

First Quarter 2015

Energy Outlook

*Energy Industry Faces Many Unknown Unknowns in 2015,
but Innovation Remains the One Known Known!*



Investing for future generations



Established in 1996 to pursue investment opportunities in the wider energy sector both locally and internationally, Oman Oil Company aims to maximise value from Oman's resources, creating meaningful employment within Oman and growing local talents, business leaders and professionals.



40+
investments

15+
countries

7
sectors



شركة النفط العمانية ش.م.ع.م.

Oman Oil Company SAOC.

- 03 Foreword**
By Sean Evers, Managing Partner, Gulf Intelligence

INNOVATION & COMPETITION

- 05 The Global Oil Industry Should Shape the Post-Easy Oil Era with Technological Innovation - or Risk Being Shaped By It**
By John Wishart, President, Lloyd's Register Energy
- 11 Volume, Velocity & Variety: Data - a Key Resource for the 21st Century Oil Industry**
By Abdulla Al-Qamzi, Manager Digital Oil Field, ADMA-OPCO
- 15 How can the Energy Industry Help STEM the Great Crew Change?**
By Andrew Vaughan, Vice President Abu Dhabi, Kuwait and Syria, Shell Abu Dhabi
- 19 Energy Hubs 2035: A New Energy Map - Who Will be the Winners and Losers?**
By Mirko Rubeis, Principal, The Boston Consulting Group

SOCIAL LICENSE TO OPERATE

- 23 National Talent Shortage: Filling the Gap, Retaining the People**
By Richard Doidge, Managing Director, Maersk Oil Middle East
- 29 Good Business: The Energy Sector's Role in Maximizing In-Country Value**
By Diego Perez-Claramunt, Social Performance Manager, Middle East & North Africa, Shell
- 32 On a Mission: Oman's Pioneering Efforts in Developing a Sustainable Local Supply Base**
By Said Al-Sarhani, ICV Director, Takatuf Oman LLC
- 35 Securing Energy for Future Generations, Investing in Energy Efficiency**
By David Keat, VP Technical & Engineering Support, Al Hosn Gas

SPECIAL FEATURE INTERVIEW

- 38 Q&A with HE Dr. Seyed Mohammed Hossein Adeli, Secretary General, Gas Exporting Countries Forum**



Enabling Growth For Everyone

Our unique market position has enabled us to grow while aligning with programs that have national impact reflected in the In-Country Value and the direct development of small and medium enterprises.

Will 2015 Deliver yet Another ‘New Normal’ Set of Post-Lehman All will be Well Factors?

JUST when you thought it was safe to go back in the water as the world emerged from the near death experience of the global credit crisis with the settled comfortable new normal familiarity of printing money, oil at \$100 a barrel and Iran marginalized by crippling sanctions, the currents changed in 2014 within a few unpredictable months.

In the short space of two OPEC meetings the oil exporters group is staring down the barrel of a \$500 billion collapse in revenue in 2015 as crude prices dropped like a rock alongside Japanese recession and Chinese GDP growth figures hitting a 5-year low. And it felt like every time one opened a newspaper or turned on a TV we were drowning in images of John Kerry, U.S. Secretary of State, and his Iranian counterpart Mohammad Javad Zarif, in permanent man-crush grins that screamed peace and love new beginnings.

In late November, the world’s six major powers and Iran agreed to extend the nuclear talks yet again -- the new goal is to reach a political agreement within four months and a final deal by June 30, 2015 that would curb Tehran’s controversial nuclear program in exchange for sanctions relief. After years of isolation, Iran is positioning itself

for the potential lifting of international sanctions, a move that would revive the Islamic Republic’s ailing energy industry, pave the way for its return as a major oil exporter and provide much-needed stimulus to the domestic economy.

A normalization of relations with Iran would surely bring a lot of benefits to the Gulf region, with an economy of 80 million people hungry for modernization, even if the extra energy exports that would inevitably come would add to further downward pressure on oil prices.

That said, the opposite outcome of the Iran nuclear talks could trigger a major support to energy markets. The 2015 energy crystal ball surely has many more difficult to predict rain clouds, there’s Ebola and Vladimir Putin banging on the door of Europe and Islamic State terrorism, but in a world of zero interest rates the U.S. consumers are regaining their mo-jo and with the cash printing presses ready to go into action in Europe and Asia we could be about to embark on another wave of loose monetary freebie inspired growth!

Sean Evers

Managing Partner, Gulf Intelligence





The Global Oil Industry
Should Shape Post-Easy
Oil Era with Technological
Innovation – or Risk Being
Shaped by It!

**By John Wishart,
President, Lloyd's Register Energy**



IT IS THE fundamental truth of our time that technology is evolving at an accelerating pace, transforming, whether we like it or not, the way companies operate and make decisions every day in order to optimize business. The global oil and gas industry is no exception, and it must decide whether to proactively shape the future or risk being shaped by it.

Advances in and the widespread adoption of technologies have triggered a conversion process that's resonating across the entire industry and along its value chain. The growth in computing power and widespread digital connectivity enable companies to harvest and analyze ever-larger amounts of relevant data in real time, helping make faster and smarter decisions, facilitating equipment maintenance, optimizing production, and enhancing safety and compliance.

Technological advancements in reservoir imaging, drilling and well completion, among others, have truly revolutionized the industry. For decades, technological innovation has helped offset the impact of depletion by introducing smarter and more efficient ways of discovery and production. Thanks to technological progress, the industry has been able to open up ever-more challenging frontiers in the quest for new hydrocarbon resources, develop increasingly deep and complex reservoirs, and boost efficiencies in their recovery. And, going forward, more than ever before, innovation—new and improved technologies—will play a crucial role in

meeting the rising energy needs of a growing and increasingly urbanized population, and coping with the environmental challenges in the decades ahead.

Only 10 years ago, the production of shale oil and gas in North America wouldn't have been feasible. Although the existence of shale formations in the US was known for many decades, high cost and a myriad of technological challenges stood in the way of development. It was a cocktail of high oil prices and advances in horizontal drilling and hydraulic fracturing technologies combined with a push for greater supply security that brought shale oil and gas developments within the realm of economic feasibility – potentially

“Going forward, more than ever before, innovation—new and improved technologies—will play a crucial role in meeting the rising energy needs of a growing and increasingly urbanized population, and coping with the environmental challenges in the decades ahead.”



opening up billions of barrels of oil and trillions cubic feet of gas for extraction and production in the US and in other parts of the world, and with it the potential to lower the price of power generation.

As traditional forms of hydrocarbons are becoming harder to find and extract, ongoing technological innovation will be integral to pushing back the much debated arrival of ‘peak oil’ – the point at which the world’s oil production is reaching its peak. This holds also true for the Middle East, a region long known for the existence of easily accessible oil and gas reservoirs from such giant fields as Ghawar in Saudi Arabia and Burgan in Kuwait that are now maturing while new ones are more challenging to develop.

It therefore doesn’t come as a surprise that improving recovery and extending the life of existing assets are emerging as dominating themes in the oil industry around the globe. As the findings from a Lloyd’s Register Energy survey “Technology Radar” (www.lr.org/technologyradar) carried out among senior industry executives and academics in 17 countries shows, the majority of those polled plan to focus on further innovations in

high-impact technologies such as automation, including remote and subsea operation, and enhanced oil and gas recovery (EOR) in the near and medium term.

Enhancing production and operational efficiency is one, but not the only, driver of technology innovation in the industry. Cost reductions as well as safety and environmental improvements are also widely seen as major objectives of innovation, especially related to remote operations. The reason is clear. Safety isn’t just about loss prevention and minimizing the cost arising from industry accidents and incidents; it is the industry’s moral obligation to protect the environment and people – both those who work in the sector and those whose lives may be affected by the industry’s actions.

As the industry pushes into deeper waters and more hostile environments, and refines existing and develops new technologies, the rising cost of doing so could potentially hamper progress on the innovation front. Finding practical ways to collaborate more closely with other organizations to share development costs for new technologies will therefore be of great significance for the industry at large. International oil companies



(IOCs), national oil companies (NOCs), service companies as well as academia and government will all have to play a role in this by coming closer together.

NOCs in particular are raising the stakes on the innovation front. Since 2005, five of the largest NOCs—PetroChina, Petrobras, Sinopec, Lukoil and Statoil—have grown their research budgets at twice the rate of the super majors and, in 2011, out-invested IOCs at \$5.3 billion versus \$4.4 billion – a trend that’s unlikely to stop.

At a time when oil prices are declining and the industry’s operational cost remain firmly on an upward trajectory, concerns are that innovation and research and development (R&D) will take a back seat as they did in the low-oil price era of the 1980s/90s. However, while this may have been the case in the past, a look at today’s mature oil industry shows that it has been widely recognized that technology and innovation are business enablers, which—tight times or not—need to be pursued in the sector’s own interest.

For in an increasingly globalized world an oil company’s competitive edge will, in the long term, largely be determined by its ability to gain advantages through innovations. This makes the investment into R&D and technology a necessity, not an option.

And we are still all too aware of the dramatic consequences of the 1980s/90s oil price slump, which led to investment cuts across the industry, in turn slowing innovation and leading to an outflow and reduced influx of talent. 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 oil and gas.

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 rising demand.

Today, the single biggest challenge facing technology innovation in the oil and gas industry is arguably the knowledge shortage resulting from the generational gap that can be sourced back to the 1980s, and that’s set to worsen as an entire generation of experienced engineers is reaching retirement age. The question being asked is who will capture this vast knowledge and expertise that is set to exit from the industry amidst this ‘Great Crew Change’?

There isn’t a simple answer. Critically, collaboration between all energy stakeholders—industry, academia and government—will have to be expanded, new ways of working will need to be explored and deepened by better utilizing existing and establishing new knowledge sharing platforms. The oil and gas industry will have to broaden its search for talent across geographies, backgrounds and genders. The sector also needs to look to adjacent industries, such as nuclear. And it will need to attract talent from more diverse backgrounds ranging from geology to mathematics, IT and analytics in order to drive innovation in future technologies.

There can be little doubt that technological innovation will continue to transform the oil and gas sector. But just as the pace of technological advancements is accelerating so will the need to understand the long term implications of technology adoption and any potential risks, along with how to pass on the knowledge that’s on the way out before it’s gone forever. That’s another fundamental truth. ■



John Wishart,
President, Lloyd's Register Energy



PROUD TO SERVE OMAN



Petroleum Development Oman (PDO) is the leading oil & gas exploration and production company in the Sultanate of Oman. It accounts for more than 70% of the country's crude oil production and nearly all its natural gas supply. We operate some of the most technically challenging fields in the world, and have pioneered a range of Enhanced Oil Recovery (EOR) techniques.

Our approach to business is based on the concept of good corporate citizenship. We operate in an environmentally responsible and sustainable fashion; we deal transparently and ethically with contractors and partners; and we invest and participate meaningfully in social initiatives.

We endeavour to be renowned and respected for the excellence of our people and the value we create for our nation and our stakeholders.



شركة تنمية نفط عُمان
Petroleum Development Oman

PLATTS MARKET DATA

Delivering you a competitive advantage is in our DNA

You need an innate competitiveness to thrive in the rapidly evolving global energy and commodity markets. But when even the smallest change can have the biggest impact, how can you be sure this natural competitiveness always delivers genuine advantage?

Platts Market Data provides the raw numbers you need to observe your surroundings, think on your feet and remain nimble. Together with Platts benchmark price assessments, which are widely recognized as industry standard, it helps you:

- operate at price levels in sync with other market participants
- develop inherently strong pricing strategies
- meet regulatory requirements

To start turning our core strength into your next opportunity, simply download your complimentary Platts Market Data at **www.platts.com/marketdata**

Volume, Velocity & Variety: Data – a Key Resource for the 21st Century Oil Industry

**By Abdulla Al-Qamzi,
Manager Digital Oil Field, ADMA-OPCO**





HYDROCARBONS may sit at the heart of the global oil and gas industry but over the past decade another resource has emerged as a critical asset for companies involved in the sector: data. Whether in the oil sector or elsewhere, greater volumes and varieties of data are sweeping into businesses and individuals lives at ever higher speeds, changing and digitizing the way we do things, and playing a key role in our strategic and tactical decisions.

Indeed, thanks to rapid advances in and the widespread adoption of information and communication technology on the one hand, and sensors, measurement instruments and observation equipment for gathering information on the other, the oil industry is being transformed at an unprecedented pace and scale. Today, oil companies are in a

position to capture more detailed data than ever before at lower costs and from previously inaccessible areas, enabling them to improve and optimize oil field and plant performance, drive efficiency and enhance safety.

Already, oil fields are increasingly connected from end to end, enabling companies to harvest and analyze massive amounts of data generated by people and assets along the oil value chain in real time. As the oil industry seeks to access harder-to-reach reserves in increasingly remote and challenging environments, companies will be dealing with even more complex data in their operations in the future.

As the volume of data obtained from oil fields grows exponentially and continues to become more diverse, complex and frequent in occurrence, the correct and timely

evaluation of this so-called ‘big data’ will play an ever-more important role in the industry’s operations and decision-making processes going forward.

The reason is clear. Developing sound strategies to integrate and manage the increased data volumes and using it in smarter, faster ways can be a key differentiator for oil companies because it has the potential to boost their competitiveness. Processing data accurately also has a positive impact on project economics, and makes or breaks the successful application and operation of technologies such as enhanced oil recovery (EOR) in oil fields.

According to McKinsey & Co., generally, there are five ways in which big data can create value for companies. First, big data can unlock significant value by making information transparent and usable at much higher frequency. Second, as organizations create and store more transactional data in digital form, they can collect more accurate and detailed performance information on everything from product inventories to sick days, and therefore expose variability and boost performance. Third, big data allows ever-narrower segmentation of customers and therefore much more precisely tailored products or services. Fourth, sophisticated analytics can substantially improve decision-making. And finally, big data can be used to improve the development of the next generation of products and services.

This is also relevant for companies operating in the oil sector. Digital Oil Field (DOF) technology for example, also known as Smart Field technology, which essentially enables big data analytics, helps companies in reservoir and production optimization, and drilling and well completion among other processes. The application of DOF also speeds up and allows for more accurate analysis and decision making, and to manage assets more efficiently and safely.

Faced with the need to extract increasingly expensive hydrocarbon resources as the era of easy oil has come to an end, national oil companies (NOCs) in the Gulf region are recognizing the need to utilize big data to their advantage in order to maintain and enhance production levels. It is unsurprising then that—according to the latest numbers from market research firm RnR Market Research—the Middle East, together with the Asia-Pacific region, is going to be the world’s fastest-growing DOF market over the next 10 years with a compound annual growth rate (CAGR) of

“As the volume of data obtained from oil fields grows exponentially and continues to become more diverse, complex and frequent in occurrence, the correct and timely evaluation of this so-called ‘big data’ will play an ever-more important role in the industry’s operations and decision-making processes going forward.”

about 7-9 percent through to 2019, and of 5-6 percent up to 2024 – largely driven by the benefits DOF technology provides in relation to operations and analysis.

At ADNOC and its operating companies such as ADMA-OPCO, the introduction and implementation of innovative solutions such as smart field technology has been integral to its long-term planning for some time. With the era of post-easy oil also under way in Abu Dhabi, technologies such as DOF have been introduced and will become even more important in the extraction process and—ultimately—in achieving the self-declared goal of reaching a recovery rate of 70 percent.

The emergence of big data and related technologies comes at a time when the global oil industry is faced with a considerable skills shortage that could worsen over the next 10 years as larger numbers of today’s oil and gas experts and engineers are retiring.

For the industry it will therefore be critical to fill the widening gap with talent that has the right expertise to convert the enormous volumes of data being generated into useful knowledge.

Without a doubt this will be a challenge. But at the same time, it is an opportunity for today’s young generation to approach the industry’s challenges with its unique ‘21st-century’ skill set and approach to problem solving and collaboration.

As data emerges as a critical resource in the oil industry, there can be little doubt that the era of the Data Scientist and Digital engineer has arrived. ■



**Abdulla Al-Qamzi,
Manager Digital Oil
Field, ADMA-OPCO**



VITOL IS A GLOBAL ENERGY AND COMMODITIES COMPANY.

Every day, we deliver energy solutions to clients around the world.

Over 5 million barrels per day of crude and products traded each year.

200 ships at sea at any one time.

2.7 million barrels per day of crude oil & feedstocks supplied to refiners.

350,000 barrels per day of refining capacity in Europe, Middle East and Australia.

11 million m³ of storage capacity located across five continents.

2,270 marketing outlets in Africa, Australia, and Europe.

Vitol. Delivering quality. Every time. On time.
To find out more, visit www.vitol.com





How can the Energy Industry Help STEM the Great Crew Change?

**By Andrew Vaughan,
Vice President & Chairman, Shell Abu Dhabi**

INTODAYS rapidly-evolving, technology-driven world, creating a greater pool of talent educated in science, technology, engineering and mathematics (STEM) disciplines is becoming ever-more important. This won't be achieved, however, without instilling interest in STEM disciplines among the young from as early as kindergarten and primary school level – for once kids lose their interest in science, it is lost forever.

Creating this talent pool is a global challenge, also for Gulf countries seeking to transform from hydrocarbon-dependent into knowledge-based economies. It's equally relevant to the global energy industry as it seeks to attract the brightest minds to ensure that it can continue to thrive on innovation and deliver breakthrough products at a time when long-term energy demand is forecast to double over the next 40 years and the technical challenges for extracting hydrocarbons become more demanding and complex.

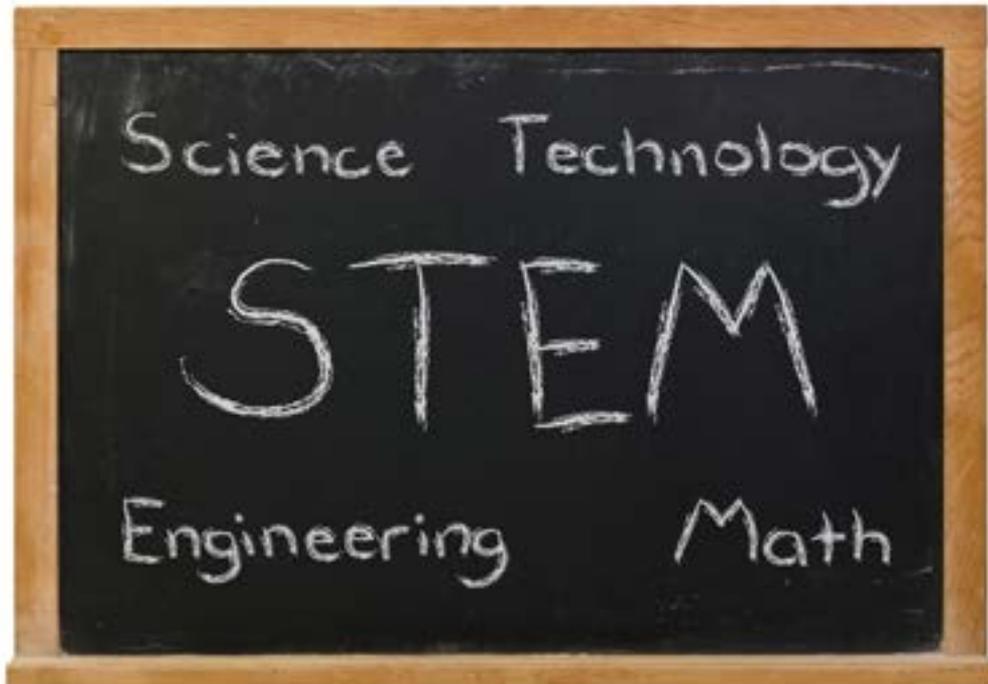
The issue has become more pressing for oil and gas companies in light of the existing shortages of experienced petroleum engineers, which will become even more pronounced in the coming years as a larger share of the workforce reaches retirement age. At the same time, the industry is lacking sufficient inflows of new talent with educational backgrounds in STEM disciplines. Against this backdrop,

developing the young generation's STEM capabilities is seminal.

As the industry faces this twin challenge of having to attract more new talent and overcoming the gap arising from the great 'crew change', it struggles to fill growing numbers of positions. In the US alone, employment from the booming domestic shale oil and gas industry is expected to rise by around 50 percent to 2.5 million jobs by 2015, and to about 3 million industry jobs by 2020, consulting firm KPMG estimates.

Unsurprisingly then, in the US, drilling and petroleum engineering nowadays rank top and second in best-paying jobs for recent graduates in STEM disciplines, with median salaries reaching \$113,900 and \$97,300 respectively, according to data published by news provider Forbes in partnership with information site Payscale.com. Moreover, of the top-10 best paying jobs for recent graduates, eight were in engineering disciplines. Indeed, STEM workers in the US as a group earn about 70 percent more than the average, according to the US Bureau of Labor & Statistics.

This is encouraging for today's graduates and those deciding today on what studies to pursue. However, much more needs to be done. Employers need to get into universities and help ensure students in STEM fields such as engineering maintain that original interest in the



subject. There is a need for more engagement with students while they are still choosing a major and there could be more scholarships offered to students by the energy sector.

Stimulating interest among young women in engineering and science studies and in the energy sector will be equally important to ensure and sustain a flow of new talent with STEM skills into the industry. But nothing will be more important than awakening that crucial curiosity in sciences and technology in young kids to address the issue at its roots.

According to research, the reality is however that pupils have lost interest in science by the time they're eight. It is mostly too late to try to encourage interest in STEM subjects when they are 16 to 18, threatening the future supply of well-qualified mathematicians, scientists and engineers. Research shows that interest must be stimulated from an early age for the development of positive attitudes toward science and math.

To be sure, not all students who choose to pursue STEM studies will be scientists nor will they necessarily all end up working in the broader science space. But scientific understanding will be crucial for all students preparing to be college and career-ready in the 21st century. Whether in the energy industry or elsewhere, the talent power needed to drive future global economic growth will come from men and women armed with STEM skills.

Promoting STEM education and making it more interesting for young kids in particular requires updating school curricula, an understanding of how children learn and a rigorous focus on what works in the classroom. For the energy industry it means placing greater effort on collaborating with governments and academia on developing relevant curricula on the one hand, and educating youths about the career perspectives in the industry on the other. It is equally important that the professional development of teachers is geared towards STEM education and meets today's requirements.

As demand—and competition—for graduates in STEM disciplines continues to rise rapidly, oil and gas companies including Shell have introduced a number of initiatives ranging from supporting STEM programs for students and teachers to accelerating career path progression, and drawing up strategies for succession planning, compensation and retention.

Companies can also access an increasingly global labor market for STEM talent. In China, 41 percent of all new university degrees



“ Whether in the energy industry or elsewhere, the talent power needed to drive future global economic growth will come from men and women armed with STEM skills.”

awarded are in science and engineering; comparable figures are 13 percent in the US, and 22 percent in the UK. Even if just one in five STEM graduates in China will be suitable for global employment (that is, approximately 720,000 would be candidates to work for multinationals), China is still producing more qualified STEM talent than the US*.

However, the problem is that this market lacks essential mechanisms for matching demand and supply of critical skills across geographic boundaries. Language skills—or the lack thereof—often present barriers just as having people cross borders for work. It is virtually impossible, for example, to send large numbers of engineering graduates from China to work in UK companies.

With this in mind, we can't waste any time intensifying our efforts to excite kids everywhere about sciences and into STEM disciplines in order to ensure the energy industry can overcome future challenges and meet its requirements. ■

* See Accenture report - <http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture-Where-Will-All-the-STEM-Talent-Come-From-FINAL.pdf>



Andrew Vaughan, Vice President & Chairman, Shell Abu Dhabi

SOCAR AURORA

FUJAIRAH TERMINAL

- Independent Storage Facility
- 350,000 cubic metres operational
- Plan to expand to 1 million cubic metres across 35 tanks
- Use of a new multi-berth facility for discharge & loading
- Located in the strategic oil trading hub of Fujairah
- Joint venture of SOCAR (State Oil Company of Azerbaijan), Aurora Progress S.A. & the Government of Fujairah
- State-of-the-art engineering
- Storage of crude oil, condensate, naphtha, gasoline, gasoil, diesel, jet fuel, kerosene, cutter stock and fuel oil
- Tank-to-tank blending and in-line blending facilities
- In tank circulation
- Two truck loading racks
- Transfers to and from other storage facilities in Fujairah

SOCAR AURORA Fujairah Terminal FZC
Al Mina Road, Fujairah, UAE
Postal address: PO Box 5385
Fujairah Free Zone 2, Fujairah, UAE

Tel: +971 9228 2202
Fax: +971 9228 2203
Email: info@socar-aurora.com



SOCAR AURORA
FUJAIRAH TERMINAL

SOCAR AURORA
FUJAIRAH TERMINAL

SOCAR AURORA
FUJAIRAH TERMINAL



Energy Hubs 2035: A New Energy Map – Who will be the Winners and Losers?

**By Mirko Rubeis,
Principal, The Boston Consulting Group**



THE COMING years will see major changes in the global energy landscape, with new winners and losers set to emerge in the downstream business.

One of the key trends will be that energy demand will be characterized by a two-speed world, with 90 percent of all growth coming from non-OECD countries over the next 20 years or so. OECD countries meanwhile will experience stagnating or declining demand. In terms of fuel mix, demand for natural gas will grow three times as fast as demand for oil. This means that, in about 20 years, oil, gas and coal will have similar shares of the global energy mix at around 25-30 percent each. Renewables, nuclear and hydro power will each range at 5-10 percent.

Gas trade will also increase, with LNG gaining more importance and narrowing the gap compared with volumes transported via pipeline. The Asia-Pacific region will increase its net gas imports by three times in the next 20 years and will overtake Europe as the biggest importer, while the US will have become a net LNG exporter – which is actually expected to happen by the end of the decade. Additional gas exports will become available in Russia, the Caspian and Africa. Besides power generation, transportation will be a key driver for gas demand growth – road transport, rail and, in the latter part of our 20-year time horizon, LNG bunkering.

Oil trade meanwhile will continue to shift from West to East, with non-OECD Asia continuing to grow crude imports, which will more than double in 20 years, and the Middle East not being able to fully satisfy this increase in demand. The main increase in regional crude supply will come from Iraq but still

won't be sufficient to close the additional 10 million to 15 million barrels a day (b/d) of crude required in Asia. The refining capacity build-up in the Middle East (over 3 million b/d increase in capacity expected only in the next five years) will also contribute to limiting the increase in crude supply to Asia, diverting exports to domestic refining. This will result in the Caspian, West Africa, and Latin America becoming key Asian crude suppliers. At the same time, the North Sea supply will continue to deplete, while Russia will increasingly shift its crude supplies eastwards, forcing Europe to replace its two traditional main crude sources. In our scenario, we presently do not expect the US to export crude, but as most policy decisions, this may change.

Moving finally to the downstream side, we see two main challenges arising for refiners. First will be persisting supply growth despite an already existing refining capacity surplus. Additional refineries will be built close to the demand centers, in particular in Asia (China, India, Indonesia and Vietnam among others) and in some producing regions, mainly in the Middle East but also in countries such as Brazil and possibly Nigeria. This will add further pressure on the refining sectors of some already disadvantaged regions such as Europe.

The second challenge is that an increasing share of fuel will bypass refining. The Paris-based IEA forecasts that only 55 percent of the increase in liquid fuels in the next 20 years will come from refined products, with the remaining portion being constituted by NGLs (such as LPG, natural gasoline), as well as bio fuels and CTL/GTL.

At the regional level, different dynamics and winners/losers will emerge:

NORTH AMERICA: Unconventional production growth will result in oil self-sufficiency and will drive a refining and petrochemicals renaissance. As an already established diesel exporter, the US will also become a net exporter of gasoline, LPG and naphtha over the considered period and a major player in ethylene-based derivatives. As such, the US will emerge as a WINNER.

EUROPE: Refining and petrochemicals will be challenged by potentially more costly crude supplies, declining demand and a vanishing export market for gasoline (US). Other challenges include international competition from Russia, India, the Middle East, and the US for domestic diesel demand, persisting unbalances in gasoline/diesel, and a complex regulatory environment affecting all sectors – and potentially hampering new resources, e.g. shale developments. As such, Europe will be strongly challenged.

RUSSIA: The destiny of Russia will remain intrinsically linked to the geopolitical situation and is therefore difficult to forecast. From a technical standpoint, liquid hydrocarbons are expected to decline, but gas is still potentially plentiful. The refining upgrades, driven by the new tax regime, will reduce exports of fuel oil in favor of more added-value middle distillates. Europe will be the natural target for placing these additional quantities of diesel. Crude exports will increasingly go east and so will the new gas resources in East Siberia. Although it is difficult to foresee a complete divergence of the destinies of Russia and Europe – at least as far as gas supplies are concerned – the real winner benefitting from the European-Russian situation will be Turkey. It will emerge as a new gas ‘gateway’ to Europe, thanks to the Trans-Anatolian pipeline bringing Azerbaijani gas to Europe, the logistics position for LNG imports into Europe, and the control of access to the Black Sea, which is key for LNG exports to Ukraine, for example.

ASIA: The region – set to become even more dependent on crude exports – will develop a substantial and competitive downstream sector, serving local demand for refined products and petrochemicals. For Asia, however, this can lead to a ‘bittersweet’ success story because it will have to rely more heavily on external crude supplies. The big question is: what will happen to the world’s major product exporters if China,

“ The big question is: what will happen to the world’s major product exporters if China, India, Indonesia, Vietnam, Malaysia and other Asian states achieve self-sufficiency in refined products?”

India, Indonesia, Vietnam, Malaysia and other Asian states achieve self-sufficiency in refined products?

MIDDLE EAST: Set to build up over 3 million b/d of additional refining capacity by 2020, the Middle East refining sector will be characterized by its large scale and complexity, as well as its petrochemicals integration. The region will become a major product exporter on top of its position as the world’s top crude supplier. Asset scale, complexity, integration as well as privileged access to feedstock and energy will position Middle Eastern refineries on the left side of the supply curve, allowing them to compete effectively despite steep competition for exports to Asia or Europe. The region will also be well-positioned to capture opportunities emerging in Africa over the next 20 years. As such, the region will be a WINNER, but question marks remain about its ability to control demand and avoid cannibalization of crude and product exports.

LATIN AMERICA: Most resources will go into developing the upstream sector, which will see crude production and exports grow. Only a few countries, mainly Brazil, will invest substantially in the downstream sector. As a result, the region as a whole will continue to import large quantities of products, making it neither a clear WINNER nor LOSER.

AFRICA: Limited expectations exist for the downstream sector in Africa, due to fragmentation, poor infrastructure, limited access to capital and political instability. The continent is expected to remain a substantial importer of products in the years to come, but may become the ‘wild card’ in the second part of our time horizon, with important refining capacity additions in West and East Africa, coupled with LNG booming business in the East. ■



**Mirko Rubeis, Principal,
The Boston Consulting
Group**





National Talent Shortage: Filling the Gap, Retaining the People

**By Richard Doidge,
Managing Director, Maersk Oil Middle East**



THE WORLD'S energy future depends on the choices made by the younger generations today. They are tomorrow's engineers who will have to ensure uninterrupted flows of energy to the world, which despite economic headwinds will continue to see demand rise in coming decades.

At the same, the oil industry is expected to see as much as 50 percent of all petroleum engineers reach retirement age over the next 10 years. With this in mind, one of the industry's biggest challenges will be to attract talent to fill the rising number of openings for petroleum engineers, researchers and scientists. But the industry also needs to attract talent from other types of backgrounds, including from geology, mathematics, IT and analytics to drive innovation in future technologies, which will be needed to access more complex and harder-to-access hydrocarbon resources and to boost efficiencies in operations and production processes.

To succeed, key stakeholders from industry, academia and governments will all

have a role to play. Joint strategies will need to be developed to inspire the next generation to engage with sciences from primary school level and to sustain their interest through to university, post-graduate research and into professional life so that they choose careers in engineering disciplines and research in the oil and gas sector.

In the Middle East, where hydrocarbon-rich countries such as the United Arab Emirates are entering the post-easy oil era, the oil and gas industry's future talent requirements are substantial. This means it will also have to draw on the rapidly-growing pool of female talent – today the majority of new university students entering engineering programs in the Gulf are young women. Stimulating interest among and providing incentives for young women to choose careers in the energy sector will therefore be essential.

In the UAE, such initiatives will have to integrate with Emiratization and other initiatives aimed at developing a skilled national workforce and, subsequently, a knowledge-based economy.

ATTRACTING TALENT

Given the world's long-term energy demand outlook at a time of tightening competition for new and more talent, the industry needs to step up its efforts in attracting and developing employees with the right expertise.

Reaching back into education programs, making sure to stimulate interest in the industry at large from as early as elementary school level, and attracting students into the technical degrees that underpin the industry will play a seminal role in drawing in the right talent. As such, the industry will have to offer a greater number of graduate engineering schemes and invest in entry-level training.

On a general level, to instill interest in science, engineering and energy among the young, reforms to the education system and promoting a change in culture supporting creative and critical thinking will be essential. Academics and industry representatives often point to the U.S. education system and society as fostering the kind of thinking that gives rise to the creation of scientists, researchers and entrepreneurs needed to sustain a knowledge economy.

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 may not be the case but word hasn't spread sufficiently to change that perception.

In the UAE, initiatives such as Think Science by the Emirates Foundation or ACTVET; the Abu Dhabi Center for Technical Vocation Education, are among those set up in recent years to raise awareness among young UAE nationals to understand the country's challenges in coming decades and to stimulate their interest in science or pursuing industrial careers with a view to addressing these challenges.

While there is no quick fix to addressing the skills shortage, the oil and gas industry continues to work hard on attracting the people it needs, working with educational establishments and institutions to educate the younger generation about the careers available working, for example, as engineers in the industry.

RETAINING TALENT

Among the greatest challenges in a highly-competitive environment is the retention of qualified talent. While retirements in the oil and gas industry ultimately are inevitable, some turnover can be prevented. This requires,

“With more and more experienced engineers set to retire and the number of new entrants limited, building a diverse workforce that includes more women isn't simply a choice; it's essential if the energy industry is to meet the challenges that lie ahead – whether on a global level or in oil and gas rich countries such as the UAE.”

however, an understanding by companies of why employees choose to leave for other jobs. If they fail to do so, the cost associated with the inability to retain employees can prove high.

“Voluntary turnover represents a significant expense that can go well beyond the hard costs of recruiting, hiring, and training each new employee. When critical workers leave, it can lead to an increase in recordable safety incidents or even unplanned downtime of critical equipment if they cannot promptly be replaced. There is also a risk valuable institutional knowledge will be lost if it is not transferred to others,” according to advisory firm Deloitte.

In a bid to retain valued employees, some companies are turning to blunt instruments such as pay increases and incentive awards. In Abu Dhabi, public sector companies including Mubadala, International Petroleum Investment Co. (IPIC) and Abu Dhabi National Oil Co. (Adnoc) have been successful in attracting the majority of local graduates and retaining local talent in part due to their ability to offer high wages and attractive benefit packages comprising everything from life insurance to healthcare plans, parental leave, education assistance and retirement provision.

This in turn is leaving private sector firms in the UAE struggling to compete for talent in general and qualified Emiratis in particular. Against this backdrop, wage differentials between the public and private sectors as well as between Emiratis and non Emiratis have been identified as major challenges in terms of attracting and retaining local talent in private-

sector oil and gas companies, both local and international.

At the same time, private-sector companies have seen some of their best talent poached away by public sector companies with deep pockets, having trained, mentored and invested in them, adding significant pressure and cost on small and medium sized enterprises in particular.

While compensation is one way of retaining talent, it is not a sustainable solution. Instead, effective leadership, reward and recognition, and availability of training and development are becoming ever-more important in ensuring employee engagement in a company. However, the most critical issue, frequently being cited by talent hired into major national and international energy companies, is the absence or non-implementation of clear career progression plans.

Better talent management and more efficient processes aimed at supporting personal growth, developing leadership skills and fast tracking people into leadership positions will therefore be important measures to be implemented in order to avoid having young, often ambitious talent become frustrated and seek career opportunities elsewhere. This will also involve closer mentoring and coaching to

guide and steer young professionals in their careers.

“Motivation, reward management and performance appraisal largely drive employee retention and satisfaction. Even when offered higher salaries and/or compensation packages, for example, the most engaged and trained employees are less likely to jump ship,” FMI Corporation, a U.S. consultancy, said in a 2013 report on the skills shortages in the oil and gas sector.

From attracting to developing to retaining talent, the industry has to engage on all levels. While some progress is being made, including in the Gulf region, it does need to engage more closely with the other stakeholders such as universities, research institutes and government agencies. Only through closer collaboration and coordination will stakeholders be able to devise strategies that will ensure the development of a deep pool of talent with the skills, expertise and motivation to lead the 21st century energy industry.

ROLE OF WOMEN

Bolstering the female component in the oil and gas industry’s workforce has the potential to go some way alleviating the oil and gas industry’s talent shortage. This is certainly true in the



Gulf and the UAE, where the majority of engineering students today are females.

Indeed, for the global oil and gas industry—traditionally a male domain—attracting female talent has become a business imperative in light of the widening talent gap and looming skills shortage. With more and more experienced engineers set to retire and the number of new entrants limited, building a diverse workforce that includes more women isn't simply a choice; it's essential if the energy industry is to meet the challenges that lie ahead – whether on a global level or in oil and gas rich countries such as the UAE.

At present, on a global scale, women still represent a small share of the oil industry's workforce and even fewer hold engineering or other technical positions. In the U.K., for example, women account for 51 percent of the population but only 8 percent of engineering professionals, according to a recent analysis from the Royal Academy of Engineering. A survey conducted by the Centre for International Labour Market Studies shows that female workers make up just 4 percent of the total oil and gas workforce in the U.K..

While the numbers vary from country to country, the overall trend, however, appears to be slowly changing, with the number of women entering the industry constantly growing. In the U.S., 46 percent of all new jobs in the oil industry went to women in the first quarter of 2013, according to the U.S. Bureau of Labour Statistics – the highest number since the bureau started tracking these figures in 1991.

In Abu Dhabi, programs such as Women in Science and Engineering (WISE) at Abu Dhabi's Petroleum Institute (PI) have been successful in developing a new generation of female engineers. Now in its eighth year of operation, 770 women—95 percent of whom are Emirati—are studying engineering at PI under WISE.

These are positive developments. But while there has been important progress educating and attracting more women into the industry in a bid to close the talent gap and providing more opportunities for females, greater awareness and a more proactive approach to identifying and supporting young female talent will be needed.

Attracting more females into the industry isn't just a way of filling the shortage gap and creating a more inclusive and diverse work environment. Research into Fortune 500 companies carried out by U.S.-based non-profit organization Catalyst shows that those



firms with the highest female representation on their board of directors experienced better financial performance on average – in terms of return on sales, return on invested capital and return on equity – than those with the lowest representation of women.

CONCLUSION

Filling the talent gap in the UAE's energy industry is making some progress but will need to go hand in hand with a string of initiatives.

This includes oil and gas companies taking a longer-term approach to attracting and retaining talent by starting to build new talent pipelines and developing strategies to build competency; providing clear career paths and implementing them; providing incentives, guidance and mentoring for young talent, including females, to join the industry – and stay in it; and instilling interest in science among the young as part of wider reforms to the local education system, while also addressing wage discrepancies between the public and private sectors.

Finally, it will be critical for all sector stakeholders—industry, government and academia—to intensify collaboration as only a holistic approach will ensure that the industry will be equipped with the workforce needed to ensure that all of tomorrow's energy challenges will be met, whether entering ever-more remote territories for exploration and production, developing new technologies or carrying out breakthrough research. ■



Richard Doidge,
Managing Director,
Maersk Oil Middle East



Occidental Petroleum Corporation
شركة أوكسيدنتال للبترول

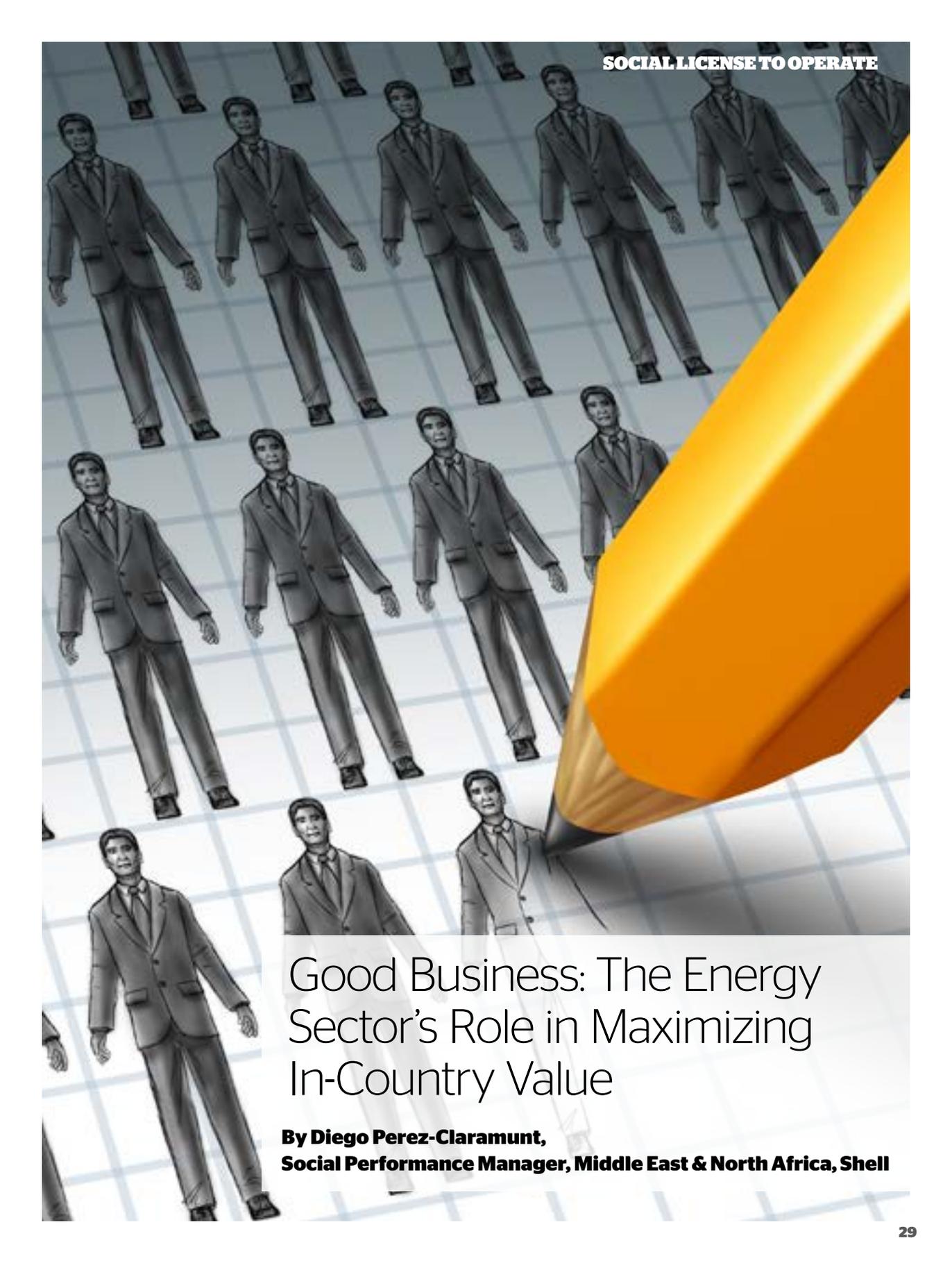
oxy.com

PARTNER OF CHOICE

30 years of maximizing production at the Safah and Wadi Latham fields.

الشريك الأفضل

ثلاثون عاماً من زيادة الإنتاج في حقلي صفا ووادي ليثم.



Good Business: The Energy Sector's Role in Maximizing In-Country Value

**By Diego Perez-Claramunt,
Social Performance Manager, Middle East & North Africa, Shell**

MAXIMIZING in-country-value by building local content is now acknowledged as good practice both by NOCs and IOCs. It makes financial sense to invest in local content as, if managed well, it can lead to tangible bottom line rewards by lowering costs of staff, goods and services, and ultimately also gives companies the social license to continue operations, positioning them favorably for the future.

There have been many examples in the GCC when connecting asset development to local community development has proven to mean good business but challenges remain to making this strategy an absolute success.

A prime focus of the Abu Dhabi 2030 Vision is to prepare the young generation to work in a more diverse economy, and to do this the private sector has to work hand in hand with NOCs and host governments. In the last 10 years, there has been progress on this front with good growth in sectors such as health, aerospace and aviation (the latter of which accounts for 14 percent of UAE GDP)

but there is a need to make sure that the new generation is aware of these opportunities, bearing in mind that they account for 49 percent of the total population.

Where the energy industry can help most is to bring its expertise of applications elsewhere to transfer knowledge, technology and nurture the future generation – helping them to access capital, manage risks as entrepreneurs, and provide them with jobs.

One of Shell's critical corporate strategies is to offer educational and training programs linked to enterprise development, ensuring that people understand the benefits of working in the private sector. In this regard, it has worked with its long-term partner, the Emirates Foundation, which helps connect the private sector to invest in core areas of youth development, and also worked with ADCO on integrating training programs.

Supporting the growth of the SME sector is critical to the success of building in-country-value. Globally, 50 percent of oil and gas contracts valued at half a million



dollars or less, are typically awarded to local companies. SMEs need technical and core business advice as well as finance.

Each market differs. In the GCC, capital is not such an issue: rather, the main challenge is the high failure percentage of start-ups in the first three years of business across most sectors—they need help in converting money into value—and this is where the IOCs can play a key role. They can come in and advise a company on strengthening capacity skills, products and services.

IOCs can probably do more to invest in young innovative Emirati talent, but the push and pull on the regulatory front needs to support private sector efforts. Inflated public sector salaries that are offered to new employees are one example.

Legal frameworks around the set up of a social enterprise or local business could be bureaucratic at times. Complicated applications and criteria often mean that overheads are too high for a business to sustain so there is a clear need to create more enabling laws and regulations on this front.

Initiatives have been taken but will take time to demonstrate tangible results. One example is the Khalifa Fund which supports young Emiratis kick start new businesses; another is an awards program run by the Emirates Foundation which encourages its private sector partners to incubate social project ideas devised by its young entrants.

So what's needed is for all stakeholders to align strategies so that there's a competitive market that allows for a free flow of Emiratis towards this platform for development – and this is all the more critical in the energy sector where there is a limit to how many jobs can be offered by NOCs.

More thought also needs to go into the substance of what local content targets are being set; generic global targets won't work so the government needs to guide industry on what sectors they want to extract value from, ensuring that they are relevant.

And in setting targets, the government needs to be realistic on timeframes, taking into account what should be short-term or long-term goals and also what its natural industrial manufacturing base is, so as not to run too far ahead of that. Striking the right balance on all these fronts is key to success.

Once targets are set, there needs to be a flexibility to revise them if needed. To do this, a structured and transparent framework of measurement overseen by a regulator is needed. Currently, frameworks vary across



“ Supporting the growth of the SME sector is critical to the success of building in-country-value. Globally, 50 percent of oil and gas contracts valued at half a million dollars or less, are typically awarded to local companies.”

countries, so what might measure at a nominal local content rate of 80 percent here in the UAE, may actually be 20 percent on a global scale.

Policy also needs to shape and guide what target each sector within the economy should be aiming for. All countries have finite resources so everyone pulling at the same thing is counterproductive. The Abu Dhabi Executive Council is working on the Emirates Plan, which advocates greater coordination within and across sectors so that key objectives can be met. Elimination of the silo mentality is critical.

Communicating and collaborating with industry on local content strategy is important, but government needs to take the lead and be the overall driver so that IOCs and NOCs can focus on their core business at hand. ■



Diego Perez-Claramunt,
Social Performance
Manager, Middle East &
North Africa, Shell

On a Mission: Oman's Pioneering Efforts in Developing a Sustainable Local Supply Base

**By Said Al Sarhani,
ICV Director, Takatuf Oman (subsidiary of Oman Oil Company)**



ICV is a shared interest for government, national oil companies and international oil companies. Oman has been a regional pioneer in its oil and gas ICV blue print strategy with a mission of developing a competitive and sustainable local supply market—goods, services and skills—collaboratively.

But while a lot of resources are being spent on career development and training in the oil and gas sector, there is still a lot of room for improvement in tier two of the economy. ICV has to go beyond oil and gas, into sectors like transport, tourism, power, manufacturing and infrastructure. There's a need for more collaboration across all these industries – a need for a government strategy that identifies shared interests and does not just look at one sector at a time.

An additional \$64 billion of ICV value has been identified as attainable in Oman's economy by 2020 if best practices are put into place.

ICV has four core segments - goods and services, training of Omanis, Omanization, and SME development. The latter is seen as that which requires the greatest attention now; improvements in this area would in turn be a very effective tool for national job creation. If the capacity of local goods and services and the capabilities of the Omani workforce are developed, in the long term all parties benefit; the first preference for all companies, whether they're local or IOCs, is to use the indigenous workforce as long as they have the required skills.

ICV is increasingly being seen as part and parcel of private companies' business strategies in the oil and gas sector. Energy companies can help most by creating jobs and driving innovation, in turn helping SMEs in the economy to develop.

One area that needs to be tackled is giving SMEs better market access so that IOCs can actually reach them. SMEs also need commercially structured financing beyond the start up stage. Grant funding is good initially but financial instruments need to be monitored to ensure that a relevant format is continuously being structured for SME needs; government efforts to try and align the financial regimes of the country would be important in this regard.

In addition to finance, small businesses also need continuous guidance on business development throughout their growth, in making decisions to grant funding to SMEs; business ideas need to be seen as sustainable, not only for the sake of return on investment

(ROI), but also so that a company and its services can continue to expand once and if they outgrow the Omani market, and be able to export into the region and beyond.

And what makes a business idea sustainable and competitive is innovation. Companies can play a crucial role on this front by offering technical expertise, but governments also need to support innovation by drafting appropriate educational policies which for example, encourage sciences at school and establish more Centers of Excellence.

Some of the criteria and starting conditions that SMEs have to meet at the start-up stage are seen as too tough. Better alignment of license applications across government departments is seen as one step in this direction, as is distinguishing between different categories of SMEs so that they can be offered the relevant support.

If ICV is to be truly successful, the government needs to drive it as a national objective, to effectively communicate what needs to be done and liaise with other government departments, and also communicate the dynamics of the government's ICV strategy to the private sector.

A structured system which defines ownership and accountability in ICV for all stakeholders, and which can measure what plans and targets have or have not been achieved, would also be a practical step for greater impact and success of the strategy.

Coordination between different sectors of the economy also needs to improve. One measure would be for the oil and gas sector to collaborate more effectively with academia on what skills are required to feed into its labor pool.

A reassessment of the ICV models currently being used in Oman and a more thorough study of what types of companies can perform in this market should be done to ensure that they are compatible with this economy, and continuously analyzing ICV models elsewhere in the world and learning from them should also contribute to this.

One of the main challenges in the Middle East is that governments have been and still are the core drivers of economic activity. Shifting this balance to the private sector is what is needed but it will take more than a few years to achieve and will require stronger collaboration and communication between industry and government if it is to be successful. ■



Said Al Sarhani, ICV Director, Takatuf Oman (subsidiary of Oman Oil Company)

Source: Breakout Session at the Oman Energy Forum 2014, hosted by Oman Oil Company



New Horizons for OTI

As part of our commitment to expand our global reach and footprint into key international markets, Oman Trading International (OTI) is pleased to announce the opening of its Shanghai office.

OTI is an active member of the international trading community and Shanghai represents a strategic move to expand our operations into the Greater China region and the Far East.

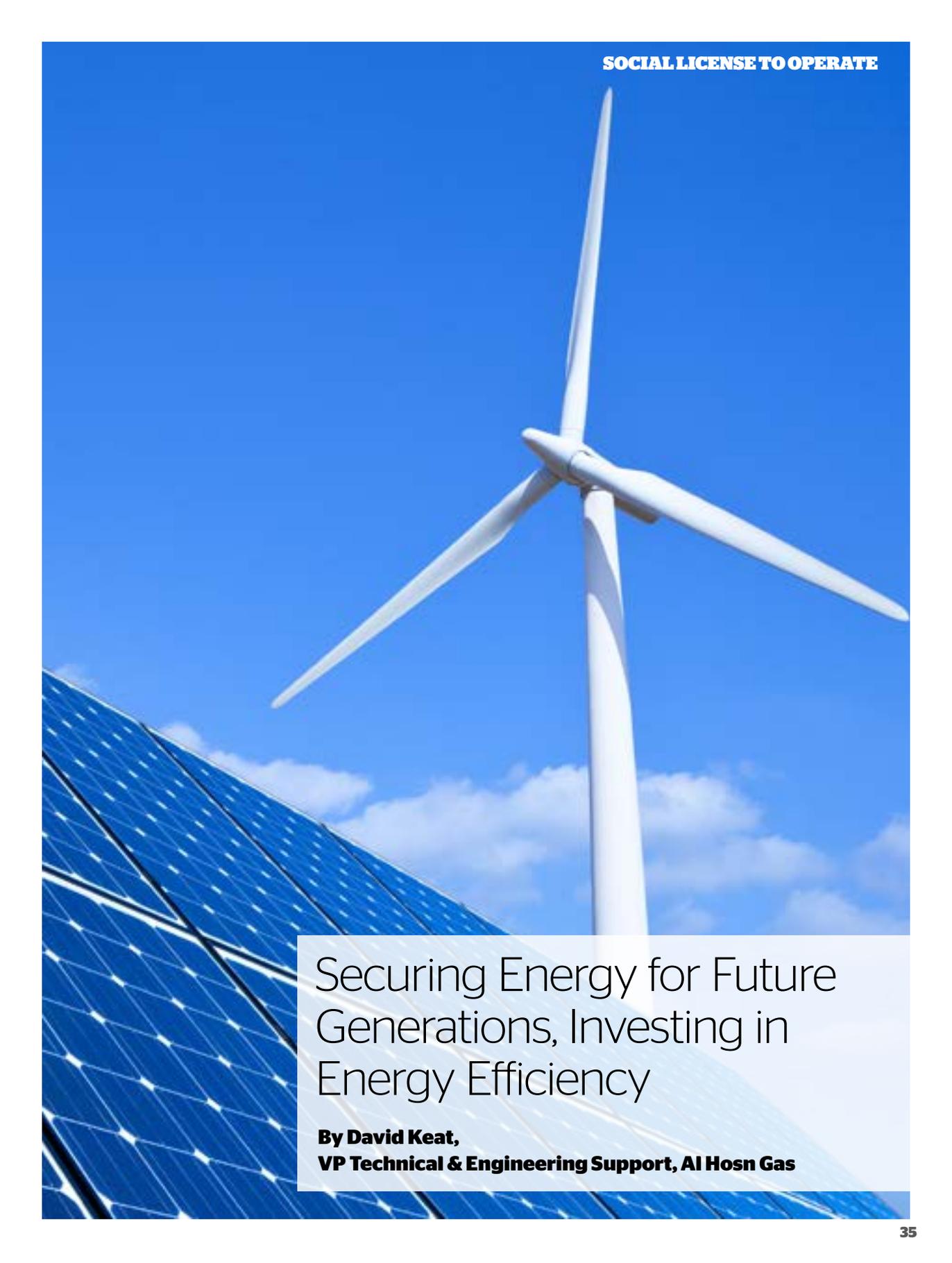
A full-fledged trading body, OTI's key function is to trade crude oil, petroleum products and petrochemicals globally, with plans to also trade polymers in the near future.

Our research covers the global market with offices in Dubai, Muscat, Rotterdam, Shanghai and Singapore.

For more information: www.omantrading.com

Towards an energetic future





Securing Energy for Future Generations, Investing in Energy Efficiency

**By David Keat,
VP Technical & Engineering Support, Al Hosn Gas**

With growing populations around the world and soaring demand for power and water, the real challenge lies in how to provide for the growing consumption using less energy. According to estimates, energy needs around the world are set to double by 2050 and therefore far-reaching efficiencies will be increasingly required if affordable energy is to be secured for future generations.

Becoming more energy efficient is achieved essentially through reducing the amount of energy wasted; both on the demand side – through management tools and systems – and on the supply side by creating optimum efficiencies in power generation, distribution and consumption in industries and households. The reality is that savings made don't just reduce the amount of raw material needed but can reduce costs throughout the supply chain, ensuring less upward pressure on energy cost trends whilst deferring or offering an alternative to the next large-scale power generation investment.

Rich in oil and gas, the Gulf region has in recent years undergone a transformation and is now emerging as a major consumer in its own right. The annual increase in demand in Abu Dhabi is for example estimated at 10 to 11 percent. The Emirate is currently chasing that curve with pioneering development projects to produce more of its own gas, which drives its power generation almost single-handedly. For

example the Shah gas field, developed by Al Hosn Gas, a joint venture between ADNOC and Occidental, will provide some 500 million standard cubic feet per day of gas and reduce the UAE's dependence on gas imports from Qatar.

At the producers' end, industry experts say a holistic approach is required to assess the UAE's energy needs and the best ways to meet them. Taking the US for example, producer energy efficiency improvements could yield gross savings worth more than \$1.2 trillion, well above the \$520 billion needed in upfront investment, according to McKinsey. The reality is that the business case is there. More efficient plants cost less to run and generate higher revenues.

Communication and collaboration is key and can lead to transformational change in how energy resources are created and how they are utilized. Inevitably, that also means a close focus on aligning political and business agendas, a task that takes considerable time and effort. But if the vision and will is there, there is much that governments can do to foster an environment of innovation and best practices and lead their societies towards joined up energy efficiency strategies. Abu Dhabi's water and energy provider ADWEA has for example created initiatives for desalination companies to set up small pilot plants to test new technologies which could open doors to future transformational



change. Encouragement needs to be given to the private sector to explore new solutions. Brave strategies can often lead to the biggest rewards.

What about the consumer side? Historically, utility bills for households in the Gulf region have been very low due to heavy subsidies provided by governments. This is an area that many agree is a real issue which, if addressed, could offer real results. After all, the best form of efficiency is to reduce demand. In societies where bills are much higher, people keenly recognize the incentives to cut their energy usage and cut their own expenditure as a result. Inevitably that brings down the demand curve and impacts the levels of energy the authorities need to generate.

Some steps have been taken. Dubai first introduced a tariff structure in 2008 and increased tariffs in 2011 that have led to significant price rises. Utility bills in Abu Dhabi now break down household consumption and tariffs will be introduced at the start of 2015 that will see modest price increases.

It isn't simply a matter of cranking up energy bills and hoping people will become more savvy about energy efficiency. On the supply side producers tend to drive their own efficiencies through legislative requirement or by continuously implementing energy saving initiatives with high financial returns. On the demand side, the challenge is much more complicated as it requires a change in individual behaviors.

The role of education is crucial here to ensure that the public becomes aware of the value of energy and water, and the goal of creating a more sustainable world. But education needs to be backed up with measures that can help drive change and not just hope that become people more aware and use less power. This is certainly the case if energy prices remain low in some Gulf countries and many continue to have an attitude to excessive consumption as "not my problem".

New regulations can play a major part. A key area here is the use of building codes, requiring new buildings to adhere to construction design with greener credentials. This is a step change that will deliver significant reductions in demand without requiring massive additional expenditure. The energy savings provided for both commercial and residential builders alike can offer financially favorable rewards.

This is where the role of sophisticated technology comes in. On the supply side technological advances have led to major advances in extraction in recent years. Take

“ In societies where bills are much higher, people keenly recognize the incentives to cut their energy usage and cut their own expenditure as a result. Inevitably that brings down the demand curve and impacts the levels of energy the authorities need to generate.”

Abu Dhabi's Shah gas field, an ambitious project to process very sour (high hydrogen sulfide content) gas, which would not have been possible a decade ago. Take hydro-fracturing that has come on leaps and bounds since 2006.

Research and development undoubtedly needs to be at the core of all companies in the energy industry to instill the importance of innovation. Sophisticated monitoring technology will be a major area of future improvement. Whether in processing plants or in residential homes, sensors can provide valuable real-time insight into energy consumption by tracking leaks or inefficiencies quickly allowing plant or home owners to quickly respond. Equally, new technology and technical innovation can steer most efficient practice in enhanced oil recovery techniques which are heavily dependent on either large-scale gas or water use and which have an impact elsewhere in available energy or water capacity.

Boosting energy efficiency is intertwined with the goals of more efficient water management. The amount of fresh water consumed for world energy production, for example, is on track to double within the next 25 years, according to Paris-based International Energy Agency (IEA) projections. This critical nexus between energy and water must also be addressed and clearly, working towards solving these challenges are paramount.

Progress has been made in recent decades but the quest for better energy efficiency needs to continue at an even quicker pace to ensure that we hand over a world that is well supplied with efficiently-sourced power and water to future generations. Governments can set the parameters to the industry but it is clear they won't succeed unless we the consumers join them in pushing forward real progress. ■



**David Keat, VP
Technical &
Engineering Support,
Al Hosn Gas**



Special Feature Interview:

Q&A with H.E. Dr. Seyed Mohammad Hossein Adeli, Secretary General, Gas Exporting Countries Forum (GECF)

JOHN DEFTERIOS, ANCHOR, CNN:

Your Excellency, as Secretary General of the GECF, what is the first priority of your current mandate? Is it to bring the geographically disparate group of your 17 members to a common platform to gauge levels of investment, decide on strategies of gas to market and form a cohesive policy around that?

DR. SEYED MOHAMMAD HOSSEIN ADELI:

The objective of our group is to exchange information and data, to be transparent and have a platform for coordination of policies. We cover a vast area of member countries responsible for 67 percent of world gas reserves, 65 percent of LNG trade and 40 percent of the pipeline trade. The GECF is not for setting production quotas or coordination of prices. We monitor the market - demand and supply, gas developments in the U.S., in Australia, in our region and globally, and of course the many geopolitical developments also - all of which are making the gas market very interesting and challenging at this time.

JOHN DEFTERIOS: What is your view on the sustainability of the U.S. shale revolution? I've talked to a number of CEOs in the last 12 months who've decided to divest holdings in downstream shale production of gas because

they don't think it will last more than 10 or 15 years, particularly at the rate that they're producing now and with the goal to export.

DR. SEYED MOHAMMAD HOSSEIN ADELI:

U.S. shale gas production will continue to grow and start to export by around 2016, but exports will be minimal and won't impact the global market in the first few years.

Having said that, production of dry gas will diminish and not be sustainable if the Henry Hub price remains at current levels of \$3.4 per million BTU, compared to last year where it touched \$7.4 per million BTU. I think that in the next 12 months, we will witness some sort of hiking of HH prices in order to sustain production.

JOHN DEFTERIOS: There's a lot of gas coming on stream today - from Argentina, from members in East Africa such as Tanzania, Mozambique and others who want to create energy hubs; from Australia, from China which is admittedly a little behind schedule. So are we likely to be facing a glut of natural gas coming on stream as LNG, in five years time?

DR. SEYED MOHAMMAD HOSSEIN ADELI:

Actually, we see it from the other angle because the demand for gas is rising due to economic growth and due to the shift in the

energy mix to gas from oil and coal.

The share of gas in the next 20 years will increase from around 22 percent to 25 percent or 26 percent and we are more concerned about where the supply will come from.

The areas which you refer to like Australia and East Africa, projects are in fact not being completed on time. And there is also strong gas demand support due to policy changes in Japan; after Fukushima, plans for bringing nuclear power on board again this year and next has been postponed. Demand for gas from India is also rising, as well as from Europe, so even if some customers reduce demand, there are new ones emerging all the time.

JOHN DEFTERIOS: So you remain confident about a stable market.

The U.S. had big targets by 2020 of 60 billion in terms of gas production but it's about half that. China doesn't emerge as a major player in shale gas for another 20 years – or do you think they will accelerate their development sooner?

DR. SEYED MOHAMMAD HOSSEIN ADELI:

According to our forecast, China will not be able to be a player in shale gas before 2030. First of all, they already have access to Russia and access also to LNG. Secondly, they are having problems in replicating American technology. Other limitations are that the reservoirs of shale gas in China are located where extraction is very difficult and lacking water, so any extraction is going to be minimal and won't meet internal demand.

JOHN DEFTERIOS: Turning to geopolitics - is this going to be the winter that the lights go out in Ukraine? Are we going to see some wild tricks from Moscow on delivering gas to Ukraine and to those extremely dependant in Eastern and Central Europe, on Russian gas?

DR. SEYED MOHAMMAD HOSSEIN ADELI:

I think Russia is very cautious and would like to keep itself as a reliable supplier to Europe.

JOHN DEFTERIOS: Even with the recent round three of sanctions?

DR. SEYED MOHAMMAD HOSSEIN ADELI:

Yes - Russia will continue to be a reliable supplier and it will address the financial problems with the EU one way or the other. Europe needs Russian gas and Russia needs European market. Russians will do whatever it takes to show they are a reliable supplier.

JOHN DEFTERIOS: Given supply disruptions in this region, such as the current conflict with ISIS, is investment into the gas and oil sector of Iran finally going to happen in any substantial way?

DR. SEYED MOHAMMAD HOSSEIN ADELI:

At this juncture, the world needs Iranian gas. The world needs more gas and more energy, so if contract negotiations are successful, I think it will happen and then Iran will be a game changer.

JOHN DEFTERIOS: We have a question from the audience.

AUDIENCE MEMBER 1: I'd like to ask Your Excellency – is there a consensus within the GECF to defend oil index pricing of gas? As you said earlier, you exchange ideas, you share knowledge.

And secondly, what are your thoughts on the emerging talks in Asia about creating a buyer's cartel to get better leverage on gas pricing in an attempt to get out of the premium they have to pay?

DR. SEYED MOHAMMAD HOSSEIN

ADELI: On the oil index gas price, yes – all of our countries more or less agree with this. There is also a need for a premium on gas because of its clean nature and this is why all of the producers are in favor of that. But this does not mean that they're not following the market pragmatically; what's happening now is that of course the price has been fluctuating, but not to the extent that prices would deter sustainable investment and supply.

Regarding the talk in Asia about a buyer's cartel to come together in order to try and reduce the premium that the Asian buyers pay for LNG, it's too soon to comment.

I'm sure that all of you have heard about this OTC market in Japan which started just a week ago. In the first week, there was

“ U.S. shale gas production will continue to grow and start to export by around 2016, but exports will be minimal and won't impact the global market.”

“ The share of gas in the next 20 years will increase from around 22 percent to 25 percent or 26 percent and we are more concerned about where this supply will come from.”

no single trade done. There is willingness in Singapore with British Gas to do some trading and of course all of them would have their own impact on the market. But, the extent to which they have availability of gas to do this is an important factor as most producers would not make spot gas available for this kind of trade, so the impact on the market will be minimal. It is different from oil, because they produce gas for markets that they have already committed and sold to.

JOHN DEFTERIOS: Following up on he audience's question, could this impact Qatar? With about 50 plus LNG trains floating around the world, do you think demand will hold up where Qatar and its very favorable pricing can last, if there are going to be initiatives like that to start bringing a cartel together on the purchasing side?

DR. SEYED MOHAMMAD HOSSEIN

ADELI: There are two things that differentiate gas from oil. One is its very nature vis-à-vis oil, and the second is that our statute at GECF has no intention of setting prices, quotas or production ceilings.

But Qatar is another producing country. They are in a good position actually because they have demand from the East and recently from the West. Qatar also has the policy of moratorium; they have stopped increasing production and as far as I know, this is going to be their policy up to 2018. If they continue this policy of a ceiling on production, then with the increasing of demand, prices will hold.

JOHN DEFTERIOS: We have one more question.

AUDIENCE MEMBER 2: Your Excellency - in view of the expected drop in long-term gas demand from Western Europe, along with diversification, energy saving initiatives there etc, will the momentum now increase as a result of nervousness about long-term supplies from Russia?

DR. SEYED MOHAMMAD HOSSEIN ADELI:

On Europe, there are a couple of things. Firstly, Europe's economy is not picking up and was hit by the financial crisis so the demand for gas and energy has slowed. On the other hand, because of cheap coal coming from the United States, the demand for gas has also slowed down with the energy mix in Europe now having less gas and more coal.

JOHN DEFTERIOS: That's a bit concerning from an environmental standpoint.

DR. SEYED MOHAMMAD HOSSEIN ADELI:

Yes because the Europeans have the highest commitment to environmental concerns and given the fact that there are negotiations now on the second phase of the Kyoto Protocol, in 2015 you're going to have a meeting to finalize all of these ceilings on greenhouse gas emissions. So from that point of view, there are problems.

And I think that Europeans have not yet come to their own decision what they want to do with the energy policy and their energy mix. This is a big question mark for Europe.

On the other hand, there is this partnership with Russia. Diversification of supply for Europe is not a new phenomenon; it's been going on in Europe for the past 30 years but it's important to see how the partnership with Russia will continue. But I'm optimistic, because of the interdependence of both these sides and the huge infrastructure which is already in place.

JOHN DEFTERIOS: The pipelines?

DR. SEYED MOHAMMAD HOSSEIN

ADELI: Yes, the pipelines. If you wanted to change it to other suppliers, you would need much more infrastructure so in the short to medium-term, this is going to continue. In the long run, it's too soon to say. ■

Source: Gulf Intelligence 2014 Energy Markets Forum in Fujairah, UAE

Energy Outlook

■ Contains exclusive interviews and OpEd articles by leading figures in the MENA energy industry, which this year included the OPEC Secretary General, UAE Minister of Energy, Qatar Minister of Energy, and the Gulf Exporting Countries Forum Secretary General.

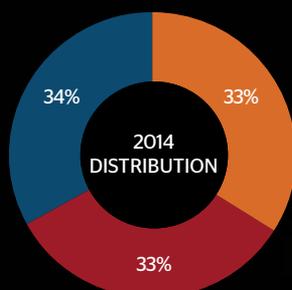
■ Editorial content spans the full range of industry news and features, bringing readers market reviews, country insights and profiles of the regional industry's leading personalities.

■ 5,000 physical copies delivered directly to senior energy executives and officials at 1,000 companies and institutions operating in the UAE, Qatar, and Oman.

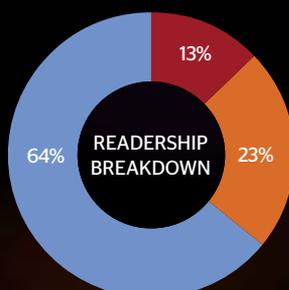
■ Distributed digitally quarterly to 10,000 energy executives working in MENA and across the world.

2015 Rate Card

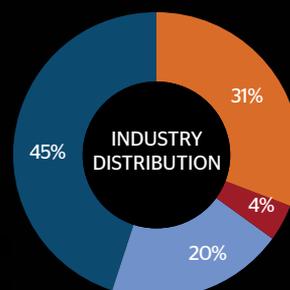
BREAKDOWN OF DISTRIBUTION



■ UAE ■ Oman ■ Qatar



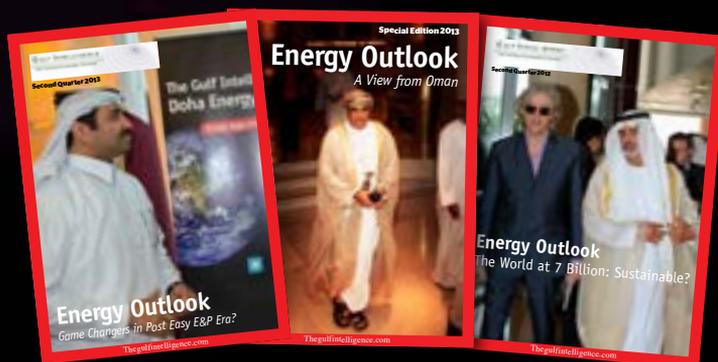
■ CEO / Top Level Management
■ VP / Senior Level Management
■ Government Officials



■ BANKING/ PROFESSIONAL SERVICE COMPANIES
■ OIL & GAS COMPANIES
■ ACADEMIA
■ GOVERNMENT

ADVERTISING RATES

POSITION	AMOUNT (IN US\$)
Inside Page	5,000
Inside Front Cover	10,000
Inside Back Cover	10,000
Back Page	15,000
2 Page Advertorial	10,000
3 Page Advertorial	15,000
Bespoke Publication	50,000
Special Publication	50,000
Exclusive Advertiser	



For Further Information Contact: Mustafa Warsame Business Development Associate
Mustafawarsame@gulfintelligence.com +971 55 8233595
Gulf Intelligence FZ LLC www.thegulfintelligence.com



LET'S POWER OUR FUTURE WITH ENERGY WE COULDN'T USE BEFORE.

Shell led the industry when it committed to develop the world's first Floating Liquefied Natural Gas (FLNG) project. FLNG allows us to access sources of natural gas – the cleanest-burning fossil fuel – that used to be too challenging to produce. Shell's first FLNG facility will be located above the Prelude gas field, more than 200km off the coast of Western Australia. When built, it will be the world's largest floating offshore facility, and is the first of what we expect to be multiple Shell FLNG projects. Shell's ability to deliver this type of pioneering project demonstrates our innovative approach to creating a better energy future. Let's broaden the world's energy mix. www.shell.com/letsgo



LET'S GO.