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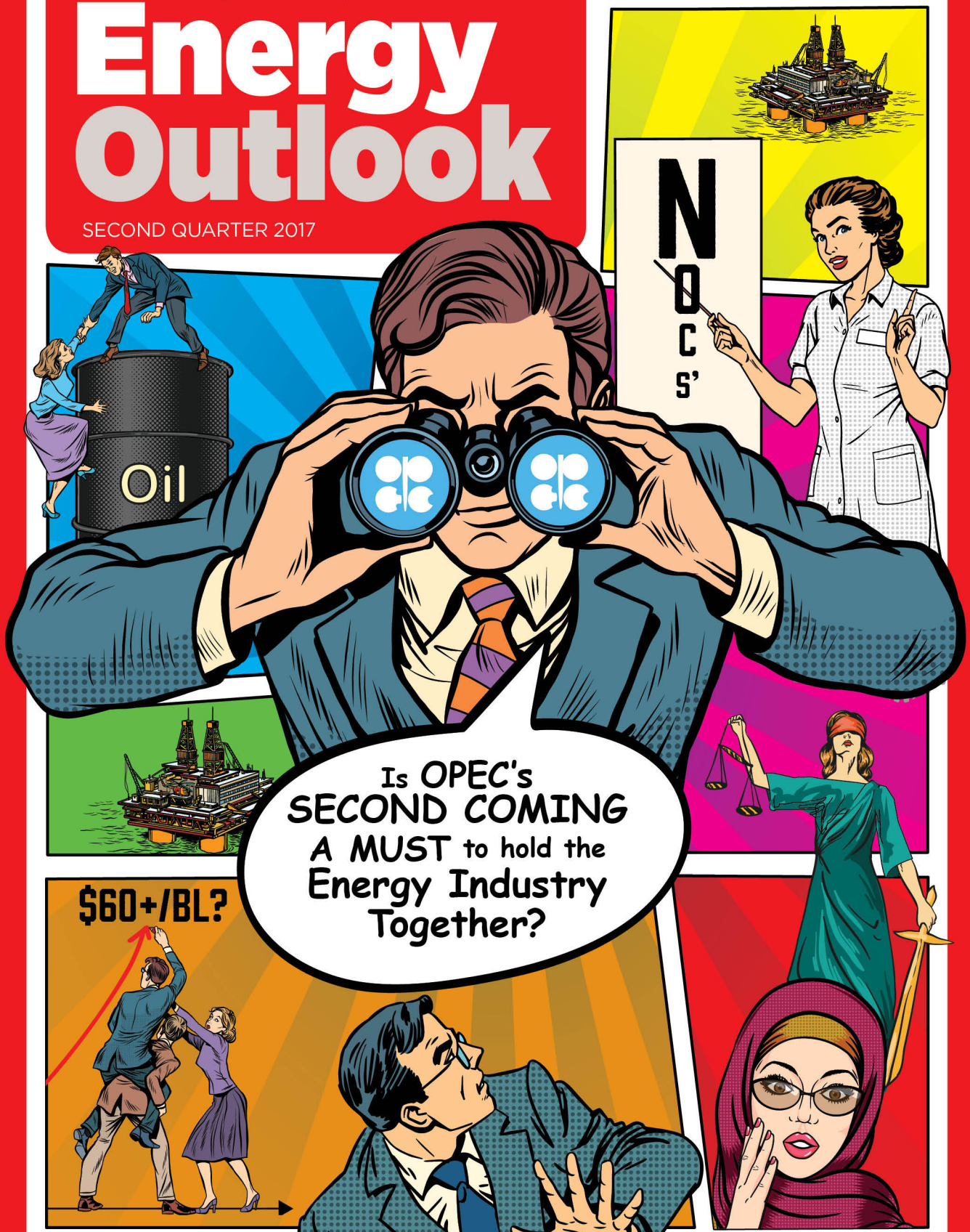
Energy Outlook

SECOND QUARTER 2017



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Lower for Longer Era Propels NOCs Transformation – Destination?

BY SEAN EVERS
Managing Partner, Gulf Intelligence

The world's 60+ national oil companies (NOCs) are emerging with an enhanced and elevated posture as the global energy industry recovers from the 'lower for longer' oil price cycle. NOCs have utilized this period to restructure, reform and expand abroad, perhaps most notably being the plans by Saudi Aramco to hold an initial public offering (IPO), while retaining sovereign control over considerable resources at home yet to be developed and produced. When ranked on the basis of proven oil and gas reserves, 17 of the top 20 oil and gas companies in the world are NOCs. International oil companies (IOCs), the super-majors, themselves account for only 3% of oil reserves and 2% of gas reserves, although they have 20% of production through contractual arrangement with the NOCs.

In a parallel development, fully or partially government-owned energy firms, known as international oil companies (INOCs), are spreading their wings. This includes Kuwait Petroleum International (Q8) and Emirates National Oil Company (ENOC), which has acquired full control of Dragon Oil as part of its strategy to become a fully integrated oil and gas company. Abu Dhabi's Mubadala Petroleum and Oman Oil Co. are also appearing on the global energy stage, seeking out commercial opportunities in the exploration and production (E&P) space while at the same time contributing to the economic development of their home countries through knowledge transfer.

Additionally, Gulf NOCs are becoming IOCs that venture beyond their home borders, competing or teaming up with IOCs on energy developments as they seek to diversify their portfolios and gain access to new know-how and technologies. But it is still early days to see if the Gulf NOCs can emulate their predecessors, such as BP, Statoil and Petronas, who successfully claimed a seat at the top table of international energy companies. ■

His Excellency Dr. Mohammed Bin Saleh Al-Sada

MINISTER OF ENERGY & INDUSTRY, QATAR; CHAIRMAN OF THE BOARD, QATAR PETROLEUM

An exclusive *Gulf Intelligence* interview

MODERATOR *Conversations amongst national and international oil companies are focused on the dissipation of capital expenditure. It started with cutting off a bit of the fat, then cutting off some of the muscle and then it became a case of cutting down to the bone. Have we hit the bottom point in terms of capital expenditure by oil producers?*

H.E. DR. MOHAMMED BIN SALEH AL-SADA This is the first time that we have lost 25% worldwide as far as investments are concerned. If we continue the same trend for the third year, the situation is bound to manifest itself in a shortage (of supply). The normal behavior of a reservoir usually sees it dropping its productivity 4% to 5% a year. You need investments to keep that plateau, let alone trying to satisfy the world with its increasing energy needs. During the price crunch over the past two and a half years, we did not experience a demand crunch. Demand was very healthy. It was on the supply side that we saw the surge. Last year we added another 1.2 million barrel a day (b/d) and it is estimated at 1.4m b/d this year. The industry needs a lot of investment to keep up with this demand. Otherwise, a shortage could be experienced as a surge in the oil price.

MODERATOR *Is $50/bl the magic number to sustain and give life to capital expenditure in the oil business?*
H.E. DR. MOHAMMED BIN SALEH AL-SADA Maybe for the short period of three to four years. But the cycle is longer and the industry needs to see more investment, which I think means a higher oil price to attract investors. The first batch of investments will go to easier fields and operations.

MODERATOR *To sustain current oil prices above this level, is the Vienna Agreement between OPEC and non-OPEC going to have to be extended longer than the current six-month deal?*
H.E. DR. MOHAMMED BIN SALEH AL-SADA We really do not know whether six months is enough, or whether we need to expand the deal for another six months. It is premature [to discuss the possibility of another deal] because we just had the first monitoring report of the current deal, which is very encouraging. It shows an adherence of more than 90% for OPEC countries. We would like to look carefully at the degree of adherence, as well as the response of the market.

One important parameter is to see the stock levels: how far are they from the five-year average? If the process of cutting supply sees the industry heading towards the five-year average point, then that is an excellent parameter from which to judge whether we need to extend the agreement. Believe me that OPEC and non-OPEC will judge whether to extend the deal from the point of view of both producers and consumers. Our industry does not look at price alone, but at how the price is interacting with the global economy. One would expect that by the third quarter of this year, we will be in better shape as far as stock levels are concerned. But there are so many parameters around; some that we need to evaluate are known and others are totally unknown.

MODERATOR *In terms of the Vienna Agreement, how compliant is Russia in this deal? We know that OPEC did well in terms of compliance at 90%. Let us talk percentages for Russia.*
H.E. DR. MOHAMMED BIN SALEH AL-SADA I see Russia as committed. They initially found it difficult to freeze, because they have a number of developmental projects. But, again, when we came together and had that very transparent cooperative meeting, we came to the agreement with everybody on cutting production. Russia came up with the plan of cutting down the first month of 100,000 b/d. Subsequently, it will become 200,000 b/d and then 300,000 b/d. With everybody's commitment, we are definitely heading in the right direction.

> **"Our industry does not look at price alone, but at how the price is interacting with the global economy. One would expect that by the third quarter of this year, we will be in better shape as far as stock levels are concerned. But there are so many parameters around; some that we need to evaluate are known and others are totally unknown."**

15
The rare meeting of minds between OPEC and non-OPEC producers in Vienna last November marked the first agreement between the two camps to trim supply in 15 years. How likely is it to happen again?

90%
The compliance rate demonstrated by OPEC in the first few months of the Vienna Agreement.

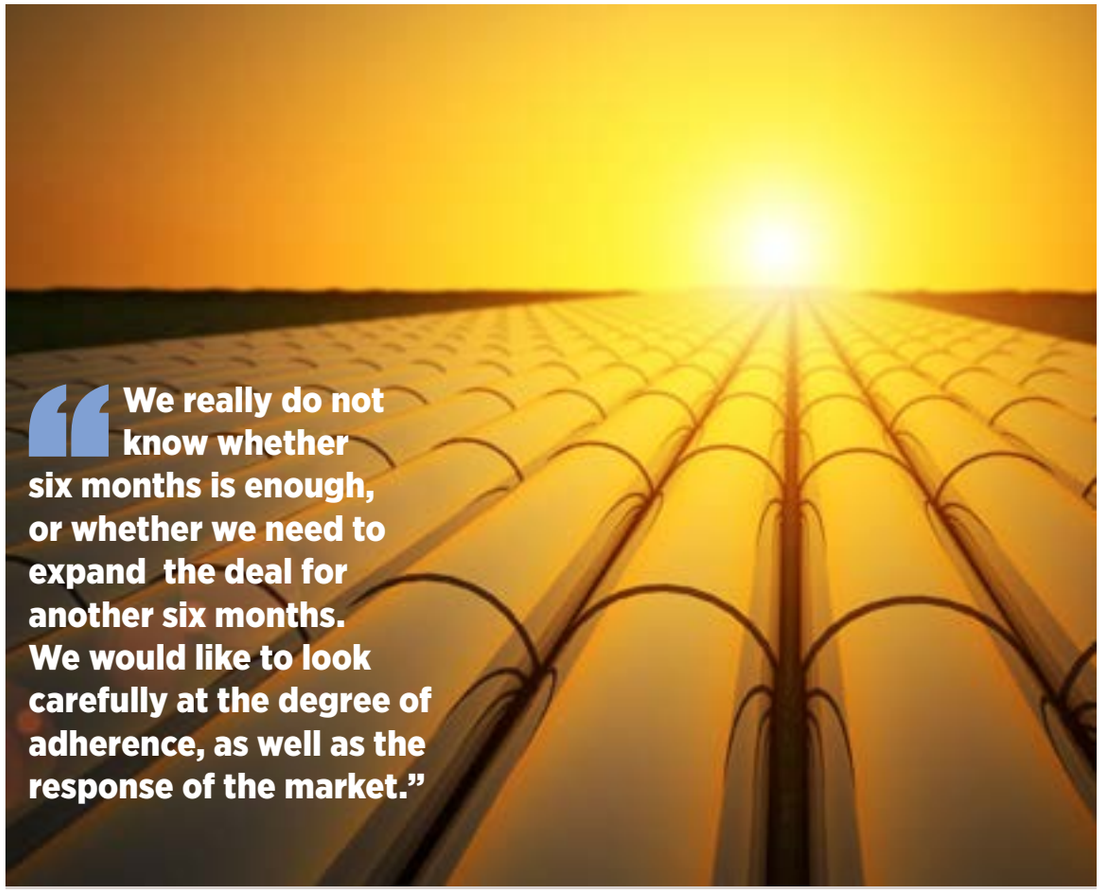
1.2
OPEC agreed to cut supply by a total of 1.2m b/d, while non-OPEC agreed to cut 558,000 b/d.

6
The six-month Vienna Agreement comes to an end in June, with momentum to extend the deal, or carve out a new structure, gaining pace.

MODERATOR *How many more non-OPEC countries have a 50% compliance rate?*
H.E. DR. MOHAMMED BIN SALEH AL-SADA OPEC countries have a very well-developed mechanism of estimating and calculating the production level of individual countries, be it from the direct reports and secondary sources. For us, this is the first time that we have developed a mechanism to estimate the non-OPEC countries' production. We are on a learning curve. The first attempt was a good one, but it could be better in the coming months. Although our estimate is 50% compliance, it could be more than that.

MODERATOR *Many thanks for your insight Your Excellency. Let us get some questions from the audience.*

AUDIENCE MEMBER 1 *I am with a US petrochemical company. Everybody is talking about OPEC and non-OPEC, but the biggest lifeline is the US shale producers. The rig counts have been going up every week and US stockpiles are also increasing. How do other producers estimate around that?*



H.E. DR. MOHAMMED BIN SALEH AL-SADA You are right, US stockpiles are rising. We look at the industry globally and stock levels from countries in the Organization for Economic Co-operation and Development (OECD) have started to decline. The rate at which they will drop remains to be seen. Shale oil and shale gas have witnessed the biggest incremental increase over the past few years. The world needs shale oil and it will be accommodated. The question is whether it will be fully accommodated today, or down the road within a year or two. Again, the element of economics dominates the scene.

AUDIENCE MEMBER 2 *Your Excellency, I have two questions, please. Firstly, what do you think the process was behind investing in the Pakistan LNG power project? Secondly, does Qatar – the world's biggest LNG exporter – want to get to a stage where it is buying and selling LNG that the country has not produced?*
H.E. DR. MOHAMMED BIN SALEH AL-SADA Pakistan is a very promising market, which we are geographically close to. We have an excellent relationship with this country and we have been looking at different models for many years to cooperate in the gas sector. Those efforts culminated in an agreement to supply Pakistan with LNG, as well as helping develop LNG terminals. In response to your second question, we have been looking at this possibility. We are marketing approximately 77 million tons of LNG worldwide and we have accumulated huge experience. This makes it natural to consider such a thing. ■

450
The International Energy Agency (IEA) expects spending on oil and gas fields to have fallen by 24% to $450 billion in 2016. A new agreement would give oil investors a confidence boost in 2017?

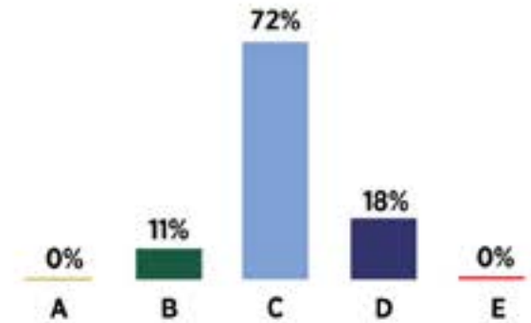
Interview conducted in London at IPWEEK 2017 in late February

GIO

Oil Market Outlook – Survey

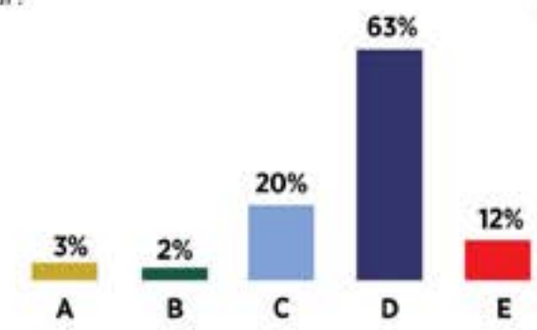
Q1. What price will Brent oil average in 2017?

A in the $30s or lower
B in the $40s
C in the $50s
D in the $60s
E in the $70s or above



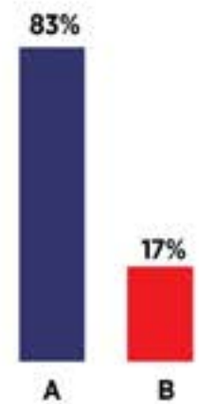
Q2. What will be the lowest price that Brent oil could touch this year?

A Below $20
B in the $20s
C in the $30s
D in the $40s
E in the $50s



Q3. Do you expect the OPEC – non OPEC Vienna Agreement to be extended beyond June?

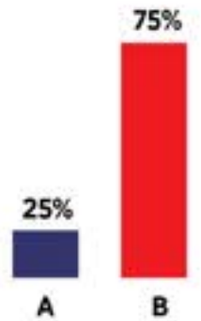
A Yes
B No



Q4. How should the market interpret OPEC's recent agreement to cut oil production after its two-year fight for market share?

A Mission accomplished in market share battle

B White flag of surrender under sustained pain of lower revenue

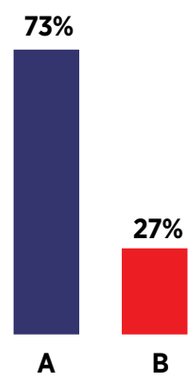


GIQ SURVEY

NOCs in Transformation – *Destination?*

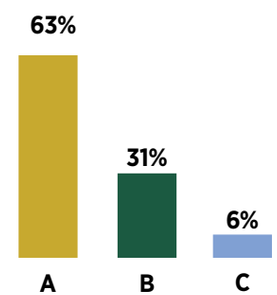
Should Arab Gulf NOCs transform into globally competitive international oil entities like their European peers (BP, Statoil, etc) and Asian peers (Petronas, Sinopec, etc) have done previously?

A Yes
B No



What will be the dominant industry partnership by 2025?

A NOC – IOC
B NOC – NOC
C IOC – IOC



GULF NOCS MUST ADAPT – AND FAST

By Professor Dieter Helm, CBE, Professor of Energy Policy, University of Oxford

If you were a historian in 2050 looking back to the oil industry today, what would you pick out as the big points to remember? As described in my new book *Burn Out: Endgame for fossil fuels*, I would pick out three long-term structural changes that have changed the game.

The first point is that the commodity super cycle is over. Oil at $50/bl is a very high price in historical terms and it will probably carry on gradually falling over the next decade, as it did for 100 years between 1870 and 1970. There is no correlation in economic history between the idea that when oil demand goes up, the price necessarily rises. There were two world wars in the twentieth century and the price did not rise. It probably will not in the future.

The second big point is decarbonization. It is not going away. Investments are being made and technologies are being developed. The next-generation of solar technologies will especially be game changers.

This leads onto the third point; technology. We are in the midst of the digitalization of virtually everything. The revolution covers computers, the internet and wider technologies and has only just begun. Think robots, 3D printing and artificial intelligence. Ask what that does to the vast swathes of middle class activities that currently take place. Robots in Detroit are just as good as Shanghai, so we are going to see lots of reshoring happening. US President Trump may take the credit for it, but it is nothing to do with his policies; it is to do with fundamental demand for technological change.

You might counter that technological change is already old news. But I am old enough to have done my doctoral thesis on a typewriter with Tipp-Ex and carbon paper. If you told me there would one day be a fax machine, I never would have believed it. I asked my students about fax machines and they said: what is a fax machine? The technological transformation is still only just gaining traction – there is so much potential. Living with $50/bl oil in a world of rising populations is not going to be a picnic. If you look around the Middle East, many countries assumed $100/bl would remain the norm and they spent the proceeds. For companies and countries – they are often synonymous – the big challenges come with thinking about how to react to the new reality. Oil today is worth more than oil tomorrow and it makes sense to pump it now, especially if you have got budgetary pressures and fast population growth.

OPEC may have cobbled something together with non-OPEC countries for six months. But this is a temporary dam and it is very likely to fail. If you look at the potential production of Iran and Iraq, let alone everybody else, the scope for cheating and output expansion is considerable.

What should companies do? It is a complex outlook. If you are a rational shareholder looking at an international oil company (IOC), you would say "harvest-and-exit", crash the CAPEX, pump out the dividends and take out as much as you possibly can as the company eventually comes to an end. Managers never "harvest-and-exit", but that is the obvious thing to do.

NOCs in the Middle East and elsewhere are trying to diversify. But what are they going to diversify into? What is their competitive advantage, bar oil and gas? They might have a bunch of consultants telling them that if they sold a chunk of their oil companies, they could certainly become good in lots of other industries. The consultants would perhaps say that it is just a question of shifting the capital from here to there. Keep in mind that consultants enjoy enormous fees. Forgive me for some scepticism.

There is little doubt that the historian who in 2050 looks back at the oil industry today will have the luxury of being able to see who got it right and who got it wrong. Those who think that we are in for another big hurrah of high oil prices and wide profit margins...I bet that it is they who the historians will call the losers. ■

LEADERSHIP DIALOGUE:
His Excellency Sultan Ahmed Al Jaber
CEO OF ADNOC

CERAWeek 2017, Houston, US

Moderator: **Daniel Yergin, Vice Chairman, IHS Markit**

MODERATOR *Approximately one year on from when you became CEO of ADNOC, how has the company adapted to the 'lower for longer' oil price situation?*
H.E. SULTAN AHMED AL JABER Because of ADNOC's instrumental role in the UAE's economic development, the first thing I did when I rejoined was to make sure I did a comprehensive and holistic analysis of the situation. This was important to better understand ADNOC's ability to maneuver through the market dynamics and the price fluctuations. Consequently, a transformative exercise began to ensure the resilience of ADNOC regardless of these factors.

There were and are three key trends. Firstly, to ensure that ADNOC continues playing its role in meeting global energy requirements with the upcoming surge in demand. The second is recognizing that technology is rapidly advancing and that there have been disruptive innovations to the technologies that we have been using over the last four decades. The third is a phenomenal opportunity for us to capitalize on our ability to produce more petrochemicals and stretch the impact of every dollar we produce by going further downstream.

In a very short period of time, we have demonstrated a unique ability to address the whole value chain and bring our cost of production down. This was a very significant step for the creation of a new DNA within ADNOC. ADNOC is absolutely ready to engage with our international partners to advance our upstream, midstream and downstream investments. A partnership model is going to be very dependent on real value and partners who have similar views, are committed for the long-term and willing to bring technology, know-how and market access.

MODERATOR *With so many major technological changes worldwide, what is ADNOC focusing on?*
H.E. SULTAN AHMED AL JABER We have a very special emphasis on technology and research and development (R&D). ADNOC was dependent to a certain extent on off-the-shelf technologies, as well as the support of our existing partners, who have done a good job in picking technologies that are best suited to our needs. But, moving forward, this will no longer be the case. R&D into technology is very high on our agenda. We will soon be demonstrating our very serious intent towards advancing technology and adopting different work streams in R&D that will help ADNOC progress. This will also help create custom-tailored technologies that will mean we can stretch every possible dollar from every barrel we produce.

MODERATOR *What is your view on the longer-term outlook for oil?*
H.E. SULTAN AHMED AL JABER Going forward, the market is going to be centered around the ability to create a home for products. We are known for our expertise in upstream, which will continue to be a major area of our operations. Having said that, you will soon be seeing ADNOC venture more into the midstream. We will be investing more in gas, particularly sour gas developments and gas caps in the undeveloped reservoirs. This will ensure our sustainability in an economic manner and enable us to meet our own gas requirements locally. At the same time, we see a huge opportunity in downstream and we are going to pursue more refining capacity and petrochemicals.

Enhanced oil recovery (EOR) is also a very important focus area in ADNOC. We have demonstrated a very strong capability in capitalizing such existing technologies, but we are also going to invest in more tools for further enhancement. Carbon, capture and storage (CCS) represents another unique opportunity for us and we are already demonstrating our commitment to mitigating climate change with such a project in Abu Dhabi.

"Many people from the public and private sector asked: why would a major oil-producing nation proactively seek a key role in the renewable energy space? The short answer is: because we can and we should."

MODERATOR *You have mentioned that you wanted to be a petroleum engineer when you were a little boy. Do you see that same level of passion in the new generation of talent?*
H.E. SULTAN AHMED AL JABER I have seen a shift in the mindset of [how potential talent] views the oil and gas industry. When I was growing up and going to school, ADNOC used to be the ultimate destination for any good student. We will make sure that this mindset comes back by demonstrating how ADNOC plays an instrumental role in helping advance our nation.

MODERATOR *What is your view on the evolution of female employees in the oil and gas sector?*
H.E. SULTAN AHMED AL JABER We have a leadership that is committed to the advancement and the empowerment of our women. Today, one third of our cabinet is represented by women and we have another third in the parliament. Women have demonstrated a unique ability at being able to help advance our nation and our country in all sectors. The time has come for them to play a more prominent role in the oil and gas sector and we have made some pledges accordingly, such as appointing a female CEO in one of our operating companies by 2020. We also want to ensure that we have no less than 15% of our senior leadership in oil and gas represented by women.

MODERATOR *When we first met over a decade ago, you were embarking on a mission outside the oil industry. At the time, you claimed that I looked puzzled when you first described it. Can you elaborate on that mission, please?*
H.E. SULTAN AHMED AL JABER You were not the only puzzled one! I was tasked with a mandate to develop a comprehensive energy vision for Abu Dhabi and my fact-finding mission focused on better understanding the different trends and economics of energy, including renewable energy. I looked at how Abu Dhabi could continue to play its leadership role in the energy sector by diversifying its economy and including renewable energy as part of the mix.

Many people from the public and private sector asked: why would a major oil-producing nation proactively seek a key role in the renewable energy space? The short answer is: because we can and we should. We have the capabilities and we have the revenue stream from oil and gas that allows us to continue investing in the energy sector. We should because environmental stewardship has been established as an integral part of our economy. As such, advancing renewable energy was a natural and logical step for us to complement our hydrocarbon abilities. We did not see [renewable growth] as a threat. Our key mandate throughout this whole exercise was to bring the cost of renewable energy down while scaling up the technology. That is exactly what we have done. ■

**This is an edited transcript.*

Gulf NOCs' Evolution Has Only Just Begun

By Dr. Salem Abdo Khalil, Technical Advisor, Government of Fujairah

A question that has circulated the world's energy boardrooms for more than six decades is finally being answered. It is a yes; the Gulf's NOCs can effectively spearhead the development and management of the region's oil, which accounts for a third of global reserves. Historically, NOCs have tended to lean heavily on IOCs' expertise in the development and management of oil reserves.

But the tide is turning. NOCs have demonstrated their financial acumen by swiftly and smartly slashing budgets and payrolls – while preserving oil supply and security – in response to a 70% decline in oil prices since mid-2014. Having previously enjoyed bloated balance sheets, NOCs are getting used to being on the front line of a cash-strapped battlefield to protect profit margins as Brent oil hovers at $55/bl. Increasingly strict global environmental policies and soaring energy demand only add to their need for unprecedented change.

NOCs must now match the commercial acumen long demonstrated by IOCs while still meeting their social responsibilities that come with playing an integral role in a nation's identity. State-owned Saudi Aramco's surprise announcement last year of an IPO pencilled in for 2018 is a good example of how NOCs, unlike IOCs, must navigate a three-point agenda; one of commercial success, one of social responsibility and one that supports the nation's political agenda. The IPO is expected to reveal the Kingdom's oil and gas reserves for the first time and could raise $100 billion for a country that anticipates a $53 billion budget deficit in 2017. The excitement within the global investor community over the IPO is matched by concerns that the process will fall through, or be postponed until later years.

> "NOCs must now match the commercial acumen long demonstrated by IOCs while still meeting the social responsibilities that comes with playing an integral role in a nation's identity."

> **"The jury is still out on whether NOCs' dedication to transforming into canny managers will fade if oil prices rise."**

$100bn
The potential value of the 5% stake that Saudi Aramco is expected to offer via an IPO next year.

$53bn
Funds potentially generated by the IPO will go a long way to offsetting Saudi Arabia's budget deficit this year of $53 billion.

Whatever the schedule, the regional hegemon's maturing financial management has whet global investors' appetites.

To help kick start the evolution, there have been leadership changes in the NOCs of Abu Dhabi, Kuwait, Qatar and Saudi Arabia since 2013, which collectively produce 17 million b/d of oil. State-owned ADNOC's new CEO, Sultan Al Jaber, has said the company must operate efficiently in a way that is more akin to an IOC super-major. To help facilitate this transition, ADNOC plans to merge the operations of the Abu Dhabi Marine Operating Company (Adma-Opco) and Zakum Development Company (Zadco) into a new company by 2018. ADNOC also intends to combine three of its shipping and ports services units into one as the state oil firm.

While NOCs and IOCs have always collaborated, their key performance indicators (KPIs) will forever remain fundamentally different. The Saudi Aramcos and ADNOCs of the Gulf manage their assets for long-term, rather than immediate, commercial gain as part of a wider energy security strategy. Sustainability is also not just a buzzword for NOCs, as illustrated by Qatar's efforts to preserve the North Field by only lifting the moratorium, which lasted 12 year, on additional gas development in the first quarter of this year.

Collaboration between NOCs and IOCs with historic relationships will particularly strengthen over the coming decade in a bid to bat away other increasingly robust oil and gas competitors. For the Gulf, this primarily applies to Iran and the US. The opening of the newly-widened Panama Canal in mid-2016 gave a significant boost to the latter's oil and gas export ambitions to east Asia, for example.

Modern and ever-expanding port facilities are a vital part of Gulf-based NOCs' ability to enhance their global offering amidst rising competition, with this remit being more than fulfilled by the Port of Fujairah. The port is already one of the world's largest bunkering hubs and in the last year alone, the port has launched a $175 million very long crude carrier (VLCC jetty). There are also plans to build a second VLCC and increase petroleum storage capacity by 75% to 14 million cubic meters by 2020.

The unprecedented release of weekly oil inventory data by Fujairah Oil Industry Zone spearheaded market discussions on hosting the region's first independent pricing benchmark for oil products.

But NOCs' ability to compete commercially still requires them to up their game to level the playing field of technological expertise with IOCs. NOCs' access to national oil reserves has meant they have fallen behind IOCs, who had to become tech savvy and think outside the box to maximize potential from more challenging assets. What was once to NOCs' advantage is now their Achilles' heel.

NOCs do not have long to sharpen their game, with the juggling act of satisfying rising domestic energy demand while being competitive in global markets getting tougher as the region's population swells. Dubai's population is likely to double to 5 million by 2030 and Qatar's population of 2.6 million today is forecast to grow eight-fold by 2050, for example. The Middle East's energy demand could climb 49% by 2035, according to BP's Energy Outlook, while the International Energy Agency (IEA) expects the region's gas demand to double by 2040.

So far, Riyadh's changes most starkly illustrate the rapidly maturing nature of the Gulf's NOCs. But the jury is still out on whether NOCs' dedication to transforming into canny managers will fade if oil prices rise. ■

x2
Dubai's population could nearly double to 5 million by 2030, with 25 million additional visitors also expected to flock to the emirate for Expo2020.

75%
Plans to increase petroleum storage at the UAE's Port of Fujairah by three quarters to 14 million cubic meters by 2020 are well underway.

CARVING OUT A NEW & GLOBAL IDENTITY?

HEDGING AGAINST THE FUTURE VALUE OF OIL

HIGHLIGHTS OF A ROUNDTABLE DISCUSSION HELD UNDER THE CHATHAM HOUSE RULE AT A GULF INTELLIGENCE FORUM

MODERATOR *We have seven major IOCs in the market today. The names have changed because of all the merger activity that has been taking place. We also have sixty or so NOCs around the world, who are morphing more and more into IOCs. We are going to explore the partnerships between NOCs and IOCs as the former expand their reach, which includes widening their global footprint.*

SPEAKER 1 Lower oil prices and rising energy demand have led NOCs to put a greater emphasis on commercialism and operational efficiency, while continuing to meet the social obligations that come with being state-owned.

SPEAKER 2 There is no doubt that the relationship between IOCs and NOCs is broadening. How the dynamic evolves depends on the maturity of their relationship and what they require from each other today. With enhanced oil recovery (EOR) technologies, for example, we see a lot of NOCs who now prefer to go directly to the service companies and build their capabilities there. This is a recent development, as NOCs have historically relied 100% on IOCs' capabilities.

MODERATOR *We have the Petronas and Statoil model – neither of which are really considered NOCs – while other entities are international national oil companies (INOCs) and others are clearly IOCs, or NOCs. Against a backdrop of oil prices at $55/bl, how is this landscape likely to change in 2017?*

SPEAKER 3 Collaboration between NOCs and IOCs has always been done to mitigate risk, but their strategic objectives are not the same. The key performance indicators (KPIs) of the ADNOCs of the world are not the same as the BPs of the world, for example. The ADNOCs of the world will manage a field on a long-term basis, such as Qatar Petroleum's moratorium on additional gas development in the North Field, whereas IOCs are historically more focused on maximizing immediate gains. As NOCs increasingly move into becoming international players, their relationship with IOCs evolves from being one of collaboration to one of competition and that is where some challenges may lie.

MODERATOR *We cannot talk about NOCs' changing structures without talking about Saudi Aramco's plans to launch an IPO next year. Is the IPO likely to proceed, or will it lose momentum?*

"THERE IS NOW A REALIZATION – AS PARTNERSHIPS BETWEEN NOCS AND IOCS CHANGE, OR END – THAT THE FILING CABINETS THAT SHOULD HOLD REAMS OF DATA THAT ILLUSTRATE A TRANSFER OF KNOWLEDGE OVER THE LAST FEW DECADES ARE EMPTY. THE KNOWLEDGE HAS LEFT THE REGION."

2020

There are growing doubts that Saudi Aramco's IPO will be held next year, with many energy professionals believing by 2020 is more realistic.

$11bn

The investment by the Qatar Investment Authority and Glencore to buy a 19.5% stake in Russia's state-owned Rosneft last December.

AUDIENCE MEMBER 1 It is too much of an undertaking and the bureaucratic levels in Saudi Arabia's hierarchy will make it challenging to achieve. Plus, are they really going to open their books and show the world the size and value of their reserves? I do not think so. It may happen in 2020, but it will not be next year.

SPEAKER 3 There are too many external factors and logistics to consider, such as which stock exchange will host it and how do you value it? It will also depend on the state of the financial markets at the time. It is not a question of if it will happen, but more when it will happen. There is still a lot to sort out.

Saudi Aramco is not excited about doing an IPO. The company loves its privacy and is not keen to reveal any of its numbers, such as reserves, unit costs, production rates and so on. It is against the company's nature, but it is doing it because of a political agenda. This is similar to the $11 billion investment by the Qatar Investment Authority and Glencore to buy a 19.5% stake in Russia's state-owned Rosneft last December. Both are political agendas aimed at raising cash to support national interests for governments that are strapped for cash.

MODERATOR *What lies ahead for the research and development (R&D) ecosystem amongst NOCs this year, especially those who have relied more on IOCs for their technical expertise?*

AUDIENCE MEMBER 3 There is a growing frustration in the region over the lack of knowledge transfer and there needs to be a framework that facilitates a better method as new generations come through. The original focus of the partnerships between the NOCs and the IOCs was borne out of a desire to get the job done. Whereas the focus on profitability may not have been there from the NOCs' side, it was definitely there from the IOCs. There is now a realization – as partnerships between NOCs and IOCs change, or end – that the filing cabinets that should hold reams of data that illustrate a transfer of knowledge over the last few decades are empty. The knowledge has left the region. I see a dawning realization in the industry that those partnerships need to be much broader and that they must incorporate the whole value chain, which is where the new technologies are both created and utilized. We have all been here before. In the post-1980s recession environment, much of the talent and capability moved out of the IOCs and into the supply chain. Today, the new generation of leadership in some of the NOCs is demanding more from their partnerships across the supply chain. This is exactly where the conversation needs to be.

AUDIENCE MEMBER 4 There has been some good work done in the Gulf, especially in Abu Dhabi. The question now is how do we take this knowledge and data and centralize it all? How do we take that leap forward? R&D will continue to be a major value proposition for IOCs in terms of their collaboration with NOCs, but the next step is structuring the collaboration so that the skills of the entire value chain are maximized.

MODERATOR *Looking to Iraq, which has a heavy technical reliance on IOCs, what has the country's oil industry learnt in terms of partnerships with IOCs?*

AUDIENCE MEMBER 5 The outlook for the NOC in Iraq is quite different from elsewhere in the Middle East. In 1987, the Iraq National Oil Company was dissolved by the previous regime and the sub-entities merged into the Ministry of Oil. We ended up with an overlap. The Iraqi government really needs to decouple the NOCs from the Ministry of Oil. They should either reform the Iraq National Oil Company, or establish independent companies so that they can all compete on a level playing field with other companies. At the moment, entities in the oil industry are like sitting ducks holding huge reserves.

MODERATOR *Could Iraq see a backlash from IOCs who say they want to continue, but not on current terms, especially considering the unpredictable security outlook?*

AUDIENCE MEMBER 5 Baghdad is very open to discuss any opportunities to develop assets regardless of fiscal regimes and arrangements. We know that any development will take anything between five to seven years to materialize.

SPEAKER 3 There are three fundamental ways to hedge risk as an NOC, or IOC. Firstly, reduce your cash position by cutting budgets and optimizing costs and secondly, diversify your downstream portfolio by either exploring new markets and products, such as petrochemicals. Thirdly, mergers and acquisitions (M&As). NOCs will continue to explore all options. ■

**This is an edited transcript.*

NOCS ARE ON THE RADAR

By Dyala Sabbagh, Partner & COO, Gulf Intelligence

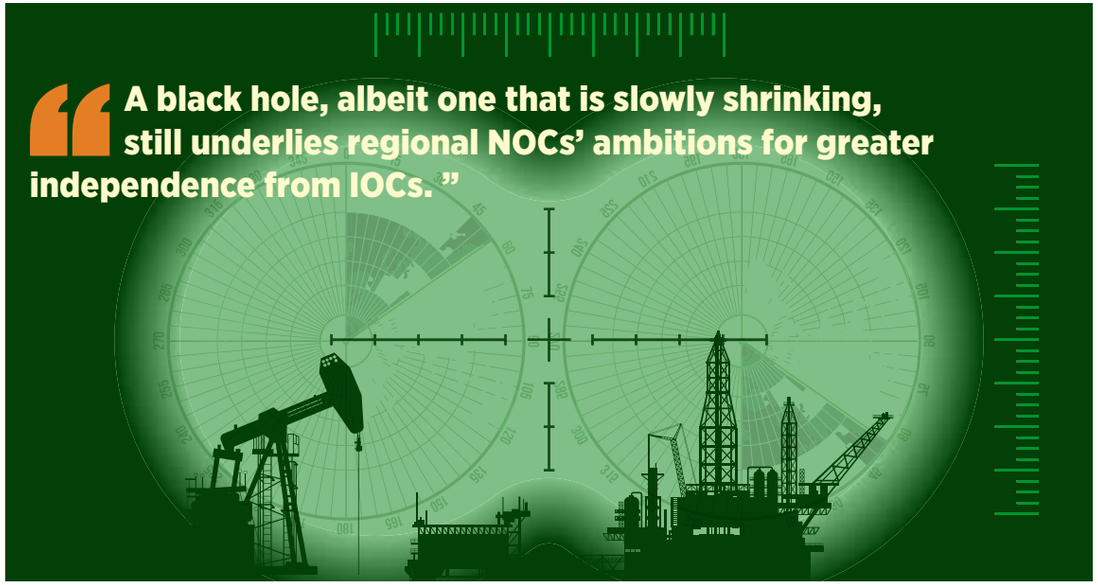
A more competitive game plan is changing the NOCs, which marks the first major upheaval since the days of nationalization in the late 1970s. The time of NOCs' reliance on IOCs technical and financial expertise in the development and management of their vast oil reserves is coming to an end.

In a bid to hedge against volatile oil prices since levels plummeted in mid-2014, Gulf NOCs' spotlight is now firmly set on increasing commercial value by trimming operational expenditure, cutting the fat from infamously bloated payrolls and sharpening competitive edges when it comes to competing and collaborating with major IOCs for local and global assets. All the while, NOCs cannot slip up on the socio-economic agenda that comes with being state-owned.

NOCs have little choice but to make sure their transformation succeeds amid intensifying energy demands. BP's Energy Outlook forecasts that the Middle East's energy consumption will swell by 49% by 2035, thanks to booming industry and populations.

NOCs' financial acumen and ability to meet the transparency and regulatory standards required on the global stage is more important than ever. This is most publicly illustrated by state-owned Saudi Aramco's plans for a 5% stake to be offered up for an IPO next year. If it goes ahead, it will be the world's biggest IPO and it would force the Kingdom to start deconstructing the impenetrable wall it has built around data of its oil and gas reserves. The former is estimated at 265 billion barrels. Riyadh may consider it a fair trade, as the IPO could raise $100 billion for a country that anticipates a $53 billion budget deficit this year. Other Gulf NOCs are more likely to focus on enhancing their network in the international debt community to lock in competitive rates for project and corporate financings.

All Gulf NOCs are breathing a tentative sigh of relief that oil prices have not returned to the 12-year low below $30/bl that was reported in January 2016. Brent oil is expected to stay within the $50s/bl range this year, as long as the Vienna Agreement holds. The deal made between OPEC and non-OPEC producers in late 2016, which aims



to trim the global glut, is the first agreement between the two camps in 15 years. The bullish sentiment is expected to continue, with 83% of respondents to a GIQ Industry Survey saying the Vienna Agreement, or a similar deal under another name, will extend past the current June deadline.

Stabilizing oil prices gives Gulf NOCs a firmer footing to expand their horizons, as does the unprecedented decision by some governments in the region to start removing energy subsidies – widely considered to be a national right in the population’s psyche – from January 2015, including the UAE in August that year. As part of this evolution, 73% of GIQ survey respondents said Gulf NOCs should transform into globally competitive IOCs like their European peers, BP and Statoil, for example, or Asian peers, Petronas and Sinopec. Gulf NOCs will take the lead in the partnership with IOCs up to 2025, according to 63% of respondents.

Some Gulf NOCs are already established INOCs, such as Saudi Aramco, Abu Dhabi National Oil Company (ADNOC), Kuwait Petroleum Corporation (KPC) and Dubai-based Emirates National Oil Company (ENOC).

But they are still at the beginning of their journeys and will need to focus on three key markets to stay competitive; gas, LNG and renewables. The International Energy Agency (IEA) expects Middle East gas demand to nearly double by 2040, yet Qatar is the only Gulf country with globally competitive gas nous and its crown as the world’s biggest LNG exporter is under threat from booming US and Australian production. Gulf NOCs sit on massive gas reserves, but the 230-mile Dolphin pipeline from Qatar’s North Field to the UAE and Oman remains the region’s only transnational submarine pipeline. Gulf NOCs need to act quickly to avoid being held captive by high LNG import bills as regional demand soars.

A black hole, albeit one that is slowly shrinking, still underlies regional NOCs’ ambitions for greater independence from IOCs. They need to develop their research and development (R&D) ecosystems to spur the introduction of innovative technologies and digital tools that boost operational efficiency and slash costs. Successes can be exported to other NOCs and IOCs worldwide, thus reversing the knowledge imports that Gulf NOCs have historically relied on. The same goes for talent creation, especially in technical fields that require strong science, technology, engineering and mathematics (STEM) skills. Gulf NOCs have made impressive progress in an economic blink of an eye, but they need to keep building their new tool kit to thrive as commercially savvy players on the global energy stage. ■

37%
BP expects the Middle East to sustain its role as the world’s largest oil producing region, with its share of global supply forecast to climb from 32% to 37% by 2035.

49%
Energy consumption in the Middle East is expected to nearly double by 2035, even though the region will account for just 4% of the global population by then.

265bn
The estimated size of Saudi Arabia’s oil and gas reserves.

63%
The leading role of IOCs in partnerships with Gulf NOCs will soon be reversed, according to nearly two thirds of GIQ Industry Survey respondents.

GIQ DEBATE

Motion: Arab NOCs will Transform Successfully to Compete Globally – as IOCs Have Done – by 2020?

Debaters:

FOR THE MOTION:

Jonty Rushforth
Director
Oil & Shipping Pricing
S&P Global Platts

James McCallum
Senior Advisor
Lloyd's Register

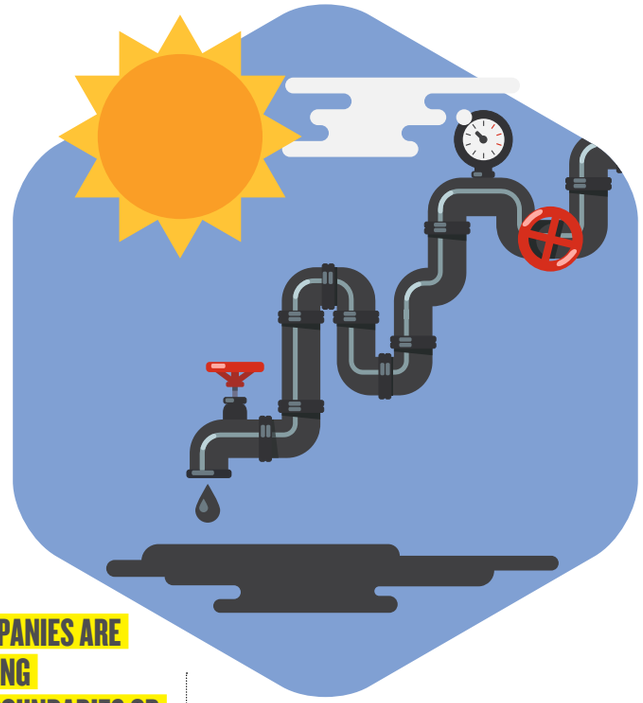
AGAINST THE MOTION:

Gaurav Sharma
Business Editor,
International Business Times,
and Oil Market Analyst

Paul Young
Head of Energy Products
Dubai Mercantile Exchange
(DME)

GIQ DEBATE

FOR THE MOTION



By Jonty Rushforth, Director, Oil & Shipping Pricing, S&P Global Platts

The crucial question here is not if Arab NOCs are going to transform themselves to be like their US and European counterparts, but rather, are they going to compete with them? The biggest transformation in the last few years amongst Arab NOCs is that they are no longer just oil producers, but also significant refiners.

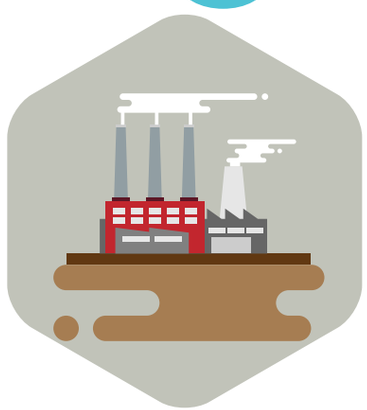
Today, European refiners are most threatened by supplies of refined products from the Middle East. Arab NOCs are already competing internationally into Europe, but there are two key questions are: do they need to behave like IOCs in the international market to compete and do they even need to compete?

They certainly have that incentive because of the flow of products, such as jet fuel and diesel, and because of their growing supply of crude. They want to manage this because they want to disintermediate some of the companies in Europe, in the West and in the East, who have been taking some of their trade margin and supply margin. Consequently, NOCs have a strong reason to get involved in these markets.

Ten years ago, this same question could and would have been asked about Chinese majors – can they really compete internationally? No one would ask that today. There is no doubt that anyone in the market is looking to those Chinese companies as potential partners. The Chinese today are the marginal driver in the market, across the barrel. Chinese companies may not yet be pushing technological boundaries, or providing the baseload of total trade. But they are the market drivers – that is what it means to compete internationally.

Will Middle Eastern companies be the most significant participants in the Eastern markets going forward? ENOC has been active already for many years and Aramco Trading is becoming increasingly influential in those markets. So, yes, the Arab NOCs are going to compete and they will be successful. ■

"CHINESE COMPANIES ARE NOT YET PUSHING TECHNOLOGY BOUNDARIES OR BE PROVIDING THE BASELOAD OF TOTAL TRADE. BUT THEY ARE THE MARKET DRIVERS AND THAT'S WHAT IT MEANS TO COMPETE INTERNATIONALLY."



By James McCallum, Senior Adviser, Lloyds Register

In the last 10 years, NOCS have experienced a significant transformational journey towards both financial and intellectual independence that has included in the UAE not renewing the license concessions of several major IOCs. There have been clear signals that NOCs increasingly do not need IOCs as partners, as they have done historically. Additionally in the region, we have witnessed a clear appetite for international expansion – with the likes of Qatar Petroleum diversifying in the Mediterranean, the Abu Dhabi investment authority acquiring Spain's Cepsa and ENOC having success in Turkmenistan and looking at Tunisia, for example.

Today, NOCs are focusing on how they can have more control on the conversations that influence what happens both at the wellhead and consequently to the oil price. We have seen OPEC countries struggle to deal with the impact of the US shale oil conversation, but they have no intention to give up their desire, or need to have a major influence on what happens to oil price, as it critically affects their countries' balance of payments.

Abu Dhabi, Dubai and Saudi Arabia have invested significantly in infrastructure in the last two decades and need oil prices to be above $50/bl to have balance in their economies. They need to be part of the oil price debate and will leverage their incredibly opportunistic position of low cost production to do that. I think this is the pivotal point to today's global energy discussion.

In a fractured geopolitical world where the US is looking increasingly inward, NOCs are looking to the East, where their refined products are being sold and they are looking for Far Eastern partners to join them in the space previously occupied by the IOCs. They feel that they have learnt a harsh lesson about previously asking major IOCs for technology partnerships and knowledge transfer. In their view, it did not happen and they now have to move forward by themselves, or with new partners.

As we emerge out of a recession that has torn this industry apart, NOCs will also increasingly engage in knowledge and technology partnerships with the supply chain. The intention being that this will give them complete capability to function as major international oil and gas companies without having to share production. There is no question that the ambition is there.

The backdrop of a declining OPEC influence on the world stage versus their leveraged position of having incredible access to low cost production from massive reservoirs means there is only one direction NOCs can go and that is to build on the value proposition of initiatives like Saudi Aramco's planned international sale of stock, like the financial partnerships that the UAE's Mubadala has looked to drive through the Abu Dhabi Investment Authority and like taking other national companies out of their home region and into areas where they can add to their production threshold. Increasing globalization will ensure that OPEC's voice regains it's position of influence in the world's energy markets. ■

GIQ DEBATE

AGAINST THE MOTION

By Gaurav Sharma, Business Editor, International Business Times, Oil Market Analyst

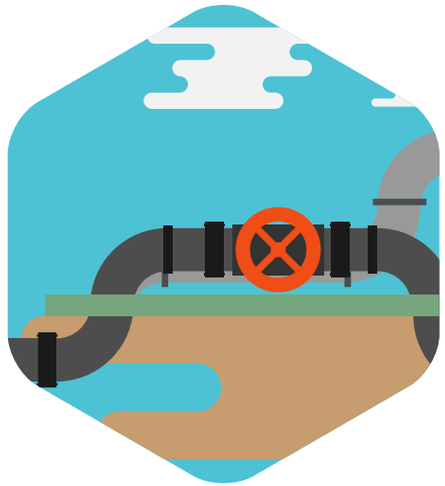
'Transformation' is a word that is being liberally applied across the Middle East's oil and gas industry. Does the deployment of modern planning software, or exploring mature prospects outside the Middle East herald a transformative chapter for Arab NOCs? No. Instead, these constitute process optimization and sensible resource planning.

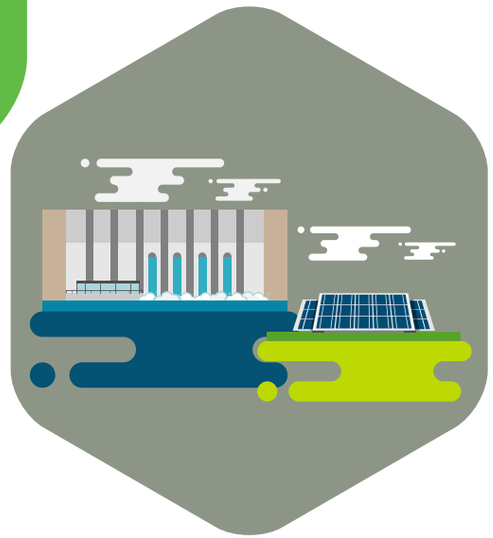
Arab NOCs are still feeling their way down the path towards becoming fully integrated players. They are only slowly changing a proven and bankable upstream model, which has withstood the test of time and keeps ticking along in today's predominantly oil buyers' market.

Of the world's big five major oil importers, South Korea and Japan, are not importing quite like they used to and the US is turning less towards the global supply pool thanks to its domestic production. But scrutinize the export data and you will find importers from China and India featuring on the client books of every major Arab NOC. Arab NOCs operate safe in the knowledge that the Asian component of their order book is not going to wither anytime soon.

Arab NOCs' comfortable position at the front of the global pack of oil suppliers will likely slow their 'transformation' into fully integrated models by 2020, which is just three years away! How will Arab NOCs become successful and fully integrated entities when even IOCs, who have had decades to get a handle on it all, have not quite gotten there yet? Remember that while the three big credit ratings agencies – Moody's, Standard and Poor's and Fitch – rated integrated IOCs higher, almost all of the top 20 IOCs were and still are divesting refining and marketing assets. Some were even contemplating the death of the integrated model as recently as 2014. If IOCs are struggling, why will Arab NOCs thrive?

Arab NOCs are admirably talking the talk, but walking the walk is an entirely different matter. We are talking about dramatically turning the direction of a very large crude carrier (VLCC) and not a lorry loaded with 50 barrels by 2020. That is not a realistic outlook. ■





By Paul Young, Head of Energy Products, Dubai Mercantile Exchange (DME)

There has been some advancement in the last few years for NOCs – for example, they have built up their refineries portfolio – but they have not moved fast enough and there is no way they can transform into IOCs by 2020. They have not been dynamic and have operated on the whole as large family businesses. There needs to be a wholesale change in what are huge inefficiencies, such as overstaffing.

"NO ONE IS DENYING THAT THERE HAS BEEN CHANGE AND THAT ARAB NOCS ARE GOING IN THE RIGHT DIRECTION DIRECTION. BUT... IT IS GOING TO TAKE MANY, MANY YEARS."

No one is denying that there has been change and that NOCs are going in the right direction, but it is going to take many, many years. There is no comparison with Chinese majors, which have transformed more successfully; Iran or Iraq could not produce the next Sinopec, for example.

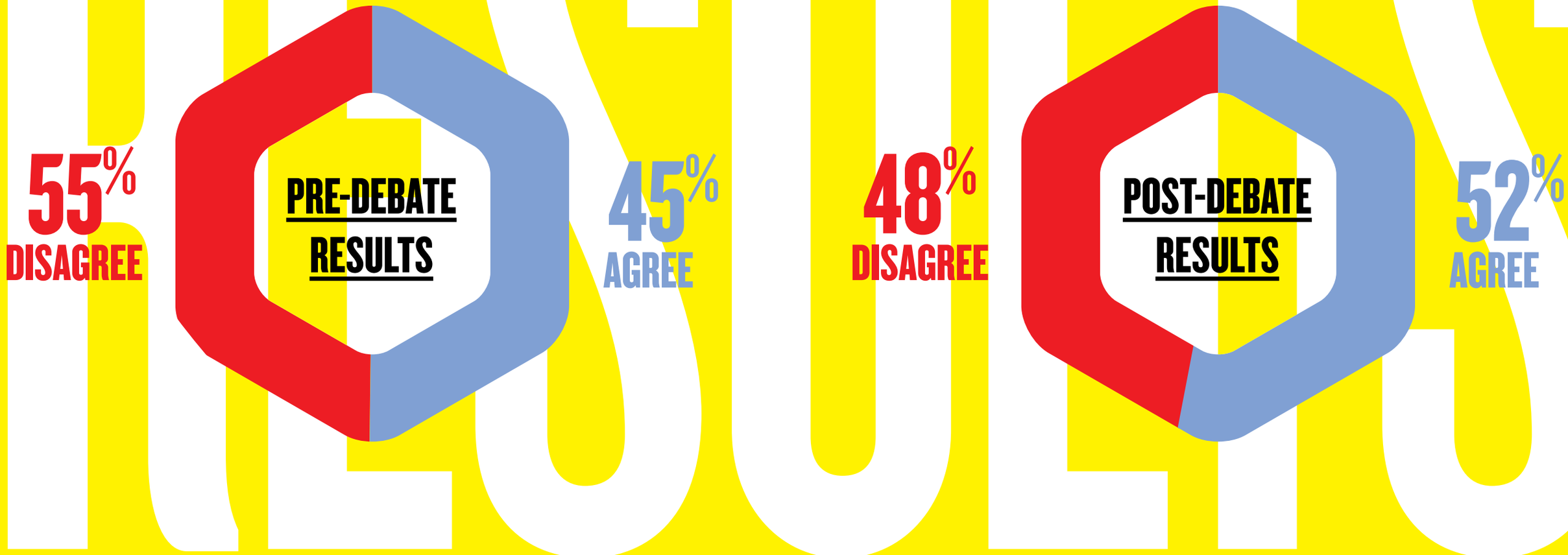
There has also been no appetite for risk management within NOCS, unlike in the Chinese business model. China gets things done. Chinese majors have massive trading, marketing and risk management operations and there is no way the Middle East's NOCs can get there in three years. ■

GIQ DEBATE

Motion: Arab NOCs will Transform Successfully to Compete Globally – as IOCs Have Done – by 2020

RESULTS

The audience voted using an electronic system before the debate began, with the results displayed at the end of the debate. The audience were asked to vote a second time following the debaters' closing statements. The winning team is the one that swayed more audience members between the two votes. At the conclusion of this event, the 'FOR' team won the debate.

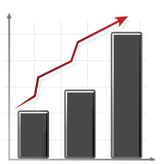


A Win-Win Effort: Lifting the Veil on Energy Data

By Stuart Wood, Vice President, Product Development, S&P Global Platts

A **transformation is taking place as** Middle East producers open up decades of historically guarded statistics on their energy reserves and production. This new transparency will enhance the decision-making process for energy market stakeholders around the world and help with the region's goal of becoming a leading energy hub aligned to its leading producer status.

Data access is vital for global energy risk management and efficiency. It provides transparency into the world's supply-demand balance and encourages investors to support energy infrastructure projects and trading ecosystems. This is especially important given continued forecasts of strong demand.



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Momentum within the UAE to establish a single and centralized platform for energy data is accelerating.

The challenge to boost data transparency is twofold. First, encouraging the growth and quality of data collection and second, learning how to best apply the knowledge generated by billions of data points every day. Creating workflow analytics enables energy stakeholders to digest the usefulness of data. Essentially, these numbers help create comprehensive forecasts that minimize risk and aid in hedging against price volatility.

The financial support required for some energy infrastructure projects, such as refineries and pipelines, can stretch into the decades and extensive data access gives project financiers a clearer long-term outlook. It also reduces the rate of energy stakeholders' and investors' knee-jerk reactions to shifts in market dynamics, such as geopolitical uncertainty and sharp price movements.

The International Energy Agency (IEA) said that spending at oil and gas fields fell by 25% in 2015 to $583 billion, with another 24% decline expected in 2016. Spending cuts were inevitable due to lower oil prices since mid-2014, but would such cuts have been as steep if the industry had better insight into countries' energy production, consumption and reserves data? By way of example, an initiative to improve immediate access to data is the new and free smartphone application unveiled by OPEC and the UAE's Ministry of Energy last November at OPEC's Annual Statistical Bulletin.

The push to unwind decades of opacity and improve data transparency is a long journey, which took a big step forward when the Joint Organizations Data Initiative (JODI) was agreed in 2002. JODI gathers data from around 100 countries on key indicators for oil supply and demand and from approximately 80 countries on gas supply and demand. The data is collated and disseminated through the JODI-Oil and JODI-Gas World Databases, which are hosted by the International Energy Forum.

This continues to be a laudable effort, but there is more work to be done, especially in terms of timeliness. Worldwide, the gap between countries that punctually submit their data and those that lag behind remains wide.

Many also need to improve their data-gathering processes to reduce the volume of numerical discrepancies, as opaque and inaccurate statistics hamper stakeholders' confidence that the rest of the data is useful. As the global conversation to improve data transparency gains more traction, it will need to incorporate the need to standardized data harvesting and management processes. Should all countries' data submissions include condensates in their crude figures, for example? The rapid growth of digital data and the Internet of Things – when network connectivity for everyday objects enables them to send and receive data with each other – can reduce the human cost of manual data reporting and improve the efficiency of historical and comparative data sets. Boundaries to protect stakeholders' intellectual property will also have to be determined.

> **"What is the value of oil products in the Middle East? How does the Port of Fujairah's trade pattern impact the world's largest energy hubs of Singapore, Rotterdam and Houston?"**

3

Independent prices for the region's gasoline, middle distillates including diesel and jet fuel and fuel oil, have been published since October 3 last year.

2021

Improving data transparency is a key feature in the UAE's National Vision over the next four years.

18

The UAE's Fujairah Oil Industry Zone started publishing weekly inventory data for the first time on January 18.

100

The Joint Organizations Data Initiative (JODI), established fifteen years ago, collects oil supply-demand data from roughly 100 countries worldwide. When will a wider net be cast?

To complement the Middle East's efforts to improve the transparency of local supply-demand flows, S&P Global Platts began publishing independent prices for the region's gasoline, middle distillates including diesel and jet fuel, and fuel oil on October 3. The assessments are normalized to loadings in the UAE's Port of Fujairah, which recently appointed S&P Global Platts to publish the port's weekly inventory data on an aggregate basis for the major categories of refined oil products, including fuel oil, diesel and gasoline.

The new assessments and the Port of Fujairah's inventory data will generate important data points that will help heighten the global energy market's understanding of key developments in the Middle East. Such understanding is integral to investors' plans considering that the region produces a third of the world's oil exports. What is the value of oil products in the Middle East? How does the Port of Fujairah's trade pattern impact the world's largest energy hubs of Singapore, Rotterdam and Houston? These efforts reflect the UAE's progressive attitude to data transparency, as per the country's National Vision 2021, with calls from energy stakeholders to unite the seven emirates' data to create a centralized hub gaining momentum.

There are no losers in this global push for transparency as less guesswork and more facts gives energy stakeholders around the world the confidence needed to navigate bouts of volatility, plan investment decisions and manage risk. ■

Digital Power Plants to Revolutionize GCC Market

By Bhanu Shekhar, Chief Digital Officer, GE Power in the Middle East and Africa

The status quo of power plants and smelters in the Gulf faces major change as the intelligent and proactive digital technologies often associated with science fiction cut costs and boost operational efficiency to meet rapidly rising consumer demand. With infrastructure expansions underway, countries in the Gulf Cooperation Council (GCC) – Saudi Arabia, the UAE, Bahrain, Kuwait, Oman, Qatar – can be at the front of the pack of a new breed of power operators that seamlessly merge industrial, software and analytical expertise.

The GCC's power capacity needs to expand at an average annual pace of 8% between 2016 and 2020, which requires $85 billion to add 69GW of new generating capacity over the next five years, said Saudi Arabia-based Apicorp last September. Swelling populations and intensifying urban development across the Middle East and North Africa (MENA) underpins the growing sense of urgency to get 'smart' infrastructure in place. Dubai's population is forecast to nearly double to 5 million by 2030, Qatar's population of 2.6 million could grow eight-fold by 2050, while another 500,000 people are expected to settle in Cairo, one of the world's fastest growing cities, this year alone.

As pressure to provide competitive energy security builds, one question drives conversations in boardrooms across the Gulf: how to profitably tread the economic tightrope between growing demand on one side and costly maintenance and increasingly strict regulations on the other? The answer is a mixture of traditional common sense and modern know-how; using digital technologies to fine-tune operations and reduce waste.

A 1% improvement in efficiency across the global gas-fired power plant fleet over 15 years translates into savings of $66 billion in fuel consumption and $50 billion in maintenance costs. A 1% increase in efficiency of aluminium smelter operations – smelters use enormous amounts of electricity – can contribute to annual global savings of $970 million across the total cost of production, $936 million in output increase, with $464 million saved in operational and maintenance costs. In the GCC region alone, the same 1% increase translates into $28 million in savings on operations and maintenance. This is a major cost-saving considering the region's aluminium smelting industry accounts for up to 10% of the world's total production.

Digitization is part of the emerging Industrial Internet, which brings together the advances of two transformative revolutions: the machines, facilities, fleets and networks that arose from the Industrial Revolution with the recent powerful advances in computing and communication systems brought to the fore by the Internet Revolution. This is about connecting big data, machines and the people who operate them, so that the synergy between machinery and software at a power plant and smelter merge seamlessly.

Digital solutions operate in the cloud with virtual sensors facilitating immediate evaluations on the health and condition of power plants and smelter pots, which means real-time solutions can be made to adjust power usage and the consumption of raw materials. This flexibility and ability to trim operational waste supports the greener theme of Gulf countries' National Visions and their collective political support for the Paris Agreement, the global climate change deal borne in the French capital in December 2015.

The UAE's Energy Plan 2050 aims to improve energy efficiency by 40% and cut carbon dioxide emissions by 70% by the middle of this century, for example.

Digital Twin technology heralds a new era of cost-saving and safety-enhancing innovation. Digital Twin is a collection of analytical models that create an exact and virtual representation of a physical system, which enables operators to play out an endless number of scenarios on a real-time basis without any real-life consequences. Identifying the pros and cons via software, rather than through day-to-day operations, gives the power industry the confidence it needs to push the boundaries of what it thinks it knows.

Ongoing innovation lies at the crux of meeting demand in the GCC and beyond, which means the industry needs to shed old habits, such as passing data on a printed PDF page between traders, dispatchers and plant managers to get the job done. Integrating digitization at power plants and smelters means employees can download information at any time and location in the plant. They can send real-time pictures, video and audio to enhance their 'digital dialogue' – this needs to be common practice. There is clearly plenty of room to grow, with just 2% of data in the power markets typically used to better operations.

The threat of cyber-attacks looms in the background as the digital power market gains traction in the Gulf, Turkey, Japan and Pakistan, to name a few. The International Atomic Energy Agency (IAEA) confirmed in late-2016 that a nuclear power plant was the target of a disruptive cyber-attack in recent years. As the power industry evolves, time and investments need to be funnelled into research and development (R&D) to plug system gaps, detect vulnerabilities early and secure critical infrastructure to establish a sturdy wall of protection that can potentially mitigate against such threats. It is a case of change, or be changed.

His Highness Sheikh Mohammed bin Rashid Al Maktoum, UAE Vice President and Prime Minister and Ruler of Dubai, said it best: "Those who neglect the new will remain at the back of the line; those who wait for luck to make things happen will be disappointed." ■

8%
The average rate at which the GCC's power capacity needs to expand to meet demand between 2016 and 2020.

$85bn
Meeting demand will require a multi-billion dollar package to add 69GW of new generating capacity within five years.

500,000
The number of people this year alone expected to join the 12 million people already settled in Cairo, one of the world's fastest growing cities.

1%
Bolstering efficiency by just 1% across the global gas-fired power plant fleet over the next 15 years could save $66 billion in fuel consumption.

$28m
The potential saving by applying the same 1% theory to maintenance and operational costings in the GCC.

2%
A very small percentage of data in the power markets is analyzed and applied to improve operations - there is significant room for improvement.

ORYX GTL Pushing Qatar's BEST THINKERS FORWARD

By Abdullah Al-Thani, Corporate Social Responsibility Coordinator, ORYX GTL

Our innate appetite to share knowledge stretches throughout human history, from the oldest known figurative art 35,000 years ago to today's global ecosystem of schools and universities. Education is what sparks our desire to learn and continually question the status quo.

Exploring new limits is what has propelled Qatar's rise towards the top of the hierarchy in the energy industry. It is the world's biggest liquefied natural gas (LNG) exporter and also produces around 618,000 barrels of oil per day.

Now, shifting dynamics mean the spotlight on widening Qatar's post-graduate talent pool is intensifying. Qatar's energy demand will swell as today's population of 2.67 million grows eight-fold by 2050 and BP's Energy Outlook expects a 49% growth in the Middle East's energy consumption by 2035. Qatar's export capabilities means it is well positioned to benefit from the latter. Plus, lower oil and LNG prices since mid-2014 have forced Doha to focus more than ever on slashing operational costs, while boosting efficiency. This tough juggling act requires a flexible approach; a characteristic that will also be key for a post-graduate's intellectual toolbox. The rapid rate of technological developments means that up to 65% of schoolchildren worldwide today will have job titles that do not yet exist.

Maximizing Qatar's post-graduate skills is vital to the country's transformation into a knowledge-based economy, as per the National Vision 2030. Therein lies the value of the ORYX GTL Student Awards for the Advancement of Post-Graduate Education in Qatar. The Awards are a cornerstone of the country's effort to enhance the respect and prestige towards research-focused education. The high-level recognition will bolster the brightest students' confidence to flex their brainpower in support of local Industry, Academia and Government – a win-win scenario.

The Awards are not just a snapshot of the talent entering Qatar's energy industry today. This year's Award Winners will be known as ORYX GTL Education Ambassadors and will be role models for future generations of scientists, innovators and researchers. The Awards and the subsequent Education Ambassadors are actively shaping a culture in Qatar's Industry, Academia and Government that appreciates post-graduate studies.

Appetite amongst youngsters will only get stronger as every new Education Ambassador shares their personal journey to being a post-graduate at schools, colleges and universities across Qatar. Previous Award winners are already proving to be fine examples of how talent and tenacity can pay off with leading roles in Qatar. Ibrahim Daher is a Researcher at Qatar Petroleum, Yousef Al-Jaber is the Deputy Director at Total Research Center in Qatar, Jassem Al-Mejali is a Senior Process Engineer at Qatar Aluminum Company and Dr. Tareq Al-Ansari is a Scientist at Qatar Foundation and an Assistant Professor at HBKU, for example.

65%
The percentage of schoolchildren worldwide today who will have job titles that do not yet exist due to rapid advancements in technology.

x4
Information on the ORYX GTL Student Awards for the Advancement of Post-Graduate Education in Qatar reached 2 million people in 2016 – quadruple the number reached in 2015.

2020
Growing export capacity in the US and Australia threatens to knock Qatar from its top spot by 2020 as the world's biggest LNG exporter.

Statistics reveal how ORYX GTL's efforts to champion the growth of post-graduate communities in Qatar have gained remarkable traction in very little time. More than 250 senior executives, university leaders and government representatives, attended the 2016 ceremony, with information of the Awards reaching more than two million people throughout the region and abroad. This is four times more than in 2015 and vastly higher than the inaugural awards in 2014.

Still, Qatar is at the beginning of its transformation that stretches up to 2030 and beyond. Today's astute, but small pool of post-graduate talent needs to expand quickly to help Qatar maintain its competitive edge on the global energy stage. Qatar needs to defend its LNG crown against theUS and Australia's growing share of the global export market, while simultaneously increasing on upstream oil and renewable energy sources.

A 2017 Agility EM Logistics Index ranked Qatar in second place amongst 50 emerging markets for the best business climate and market compatibility, which bodes well for Doha's plans to incentivize Qatari talent to study and work in-country. Many students go to the US and UK for post-graduate studies and employment in the energy industry, which hampers Qatar's research and development (R&D) ecosystem and the rate of local patent registrations – both are calling cards of knowledge-based economies.

On the plus side, Qataris return home after their studies with newly-found knowledge that can boost profitability and enhance international standards in the local energy industry. Crucially, returning post-graduate students are better placed to identify and optimize business opportunities for Qatar in an industry that has a global face. As the Arabic proverb goes, ignorance is the most terrible acquaintance. ■