undoubtedly play an increasing role in the technology transfer demanded from relationships on new concession awards across the Middle East as it will in all the major global energy supply regions."



The global oil industry isn't an exception. Advances in and the widespread adoption of information technology have triggered a transformation process that will shape the industry in all its facets in the years to come. Whether its's devices such as iPads becoming a common tool to conduct real-time monitoring of what's happening at the well site or new breeds of young engineers with backgrounds in IT entering the space, the industry is amidst an exciting period of change.

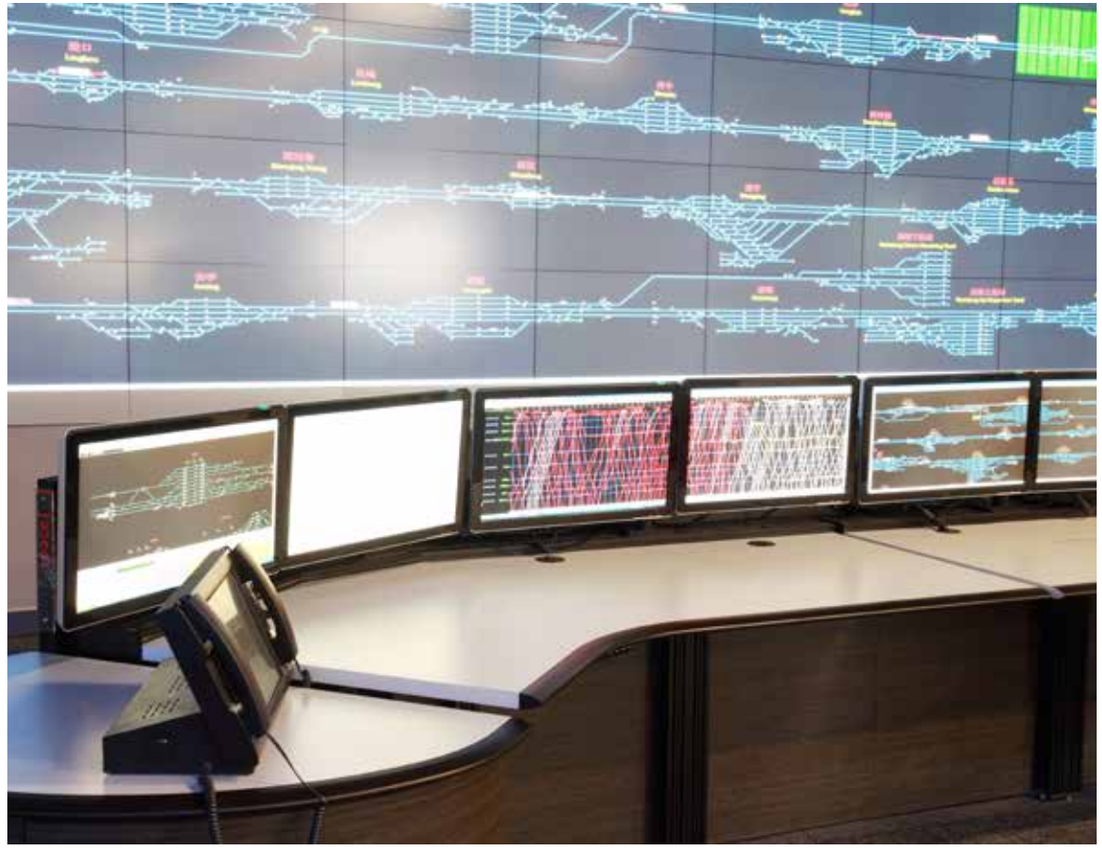
Today's oil fields are increasingly connected from end to end, enabling companies to harvest and analyze ever-larger amounts of data generated by people and assets along the oil value chain in real time. Digital Oil Fields as they're commonly refered to – essentially integrated operation systems – help in reservoir and production optimization, and drilling and well completion among other processes. They speed up and allow more accurate analysis and decision making, and improve safely levels. The ultimate aim of the Digital Oil Field (DOF) is to overlap field and decision center to boost output and recovery rates, and manage assets more efficiently and safely.

The oil industry's migration into the digital sphere is part of a natural evolution. To be sure, the sector hasn't been the fastest adopter of information systems compared to other industries. But with the long-term energy demand curve pointing up and oil prices at comfortable levels, new technologies such as DOF have put fields that were once deemed too expensive, too deep or too remote back on the radar screen.

Not too long ago, oil companies were questioning whether they should evaluate DOF technology. Now the question goes: 'how can we best optimize our return on investment in DOF?'

The same question is being asked all over the globe, including in the Middle East, a region long known for its access to 'easy oil'. It may be the world's richest hydrocarbons habitat, but as the development of new fields and maintaining or expanding output levels at existing ones is becoming more complex, the region's national oil companies (NOCs) have begun adopting the DOF concept to enhance oil recovery.

The Middle East has been relatively slower than other parts of the world in adopting DOF solutions but this is changing. From Abu Dhabi to Kuwait, from Oman to Saudi Arabia, regional NOCs have started to embrace the concept and are now actively



engaged in implementing numerous DOF projects.

Kuwait Oil Co. has launched three major DOF pilot projects with a fourth one in the planning phase. Oman, a pioneer in deploying enhanced oil recovery (EOR) technologies to boost output from its fragmented and mostly heavy crude reserves, is betting on its DOF program to ramp up production in the future.

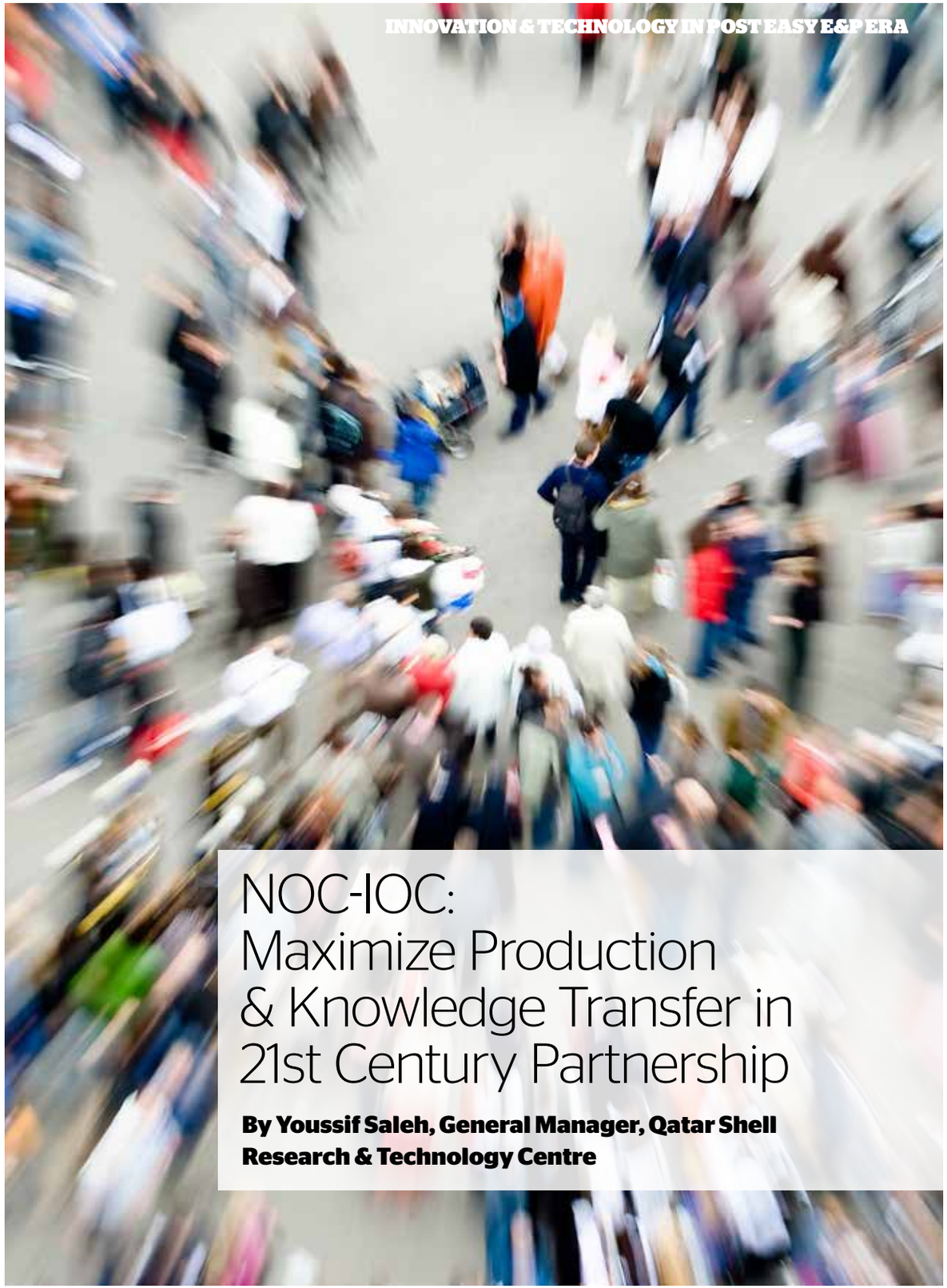
According to RnR Market Research, the Middle East is going to be the world's fastest-growing DOF market between 2012 and 2022, with revenue estimated to grow at a compound annual growth rate of 5.9%. This compares with 4.8% for the global market during the same period. By 2022, the global DOF market is expected to be worth $33.3 billion in terms of revenue.

Going forward, there can be little doubt that DOF will be at the core of all Greenfield projects in the region; more and more existing oil fields will be upgraded. NOCs embarking on their 'digital' strategy aren't doing so alone. The national incumbents have always stressed the need for technology transfer as part of their decision-making on new partnerships and concessions. As such, international oil companies (IOCs) and oil field service companies, which provide the technologies around digital oil fields, will all play a role.

But the rising complexities involved in developing future oil reserves may well bring about a new era of collaboration between NOCs, IOCs and oil field service firms. By pooling their limited resources, in terms of infrastructure and skilled labor, the players will be in a better position to leverage their different capabilities.

I am happy to say that it is not too bold an assumption to make that the inclusion of DOF knowledge transfer will undoubtedly play an increasing role in the technology transfer demanded from relationships on new concession awards across the Middle East as it will in all the major global energy supply regions. ■

***James McCallum, CEO, Senergy***



# NOC-IOC: Maximize Production & Knowledge Transfer in 21st Century Partnership

**By Youssif Saleh, General Manager, Qatar Shell Research & Technology Centre**

**BY 2050,** our children will share this planet with 9 billion people. This means the world will be adding the equivalent of a city of 1 million people every week for the next 30 years! Each of these cities and each person living in them will need energy to survive and thrive. As a result, global demand for energy will see significant growth by the middle of this century.

The future challenge will be for national oil companies and international oil companies—both of which have an important role to play—to combine forces. This will go a long way helping meet the complex energy challenge.

At Shell, we have the utmost admiration for national oil companies, for the skills and the capabilities of their people. National oil companies today are knowledgeable, capable and confident. I believe it is still fair to say that national oil companies stand to gain from the integrated, global capabilities that IOCs can bring to a partnership, in particular in two key areas: first, in developing and deploying technology to maximize the value of their hydrocarbon resources; and second, in helping transfer knowledge and build capacity within the national oil companies.

> “On average, only about 30% of crude from the world's oil fields is recovered, while the remainder stays underground. We are confident that we can beat the 30% recovery factor and we have devolved the necessary technology to do it to Petroleum Development Oman, a joint venture between Oman and Shell.”

To illustrate how Shell can contribute to maximizing technology production and knowledge sharing I would like to highlight the following examples: Carbon capture storage is widely expected to be a vital technology for the sustainable future of the upstream oil and gas industry. To this end, Shell and Qatar Petroleum funded a 10-year, $70 million program with Imperial College and QSTP to do research on this topic. The project, which has already commenced in London, will also start in Qatar soon.

Another example of technology helping to maximize the value of existing hydrocarbons here in the region is enhanced oil recovery. EOR is, in Shell's view, essential to maximize output at some of the existing fields in the Middle East. On average, only about 30% of crude from the world's oil fields is recovered, while the remainder stays underground. We are confident that we can beat the 30% recovery factor and we have devolved the necessary technology to do it to Petroleum Development Oman, a joint venture between Oman and Shell. PDO is probably the only company in the world that is implementing these techniques on a commercial scale in a truly amazing manner. The International Energy Agency stipulated that by using this technology 300 billion barrels of previously inaccessible crude oil could be tapped from existing reservoirs – squeezing extra barrels from aging oil fields is a commercial way to sustain energy supply.

This brings me to the second theme, which is helping transfer knowledge and build chemistry within the NOCs. Our industry today needs to grow talent and build capability, not only in our companies, but together with partners. One example of how this is being done exists here in Qatar. Developing any mega project on time, on budget, and with the right quality is a significant challenge, in particular in light of the large investments happening in Qatar, in infrastructure, in oil and gas.

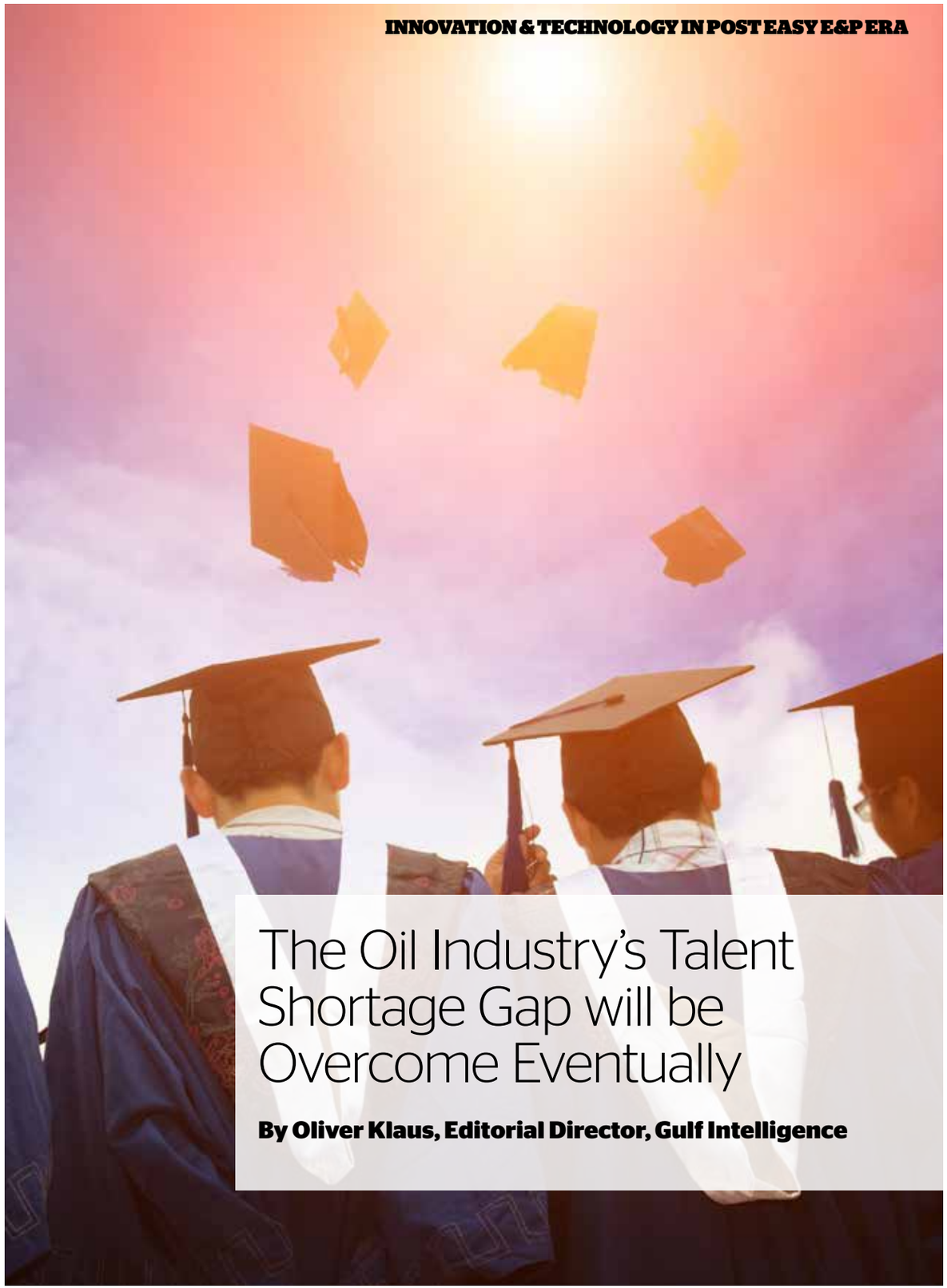
In 2005, Shell recognized that competency development in project management was a key challenge and a key enabler to deliver projects on any scale. That's how the Shell Project Academy was born. Shell, together with four international universities, developed a fully-integrated, experience-based program combining theory and practice to take Shell's project staff to all levels—young project engineers as well as project directors from all aspects of project management. Together with our partner Qatar Petroleum and more recently Hamad bin Khalifa University, we have been working on unlocking the human potential in Qatar by transferring this project management knowledge to the region. Last year, 95 students from QP and Qatargas graduated from the program.

The Qatar Shell Research Technology Center (QSRTC) in QSTP is also an example of capacity building. Shell is very proud that QSRTC was the first anchor tenant in QSTP, opening our doors in 2008 with a $100 million commitment of doing the research over 10 years. QSRTC chose to conduct research on two key themes highlighted by the Qatar National Research Strategy energy and environment. These are the two themes we are going to work on. In addition to these two themes, our research activities fall into several programs to develop creative solutions and improve on some of our industry's key challenges.

A second example of capacity building is our successful partnership with Qatar's Gulf Drilling International (GDI). Over the last couple of years, we have been working closely with GDI and we've been able to support them as a partner on their journey to operational excellence. Another example of our partnership with Qatar extends overseas. Shell brought in QP International (QPI) as a partner in Singapore in 2009, and together with PetroChina we are making plans to develop a world-scale refinery and petrochemical complex with QPI.

The challenge of business in the oil and gas industry in the future will be developing deep ties with partners. In Qatar, our partner will naturally be QP. It is through the combined strength of NOC and IOC that we can promote the innovation, resource, skills and cooperation needed to provide the energy the world needs and I'm optimistic we will. ■

***Youssif Saleh, General Manager, Qatar Shell Research & Technology Centre***



# The Oil Industry's Talent Shortage Gap will be Overcome Eventually

**By Oliver Klaus, Editorial Director, Gulf Intelligence**

**IN MANY WAYS,** Qatar's energy sector is a microcosm of the industry as a whole. A sustained period of expansion driven by rising global energy demand and a dearth of new talent has left the industry faced with an ageing workforce and an acute shortage of skilled labor such as petroleum engineers. This doesn't bode well for an industry set to take on the world's biggest challenge: quenching its long-term thirst for energy.

The problem largely goes back to a loss of talent since the mid-1980s when oil prices plummeted as low as $10 a barrel, subsequently shrinking oil companies' profit margins and leading to large numbers of technical employees being laid off. At the same time, many industry professionals chose to move on, while potential new entrants opted for careers elsewhere amid a lack of confidence in the industry's future, in particular after oil prices continued to hover around the $12 to $15-a-barrel mark throughout the late 1980s.

The industry has never fully recovered from being seen as more unstable and less desirable to work in than others, leaving scores of young people to choose careers in areas such as IT and finance rather than big oil. As a result, the flow of new talent into the oil and gas industry hasn't been able to match the outflows and keep up with the increased demand at the same time. The development has pushed up the cost of retaining experienced professionals and training newcomers that were recruited despite lacking the qualifications needed to be of immediate use within their companies.

There can be little doubt that the development poses a tremendous challenge to the industry. In a report published in 2012, the International Labor Organization (ILO) estimates – based on data provided by 37 global exploration and production (E&P) companies covering nearly 40 per cent of world oil and gas production – that by 2015 the E&P sector alone may face a global shortage of more than 3,200 petroleum engineers and petrochemical professionals.

This in turn has raised concerns over the industry's ability to sustain a certain pace of technological innovation and enable the industry to grow in line with market requirements. This, however, will be essential if rising global energy demand is to be met.

Given the tightening competition for new and more talent, the industry needs to step up its efforts in attracting, developing and retaining employees with the right expertise," industry officials say.

"You have to reach back into the education programs and make sure you're stimulating interest in the industry and in the technical degrees that underpin the industry all the way back to the elementary [school level] to get that spark for young folks," says Bart Cahir, President and General Manager of ExxonMobil Qatar.

International oil companies have long placed a strong focus on developing talent, both globally and in Qatar. Some of them seek to attract kids from as early as third grade to science and technology so that they later choose studies and pursue their careers in these fields. Generating interest is one thing, changing perception another. Banking and IT are often seen as being more lucrative and offering better career opportunities than the oil and gas sector. This isn't the case but word hasn't spread sufficiently to change that perception.

From educating to developing to retaining, the industry has to engage on all levels. It also needs to engage more closely with the other stakeholders such as universities, research institutes and government agencies. Jointly, the stakeholders should then be able to devise strategies that will ensure the development of a deep pool of qualified engineers in fields such as petroleum engineering, here in Qatar, where some of the world's most ambitious energy schemes have been and continue to be implemented, as well as in other regions.

Despite the challenges, there are positive signs that the talent shortage will be overcome eventually. In the U.S., enrollment in petroleum engineering programs and engineering disciplines that feed the oil and gas industry are on the rise, according to American Society for Engineering Education figures. Moreover, the industry is evolving. The widespread adoption of information technology, which has given rise to applications such as digital oil fields that help companies manage their assets more efficiently, is fundamentally changing the oil industry's face, making it appealing to a new breed of engineers.

At the same time, the increasingly global set up of international oil companies opens up new opportunities to seek out and develop their talent pools. Whereas in the past certain countries such as the U.S. or the U.K. were primary feeders of talent for the oil and gas industry this has changed. Today's global set up enables companies to get access to a larger share of the 7 billion people that live on Earth today. ■


***Oliver Klaus, Editorial Director, Gulf Intelligence***

> "You have to reach back into the education programs and make sure you're stimulating interest in the industry and in the technical degrees that underpin the industry all the way back to the elementary [school level] to get that spark for young folks."
>
> **BART CAHIR, PRESIDENT AND GENERAL MANAGER OF EXXONMOBIL QATAR.**

Oxy-operated PS1 complex, offshore Qatar

# PARTNERS IN PROGRESS

Oxy has been a partner in the Middle East and North Africa for more than four decades, working with the governments of Bahrain, Iraq, Libya, Oman, Qatar, the United Arab Emirates and Yemen.


**Occidental Petroleum of Qatar Ltd.**
A subsidiary of Occidental Petroleum Corporation

www.oxy.com

10889 Wilshire Boulevard
Los Angeles, California 90024
Tel: (310) 208-8800
Fax: (310) 443-6690

Navigation Plaza, C-Ring Road
P.O. Box 22611, Doha, Qatar
Tel: +974 4445-9459
Fax: +974 4445-9555


## HE Dr. Mohamed Bin Saleh Al Sada Q&A with International Energy Industry

**HIS EXCELLENCY DR. MOHAMMED BIN SALEH AL-SADA, MINISTER OF ENERGY & INDUSTRY, CHAIRMAN & MANAGING DIRECTOR, QATAR PETROLEUM, CONDUCTS A Q&A WITH THE AUDIENCE, LED BY MR. BART CAHIR, PRESIDENT & GENERAL MANAGER, EXXONMOBIL QATAR, AND MR. WAEL SAWAN, EXECUTIVE VICE PRESIDENT, CHAIRMAN OF QATAR SHELL. MODERATOR - SEAN EVERS, MANAGING PARTNER, GULF INTELLIGENCE.**

**BART CAHIR** Your Excellency, there's a bit of a tightening of human resource as things expand here in Qatar – what in your opinion are the right strategies that industry should follow to ensure we develop a deep pool of talent here in Qatar, and what you're looking for to make sure we have the leadership and the people we need to be successful in the long-term?

**DR. MOHAMMED BIN SALEH AL-SADA** This is a very challenging aspect in our sector because Qatar's population is really modest compared to the size of our economy - so our strategy is to emphasize the quality of the opportunity that our industry offers young Qataris.

The challenge is compounded by the fact that the Qatari economy is developing in other sectors, and the challenge is to keep our industry as a first choice for our boys and girls as they can be attracted—and they are in many instances— to other sectors of the economy.

We have developed a number of plans to keep the best talents attracted to our sector of the economy, which includes promoting the job security the oil & gas and petrochemicals sector can offer as it represent more than 60% of Qatar's GDP. We also sponsor students - I would guess that the majority of sponsored students at Texas A&M are from our sector and we reward them financially and professionally in a very structured manner. Today we have more than 3,000 students and trainees under development both here in Qatar and abroad.

We will maintain our efforts of making our industry attractive to the best talents we have, but we are also realistic that the size of the economy is far bigger than the size of the population so we will still continue to attract foreign talents from all over the world. We do have more than 150 different nationalities working for our industry and other sectors, and we are happy to see them pursuing successful careers and supporting our economy.

> "Today we have more than 3,000 students and trainees under development both here in Qatar and abroad. We will maintain our efforts of making our industry attractive to the best talents we have, but we are also realistic that the size of the economy is far bigger than the size of the population so we will still continue to attract foreign talents."
>
> **HE DR. MOHAMMED BIN SALEH AL-SADA, MINISTER OF ENERGY & INDUSTRY, CHAIRMAN & MANAGING DIRECTOR, QATAR PETROLEUM**

**SEAN EVERS (SE)** Bart, Exxon Mobil Qatar is a big operator here in Qatar - how do you meet this challenge? How do you grow the human resources capacity for the indigenous energy industry?

**BART CAHIR** I think His Excellency touched on really all the key points. Number one, you got to reach back into the education programs and make sure you're stimulating interest in the industry and in the technical degrees that underpin the industry, and even all the way back to elementary school to get that spark started with young folks. I know ExxonMobil to be invested through our corporate social responsibility programs to attract these kids—third, fourth and fifth grade—and then you carry all the way through.

But then His Excellency also touched on, you know, the compensation and the reward for careers and, ultimately, you've got to give people work that they enjoy. They've got to get the experiences and exposures that help build their leadership skills and capabilities and make them more powerful in the organization. And we also have to communicate what plans we have for advancing people through their careers.


There's a lot of ambition and people want to end up with senior roles much like my own and so you have to articulate what that path really is and truly looks like in a realistic way.

**SE** What about the other point His Excellency made regarding the global competition for talent and the challenge to continue to attract international talent to Qatar?

**BART CAHIR** The challenge here in Qatar is not much different than what we face in the industry worldwide – the ageing demographics. We have some challenges in the industry with so many of the professionals came in during the last up-cycle in the late 1970s, early 80s. So that will tighten the competition for resources in the short term. But I think you see enrollments in the petroleum engineering programs and engineering disciplines that feed this industry ramping up pretty rapidly. So I think there's a very large and diverse pool coming in.

The other thing HE touched on is how we're now getting into many, many more countries around the world and with that bolstering interest in the energy industry. It used to be certain countries were the primary feeders of talent, well that's now changed. We're seeing much broader subsets - we're getting access to the 7 billion people on Earth - I think that's going to be key in making sure we're drawing upon all the available resources. I think as an industry we're doing a much better job of telling our story and attracting those people.

**SE** I would like to introduce Mr. Wael Sawan, country manager of Shell Qatar, to share some of his thoughts and ask His Excellency a question.

**WAEL SAWAN** Your Excellency, as we think about the program of investing in the infrastructure for Qatar, from now leading up to potentially 2022 and beyond, what is it that we as an industry can do to support Qatar in achieving excellence in safety - what more can we be doing as companies and as individuals to support that accomplishment?

**DR. MOHAMMED BIN SALEH AL-SADA** The human element is the most important element in our industry and safety comes first!

When it comes to safety, our policy is unequivocal and it is a really explicit policy. You can see it everywhere declared officially because we want people working in our industry to come back safely and happy everyday and all the year-round, otherwise we are defeating basically our overall objective.

We put safety at the forefront of all that we do and we have installed a number of programs, including safety management systems, constant

and continuous improvement using best practices, including from Shell. We take the opportunity to thank our partners for helping us out in constantly reviewing our safety management system and standards.

QP is in the first quartile as far as safety performance is concerned, but this is not to be complacent whatsoever. So the idea is that the first in quartile is supposed to be the norm and we should improve from there. We moved safety to be on top of our agenda, practically on the top of our agenda at all levels, from the senior management at director level down to toolbox meetings daily in our field operations.

**SE** Well, in a sense these two questions - talent shortage and safety - are increasingly aligned in terms of the outlook for the industry. We often see where there has been a breach in safety it can be traced back to a competency deficiency - How do you think these two issues are aligned?

**WAEL SAWAN** I challenge the lack of competence argument on the grounds that as operators if we feel that we don't have people who have the competence we have the responsibility not to put them at the front line and expose them to the source of risks that are prevalent in our industry day to day. I think the best proof of that, this is not to sort of self-market, Pearl GTL has broken many, many records in that capacity.

**SE** I'd like to go to the floor now for questions.

**GOAN KIAT (RAMBOLL, SENIOR PROJECT MANAGER)** Why is Qatar not really promoting driving on LNG which would help ease the city's pollution challenges?

**DR. MOHAMED BIN SALEH AL SADA** I fully agree with your thesis that LNG and CNG have huge potential for use in transportation, not only in Qatar, but elsewhere. One would say that we should have started a lot earlier. But we have started and we have developed a plan, which is now in the implementation phase - we're collaborating with Karwa, which is the mass transportation company. We started with some of their buses and the plan is to increase the number of buses touring Doha continuously. So we started with big vehicles and this is obvious because they are basically operating in the center of Doha.

This issue is being looked at virtually by all the companies - for long distances and big vehicles there is a preference now to go LNG because for the same size of the storage you can store more calorific value. And this is the trend now. CNG is not dropped altogether as it still has an excellent track record safety-wise. ■

# Navigating Complexity
# **Unlocking Potential**

The Al Shaheen field, Qatar lay dormant for decades, considered too difficult for commercial development. But where others saw problems, Maersk Oil recognised a great opportunity and within just two years the field was producing oil. Today it is Qatar's largest oil producer.

Maersk Oil has a proven track record of making the impossible possible in tight and difficult reservoirs. As a technically focused company we create cost-effective, efficient solutions which accelerate oil and gas recovery for the long term.

Our focus is on operating safely and responsibly, to ensure sustainable business growth in the countries in which we operate. By harnessing local talent and technology development, we continuously create value for our partners and host governments.

**Oil production:** Maersk Oil operates some 625,000 barrels of oil equivalent per day. **People:** Some 3,500 people – 1/3 offshore, 2/3 onshore.
**Production countries:** Denmark, Qatar, UK, Algeria and Kazakhstan. **Exploration countries:** Angola, Brazil, Greenland and the US Gulf of Mexico

MAERSK OIL