Staying the course in 2017
Activity levels across Oman’s upstream hydrocarbons sector will continue to be maintained this year in an effort to build capacity, says Oil & Gas Ministry Under-Secretary.

Securing the future of natural gas
Gulf Cooperation Council (GCC) countries should reform how they price domestic natural gas in order to incentivize upstream gas investments.

Biofuels: The Oman Connection
A team of scientists at Sultan Qaboos University (SQU) is investigating the production of biofuels from various organisms isolated from Omani ecosystems.
Established in 2010, the Muscat headquartered OIS began operations in 2011, providing a range of inspection services for oil and gas companies. “As a start-up, we had many challenges. The initial ‘teething’ issue was how to attract our first client, as we had no track record,” Al Tobi said. Despite this, in 2011 the company secured contracts with several local operators, as well as with international Ensign. In 2015, the company employs more than 200 people. It has Omani facilities in Nizwa, Fahud, Nimr, Mukhaizna and Muscat. The slump in oil prices has prompted OIS to cut costs, often in consultation with clients. “It’s a challenging business opportunity to align with our clients for cost efficiency and streamline our operations without compromising on safety,” Al Tobi said. Beyond Oman, OIS works from Algeria, Iraq, Kuwait and Saudi Arabia, where it has facilities. It has also worked in the UAE. While the company still concentrates on Oman, it aims for further regional growth.
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   - Ultra Sonic Inspection
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   - Drill Pipe Inspection
   - Casing and Tubing Inspection
   - Bottom Whole Assembly Inspection
   - Sucker Rod & Continuous Rod Inspection
   - BOP Inspection
   - Handling Equipment
   - Bore Scope

2. Cranes, Lifting Equipment Inspection and Load Testing

3. Planning and Supervising of Lifting Operation

4. Dropped Objects Provision Survey (DROPS)

5. Scaffolding Inspection and Consultancy

6. Leisure Industry Inspection

7. Sand Blasting

8. Pressure Test

9. Hard Banding

10. Rattling

11. Straightening

12. Bucking Machine

13. Hydro Blasting

14. Coating
Editor’s Word

Market Highlights
Snapshot of events, trends and developments in Oman’s Oil and Gas sector.

Driving excellence in upstream hydrocarbon activities
The Ministry of Oil & Gas is preparing to roll out fit-for-purpose high-level regulations.

“We need to stay the course”
Activity levels across Oman’s upstream sector will continue to be maintained this year in an effort to build capacity.

The Journey Begins
Developing optimal regulations for Oman’s oil and gas industry is a multi-year journey that began about 18 months ago.

Fit-for-Purpose Regulations
The new regulations underpin the objective of maximising the value from Oman’s hydrocarbon resources.

Bahja Rima: Land of Diamonds
The Bahja Rima team has tabled an ambitious plan which is set to make the cluster the highest producing in PDO within five years.

Oil to average in the $50s/bl in 2017
Half of respondents to a Gulf Intelligence GIQ Industry Survey say oil prices will average in the $50s/bl in 2017.

Time for Sustainable Price Reforms
GCC countries should reform how they price domestic natural gas in order to incentivize upstream gas investments.

IOCs heading in different directions in MENA
International Oil Companies have long played a dominant role in the development of the region’s oil sector.

Cleaning up ‘dirty’ oil
A current example of the balance of profits and sustainable oil extraction is happening in southwest Oman’s Amal heavy oil field.

Rising Carbon Emissions in the GCC
GCC countries need to adopt a structured technology adoption framework to overcome current challenges facing their transportation systems.

Biofuels: The Oman Connection
SQU scientists are investigating the production of biofuels from various organisms isolated from Omani ecosystems.

Embedding Standards & Best Practices
OPAL is moving aggressively to entrench international standards and best practice

Post Graduate Education Underpins Oman’s R&D Ecosystem

Siemens: A Strong Partner for Oman

Oxy Oman: A commitment to maximizing ICV and job creation

Polyglot Group: Changing mindsets

OPAL’s growing family

Upcoming events

Impressum

Chief Executive Officer
Musallam bin Rashid Al Mandhry

Communication Executive Manager
Abdulaziz bin Shehab Al Shukaili

Design and Marketing Specialist
Azza bint Hamad Al Hilaliya

Communication & Event Officer
Azra bint Hamad Al Hilaliya

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Editor in Chief (Oman Daily Observer)
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Dear Readers,

Our first edition of 2017 seeks to offer a glimpse of what is in store for Oman’s oil and gas sector from the enlightened perspectives of our industry leaders – local and international. The selection of articles broadly examines lingering impacts to our business from the prevailing low oil price environment, while offering sage advice on what companies need to do to offset these impacts. But the big scoop pertains to the planned rollout of new Oil & Gas Regulations by the Ministry of Oil & Gas, which as HE Salim Al Aufy, Under-Secretary, explains in the cover story, promises to be a game-changer for the upstream segment of our business. The interview, along with expert insights from key people at the heart of this initiative, offers the complete lowdown on this landmark regulatory framework. These articles are a must-read not only for Oman’s upstream players, but also for major contractors, consultancy firms, legal services providers, and others interested in getting up to speed on the do’s and don’ts of investing in the Sultanate’s hydrocarbon industry.

OPAL, as you can imagine, has had an incredibly busy and satisfying year, as the Society strives to deliver on its increasingly broadening mandate as the Voice of the Industry. Human Capital Development continues to be our core focus, as is demonstrated by the flurry of MoUs and partnerships signed in recent months to help drive Omanisation and skills development in our industry. Indeed, our unique pan-industry representation and broad-based focus has attracted the attention of Tanfeedh, the brand name of the National Programme for Enhancing Economic Diversification, which is studying the OPAL paradigm to see it can be replicated across other economic sectors as well. Read all about your Society’s many accomplishments in a dedicated section on OPAL in this edition.

In concluding, I wish to applaud those among our members who have been increasingly engaging with our Editorial Team in the form of editorial contributions, guest articles, constructive criticisms, and general advice. We welcome and appreciate your feedback and promise to take all of it on board in our continuing endeavour to deliver an increasingly wholesome magazine for our industry.

Sincerely,

Abdullah Al Harthy
Executive Editor
PARTNER OF CHOICE
Applying technological leadership to achieve unprecedented growth at the Mukhaizna Field.
RAY International L.L.C which is more commonly known as RAY Energy. This is the flagship Company which provides energy solutions with multidiscipline in Electrical, Mechanical, Civil, Control, Automation, Facility Management and Lab Service and leading EPC contractor in Oman region. It also hosts a range of state of the art of engineering product lines that caters to the requirements of companies in the Oil and Gas, Utility, Power Plant and Infrastructure segments.

RAY International Oil and Gas provides services and products Oil and Gas sector. This includes specialization in work-over Rigs, Wire-line and extensive range of Well Services to the Oil and a Gas industry. With an innovative mind, the young professionals unlock new areas for exploration and maximize the potential to tap all Oil and Gas opportunities.

RAY Skills, with prime focus on enhancing In-Country Value by building the future of Oman through training and developing young aspiring Omani professionals. In line with the vision of the Country, the Learning and Development facility is fully equipped to develop the national work force with the view to highly competent professionals within their own trades. RAY Skills renders unsurpassed quality in Learning and Development training. Coverages includes training in the fields of Welding, Drilling, High Voltage Electrical, Rigs, Soft Skills, Health, Safety Environment including IOSH, NEBOSH certified programmes, Well Servicing and Wireline. These programmes are complemented by Competency Consultancy Services delivered via innovative and unique solutions.

We stand proudly by our products and services as they provide innovative solutions to growing industry demands. An ISO 9001:2008 Accredited Company we maintain only the highest in International Standards and quality, yet remain local and loyal Oman Company. We are located in the Sultanate of Oman, but also have outlets in the United Kingdom, Kingdom of Bahrain, Qatar, United Arab Emirates, Saudi Arabia and Brunei. RAY International aspirers to deliver unsurpassed quality in service and products through technologically advanced and innovative solutions, thus enhancing its presence as a professional services provider in the Sultanate of Oman, the Gulf region and across the globe. At RAY we have robust policies and procedures relating to Health Safety and Environment that ensures no compromise or short cuts with respect to HSE and the well-being of the employees at the workplace.
EUROPOLES Middle East is the joint venture business interest of the Group with well-known German Company Europoles GmbH & Co.KG. A manufacturing facility is located in Nizwa where spun concrete poles are produced to meet the requirements of the Oil and Gas, infrastructure and utility sectors. In addition, the business adds In Country Value for all local companies in manufacturing electricity concrete poles can be used not only in manufacturing electricity distribution, but also in telecommunication and municipality applications.

Also under the umbrella of the RAY Group are:
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- Ray Automotive
- Seven Points International
Market highlights

Snapshot of events, trends and developments characterising the ebb and flow of activities across Oman’s pivotal oil and gas industry:

Takatuf and HEC Paris partner with Oman’s emerging business leaders

Takatuf, the Human Capital solutions provider, and HEC Paris, one of the world’s top three providers of Executive Education programmes, have concluded the ‘Emerging Leaders Programme’, an executive education programme that takes into consideration Oman’s leadership context and leverages Takatuf’s Human Capital expertise and HEC’s internationally-recognised know-how in executive education to offer a powerful learning opportunity to emerging leaders from the Sultanate’s public and private sectors.

The 3-month programme engaged 21 of Oman’s business leaders in a hands-on approach to real-world experiential executive education. Through case studies, role play and a programme designed on collaboration and teamwork, Oman’s leaders experienced an innovative learning curriculum uniquely designed by Takatuf and HEC Paris to develop the leadership competencies most sought by Oman’s largest organisations.

The graduation ceremony was held in the presence of programme sponsors from the State General Reserve Fund, Oman Oil Company Exploration and Production and ASAAS.

‘The “Emerging Leaders Programme” has come at just the right time for Oman’s emerging talent in both the public and private sectors’, said Ibrahim al Harthi, Acting CEO at Takatuf. ‘More than ever do we recognise a need to provide high-quality educational and developmental opportunities to Oman’s professionals. Takatuf is proud to partner with HEC Paris and we hope the experiences of the programme’s participants will help them realise their full potential at work to reach the management roles they aspire to’.

Dr Nils Plambeck, Dean and CEO of HEC Paris in Qatar, said: “One of our key aims, through our courses, is to shape the business leaders of tomorrow not only in Qatar but around the region. We are confident that the participants further developed their leadership and management skill-set, which will allow them to make great contributions to their organisations and thereby to Oman.” [6 February 2017]

Dear readers,

Your feedback is very important to us. Starting from the next issue, OPAL Oil & Gas will include a dedicated section where your thoughts on topics covered in this issue, as well as issues of relevance to the Oil & Gas business, will be featured. Please feel free to also send in your suggestions on how we can improve the overall content. Contact us by email or Twitter.

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**MEDRC LAUNCHES BP-BACKED DESALINATION TRAINING PROGRAMME**

**MEDRC Water Research**, the Muscat-based regional hub for training and research in water desalination, officially launched the Tahlya Training Programme for fresh Omani graduates. Developed to meet the growing needs of the water desalination industry, Tahlya aims to train 60 Omani nationals in reverse osmosis desalination to the level of operators and supervisors.

The ceremony was held under the patronage of HE Sayyid Badr bin Hamad al Busaidi, Secretary General of the Ministry of Foreign Affairs, and was attended by Mr. Yousuf Al Ojaili, BP Oman President, and HE Ciarán O Cuinn, Centre Director of MEDRC, among other government dignitaries.

“The aim of Tahlya training programme is to enable young Omanis with the skills to be supervisors and operators to meet the progressive developments of Oman’s water desalination industry. Investing in such initiatives supports the development of a competent national workforce to pilot evolving industries as a future contributor to the national economy,” Eng Yousuf Al Ojaili, BP Oman President stated.

The participants went through a vigorous selection process. Out of the total 4500 applications received, 400 candidates sat for an aptitude test and 100 proceeded to the interview round. The selection committee for these processes comprised of experts from the desalination industry as well as individuals from BP Oman. Lastly, 60 Omanis were selected to attend the Tahlya training programme. [6 Feb 2017]

**DME Oman sets new record for physical delivery volumes**

Continuing its strong start to 2017, the Dubai Mercantile Exchange (DME), the premier international energy futures and commodities exchange in the Middle East, has achieved a new record for physical delivery with 36.8 million barrels of Oman crude oil scheduled for delivery through the Exchange in March 2017. The latest figure surpasses the previous record of 29.9 million barrels for February 2017 delivery.

The physical delivery record marks yet another milestone for DME which only last week reported a new open interest record of 40,505 lots for its flagship Oman Crude Oil Futures Contract following January 2017 trading activity.

“DME has enjoyed a record-breaking start to 2017, hitting new all-time highs in delivery and open interest and raising the bar on performance excellence with every passing month. Our steady, consistent progress demonstrates strong confidence in our delivery mechanism and reinforces the DME Oman Contract’s status as the most efficient and transparent price discovery and risk management tool for the regional crude oil market,” said Ahmad Sharaf, Chairman of DME. “We remain focused on the future and we look forward to building on our strong momentum to usher in the next phase of growth for the Exchange.” [6 Feb 2017]

**NATIONAL TRAINING FUND HOLDS MAIDEN BOARD MEETING**

The National Training Fund (NTF) held its first board meeting chaired by HE Dr Mohammed bin Hamad al Rumhy, Minister of Oil and Gas. The National Training Fund, set up by Royal Decree 48/2016, aims to build the capabilities of the Omani workforce in order to bridge the gap between the market supply and demand. NTF aims to foster collaboration amongst priority sectors to identify employment opportunities and understand current requirements as well as future needs.

In order to be able to achieve its goals the Fund has taken first steps towards evaluating the current state of training efforts, benchmarking with experienced nations, and developing a roadmap that will assist in implementation. Some of the focus areas include mapping employment opportunities in strategic projects across the Sultanate.

In addition, NTF plans on conducting numerous stakeholder engagement initiatives in order to align the private, public and employment market with the main purpose of developing a database that illustrates the Omani workforce supply vs. demand requirements. [29 January 2017]
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LNG Equipment
Oilfield Operation Equipment
Gas Compression Equipment
Wellhead Equipment
Oil & Gas Gathering and Transferring
LNG
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Petroleum Refining
Natural Gas Processing & Comprehensive Utilization

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www.keruigroup.com/es
With safety as the centre-piece of its operations, Oman LNG has announced a remarkable milestone achievement of 20 million man-hours without a lost-time injury (LTI) on January 14, 2017. The new record translates to over almost seven complete calendar years without casualty to any of its personnel and signposts the company’s continuing vigorous attention to the safety and health of employees and contractors.

The latest milestone underscores the company’s unrelenting drive towards establishing a culture of safety that is embraced by its people to guide efficient operations of its liquefied natural gas production and export business. "On behalf of the Board and management, I would like to take this opportunity, to congratulate all staff and contractors on this latest safety accomplishment. Behind this achievement stands a solid safety culture where constant and dedicated efforts have been exerted at all levels of the company to nurture safety culture which ultimately ensures safe completion of jobs. We must constantly be vigilant to our responsibilities to operate safely," said Harib al Kitani, Oman LNG’s Chief Executive Officer, while addressing staff and contractors on the new record.

Oman’s Ministry of Oil & Gas signed an Exploration & Production Sharing Agreement (EPSA) with Oman Oil Company Exploration and Production (OOCEP) for Block 48. HE Dr Mohammed bin Hamed al Rumhy, Minister of Oil & Gas, signed the pact on behalf of the government, while OOCEP was represented by Eng Isam al Zadjali, CEO of Oman Oil Company (OOC), the energy and strategic investment arm of the Omani government.

Covering an area of 2,995 sq kilometres, Block 48 (also called the Malih block) straddles the Dhahirah and Wusta governorates of the Sultanate. It is the latest addition to OOCEP’s expanding portfolio of upstream assets located within the Sultanate and internationally as well. Eng Al Zadjali said: “Block 48 represents a (promising) opportunity as it adjoins Block 60, which OOCEP operates, and we believe there is potential there based on the discoveries we found in Block 60. We are planning to drill a few wells and shoot some seismic, and once we do that, we will review our next steps.”

Also present at the signing were HE Eng. Salim al Aufi, Under-Secretary of the Ministry of Oil & Gas; Mr. John Malcolm, CEO – OOCEP, and a number of officials of the Ministry and OOCEP. [31 Jan 2017]

Petroleum Development Oman (PDO) signed a $1.2 billion contract to supply piping for its drilling operations through Duqm. The five-year deal with Japanese supplier Sumitomo further includes a new supply yard in the Duqm Special Economic Zone which will be a logistics centre for materials being delivered to PDO’s drilling locations. The agreement will confirm PDO as an anchor tenant at Duqm from mid-2018, with up to two shipments a week (carrying 3,000 metric tonnes of pipe) being routed through the port for its oil and gas fields. The logistics hub will provide integrated supply chain management services – such as storage, planning and delivery – and 30 trucks a day will be needed to transfer the pipes from the new supply yard to PDO’s drilling locations. The move will significantly build capability at Duqm to become the primary logistics hub for the Sultanate’s oil and gas sector and complements the Tanfeedh programme on economic diversification.

PDO Managing Director Mr. Raoul Restucci said: “This contract will spur the growth of Duqm and attract even more business as the port demonstrates its ability to handle major operations. Every year, we drill 600 wells across our concession area and all the piping for that will be managed at Duqm. “This agreement is further evidence that PDO’s In-Country Value (ICV) programme to retain more of the oil and gas industry’s wealth in the Sultanate by creating Omani jobs and developing local capability and infrastructure is going from strength to strength. At the same time, it underlines our commitment to turn the promise of Tanfeedh programme on economic diversification into concrete action.”

The new agreement is a renewal of an existing contract to supply PDO oil tubular goods, casing and tubing pipes used for drilling, and consolidates the Company’s long-standing business relationship with Sumitomo. The official contract signing took place under the auspices of HE Yahya al Jabri, Chairman of the Special Economic Zone Authority Duqm, with special guest, HE Mitsugu Saito, the Japanese Ambassador to Oman, at PDO’s Knowledge World Centre. [27 Jan 2017]
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**OSC, Shell sign contract of affreightment**

Oman Shipping Company (OSC) announced that its subsidiary, Oman Charter Company (OCC), has entered into a contract of affreightment (CoA) agreement with Shell International Eastern Trading Company (Shell) for three years. The contract grants Shell access to the Very Large Crude Carriers (VLCC) operated by OCC for crude oil cargo transportation requirements and provides OCC with the cargo base it needs to support its commercial operations.

“We are pleased to associate ourselves once again with Shell,” said Tarik al Junaidi, Chief Executive Officer of Oman Shipping Company. “In addition to the 10 MR tankers that we have recently chartered to Shell, this CoA demonstrates the ability of Oman Shipping Company and its subsidiaries to deliver top shipping solutions that meet the requirements of our esteemed clients. It is our endeavour to continuously provide our customers with reliable transportation services and to find mutual solutions that benefit both parties.”

“For over 50 years, Shell in Oman has been committed to meeting the country’s growing energy demand in a socially and economically responsible manner. We look forward to strengthening this well-established relationship through this agreement with Oman Shipping Company (OSC),” said Mike Muller, Vice President for Trading and Supply Crude, Shell International Trading and Shipping Company. “Shell’s unique trading capabilities allow us to support OCC in building their commercial operations, and our hope is that this will boost Oman’s position as a world player in the oil and gas industry.” [15 Jan 2017]  

**PDO boosts collaboration with Innovation Park Muscat**

Petroleum Development Oman (PDO) has signed a partnership agreement with Innovation Park Muscat (IPM) to support Omani entrepreneurs and solve key production and technical challenges.

Under the terms of a Memorandum of Understanding (MoU), the partners will work together on a number of important economic, energy and environmental matters to support the Sultanate’s development.

There will be concerted effort by both sides to support the development and competitiveness of the small and medium enterprise (SME) sector, with local companies who work with PDO being encouraged to start their own research and development with IPM.

They will encourage SMEs to carry out their basic technological research, test-proof their conceptual thoughts and innovation ideas and conduct the early-stage technology development in IPM prior to the mass production of their goods. Both will also work to stimulate international companies to support and transfer technology and innovation to local companies and SMEs that are based in IPM. The aim is to encourage local Omani companies and entrepreneurs to embrace innovation and new technologies to sustain their future growth and become more competitive locally and regionally.

PDO will share with IPM some of the major challenges facing the oil and gas industry as a means of spurring innovation and research. Specifically, IPM will work on developing solutions in priority areas of enhanced oil recovery, water management and energy efficiency. [25 Dec 2016]  

**MOG SETS OUTPUT CAP ON PRODUCERS**

In line with its commitment to the output reduction deal agreed with OPEC, the Sultanate’s Ministry of Oil and Gas fixed production cuts for each of Oman’s crude oil producers. Oman has agreed to slash output by 45,000 barrels a day. As a result, output will be capped at 970,094 barrels per day, down from an output of over one million barrels per day that was achieved last November. Outputs of individual producers have been capped as follows: PDO – 652,000 BPD, Occidental Oman – 218,585 BPD, Daleel Petroleum – 48,000 BPD, CC Energy – 41,000 BPD, others: 10,509 BPD. [12 Jan 2017]
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• Reduced downtime by making the drilling process planned, transparent and predictable;
• A learning ecosystem by providing the crew with all essential information and procedures at any time, any place;
• Enhanced teamwork by clearly defining responsibilities and relationships between tasks, outcomes and crew members;
• Continuous improvement through enhanced reporting and analysis.

By the end of 2017 RigRider will be operational on all of Dalma Energy’s rigs within Oman.

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The Netherlands
www.ridercorp.com
info@ridercorp.com
GlassPoint, the leading supplier of solar to the oil and gas industry, has achieved ISO 9001:2008 certification for its Muscat-based operations. After passing two rounds of external audits, the certification of GlassPoint’s quality management system covers the company’s design, engineering, procurement, construction and commissioning of its novel solar steam generation plants in Oman.

GlassPoint is one of the fastest growing solar companies in history. The company’s first solar project in California, USA produces 300 kilowatts of thermal energy. Its second was a 7 megawatt pilot in Oman with Petroleum Development Oman, which paved the way for the Miraah project, which is currently under construction. Miraah will produce more than one gigawatt of peak thermal energy, making it one of the world’s largest solar plants of any kind.

“As a provider of a proven innovative solar technology for the oil and gas industry, achieving ISO 9001:2008 certification demonstrates our commitment to maintaining the highest quality standards and our culture of continuous improvement,” said Ben Bierman, Chief Operating Officer of GlassPoint.

Petroleum Development Oman (PDO) has pledged a number of smaller investments through its Grants and Donations Committee, including to Riyada (the Public Authority for SME Development) and the Oman Astronomical Society.
### SULTANATE OF OMAN CONCESSION BOUNDARIES

#### Table: Acreages

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Acreages are based on spheroidal area. The blue/white stripes indicate Oxy operating for NAG and open for Oil. The map is not an authority on international boundaries.

Map courtesy of OPAL.
New Oil & Gas Regulations

Driving excellence in upstream hydrocarbon activities

The Ministry of Oil & Gas is preparing to roll out fit-for-purpose high-level regulations governing all aspects of petroleum activities in Oman – a move that promises to catapult the Sultanate into the ranks of some of the world’s best-regulated upstream energy sectors.

An ambitious and far-reaching exercise is afoot at the Ministry of Oil & Gas. Spearheaded by a multi-disciplinary team, the effort encompasses a wide spectrum of Omani government regulatory agencies, upstream operators, and a legion of international experts. The goal: the development of a comprehensive and optimal regulatory framework governing all facets of upstream hydrocarbon activities in the Sultanate.

The ‘Oman Oil & Gas Regulations’, presently being reviewed and fine-tuned ahead of its formal unveiling by around mid-year, promises to be a game-changer for the industry. For one, it will provide the regulatory underpinnings for the effective management of hydrocarbon investments in Oman – currently in the order of tens of billions of Omani riyals. Secondly, the new regulations will contribute to efficient and secure upstream operations, encompassing not only exploration, production and development of hydrocarbon resources, but also, when required, the safe and proper abandonment of such assets. “This represents an across-the-board effort to bring international standards and best practice to our industry,” says HE Salim bin Nasser Al Aufi, Under-Secretary of the Ministry of Oil & Gas. “It provides greater specificity to the existing Oil & Gas Law and the Exploration & Production Sharing Agreement (EPSA), while eliminating any room for ambiguity that comes in the way of the safe and efficient management of the nation’s hydrocarbon resources.”

Billed as a seminal effort towards securing the long-term health and well-being of the industry, the Oil & Gas Regulations address
The new regulations will address longstanding deficiencies in the Oil & Gas Law and EPSA guidelines, said HE Salim Al Aufy.

The new regulations will address longstanding deficiencies in the Oil & Gas Law and EPSA guidelines. “For example, there are presently no regulations on well data acquisition, on the methodology for abandoning wells and facilities, on flaring of associated gas, and so on. These gaps have been suitably addressed,” HE Al Aufy said.

“Value generation

Importantly, the new regulations will address longstanding deficiencies in the Oil & Gas Law and EPSA guidelines. “For example, there are presently no regulations on well data acquisition, on the methodology for abandoning wells and facilities, on flaring of associated gas, and so on. These gaps have been suitably addressed,” HE Al Aufy said.

“What the new regulations aim to do is to flesh out the provisions of the Oil & Gas Law and the EPSA guidelines, that have
been sparse on specifics,” the Under-Secretary explained. “By having all of the supplementary provisions in place, oil and gas operators will now have greater clarity on what the Ministry of Oil & Gas expects from them in the safe and efficient pursuit of their hydrocarbon activities in the Sultanate. And what we expect from them is proper compliance with these regulations. In particular, the regulations will serve as a valuable playbook particularly for prospective investors who will now know upfront what is in store for them on the regulatory front when they mull a foray into Oman’s upstream sector.

To explain the rationale behind these regulations, the Under-Secretary uses the analogy of a motorist preparing to set out on a journey. “Among the things one would keep in mind is the speed limit on that road. But if the speed limit is not indicated, you’re not sure if you should drive at the maximum limit, or make a judgment call based on the condition of the road, or perhaps be guided by what you think is a sensible speed limit. In the circumstances, it’s a bit difficult for the authorities to hold the driver accountable in terms of compliance or non-compliance if the basic rules are not clear. Thus, by issuing detailed, high-level regulations, we want to make clear to the operators – particularly the new and small players – what we expect from them in terms of compliance.”

**Multi-sectoral engagement**

Importantly, the new Oil & Gas Regulations are the product of an extensive exercise that has involved, among others, all of the operators at the heart of Oman’s thriving upstream energy industry.

“The whole idea behind this effort was to actually have a dialogue between the operators and us, and to put in place minimum standards for operating in Oman. From time to time, we will review these standards with the operators. Guidelines that are seen as difficult to comply with, we will sit down with them and discuss alternative options. Conversely, if there are standards we think are a bit weak, we will raise the bar a bit. The ultimate goal is to drive excellence in our business.”

Furthermore, the new guidelines promise to spur the emergence of a self-regulating oil and gas industry in Oman, according to HE Al Aufi. “The regulations will enable the operators to self-police themselves in terms of compliance, and where there is a failure to comply, we expect the companies to revert to us at the Ministry with details of this breach, along with their plans to mitigate any fallout or consequences.” A company, for example, notifying the Ministry of an instance of excess flaring, is also expected to detail the steps it has taken in response to the incident, as well as measures to prevent a possible recurrence. “The Ministry will review their report and mitigation plans, and if found satisfactory, we will accept their explanation and initiate no further action on the score. But if we find they have failed minimum compliance standards, penal action will follow. Thus the onus of compliance is essentially on the shoulders of the operator.”

While self-regulation is a key objective of the new Oil & Gas Regulations, monitoring will nonetheless continue to be part of the Ministry’s prerogatives as a regulator. To this end, a dedicated department is envisioned to help strengthen the Ministry’s compliance and monitoring efforts. Through spot checks and audits, the Ministry hopes to communicate its desire to see a robust level of compliance in the industry.

The spot checks are designed to keep the operators “on their toes”, according to HE Al Aufi. “Let’s say, we decide to spot audit flaring at a particular station, field or reservoir to validate the information provided by the company in their reports. We cross-check our findings with the commitments they made at the start of the year to audit their activities. It’s one thing for the company to notify us of instances of non-compliance and to accept any penalties that may or may not follow. But failure to report an incident of non-compliance, which is then unearthed by us, will result in far se-

**THE NEW REGULATIONS WILL ADDRESS LONGSTANDING DEFICIENCIES IN THE OIL & GAS LAW AND EPSA GUIDELINES. “FOR EXAMPLE, THERE ARE PRESENTLY NO REGULATIONS ON WELL DATA ACQUISITION, ON THE METHODOLOGY FOR ABANDONING WELLS AND FACILITIES, ON FLARING OF ASSOCIATED GAS, AND SO ON. THESE GAPS HAVE BEEN SUITABLY ADDRESSED,” HE AL AUFI SAID**
The upgraded Oil & Gas Regulations will lend new cachet to Oman's already highly-regarded upstream sector. The transition to a transparent, rules-based and well-regulated industry is expected to position Oman for stronger investment inflows going forward, and attract the attention of technology and service providers as well.

Conrad Prabhu
At Gulf Energy we combine the experience of personnel, first class equipment with cutting edge technology and a strong emphasis on innovation, reliability, quality, integrity and customer service. This orientation towards customer needs and expectations is our means to position Gulf Energy as one of the most dynamic and fast growing innovative solutions provider in the Energy industry in the Middle East and North Africa (MENA) region.

At Gulf Energy, we believe in developing the local capabilities with our local partners. Our In Country Value initiative does not stop at employing nationals, but involve formation of real partnerships through Joint Ventures and collaborations with top class international institutions to enrich and localize the know how and expertise. People are our main asset. Motivation and training are the main elements to promote Gulf Energy to be a leader in providing its Services, Technology and Solutions at highest standard of quality.

Gulf Energy currently works with almost all of the major operators in Oman including Petroleum Development of Oman (PDO), Occidental Oman (OXY), PTT Exploration and Production Plc (PTTEP), MEDCO, Petrogas E & P and Daleel Petroleum.
Activity levels across Oman’s upstream hydrocarbons sector will continue to be maintained this year in an effort to build capacity - a strategy that promises to pay off when oil cartel Opec eventually decides to lift or scale back globally agreed production caps, says HE Salim Al Aufi.

The year 2016 ended on a high note for Oman’s hydrocarbons sector as domestic crude production hit record highs for the first time in the nation’s history. It was cheery news for an industry otherwise weighed down by swingeing budgetary cuts, shrinking bottom-lines, and significant layoffs.

2017 began on an equally buoyant note as a rebound in international oil prices, aided by a global deal by Opec and non-Opec producers (including the Sultanate of Oman), helped inject a modicum of optimism for a sustained recovery going forward. But despite these gratifying developments, the hydrocarbon industry is not yet out of the woods to justify any relaxation of the muscular response mounted by operators, at the urgings of the Ministry of Oil & Gas, in the wake of the oil price crash.

“We need to stay the course!” emphasized Oil & Gas Under-Secretary HE Salim bin Nasser Al Aufi. “We have made some gains in the form of cost efficiency, improved productivity, waste reduction, and so on – gains that we should hold on to going forward.”

Speaking to OPAL Oil & Gas, the Under-Secretary affirmed that activity levels in the upstream sector would be maintained at full throttle notwithstanding the constrained fiscal environment linked to the oil price downturn. Neither will Oman’s pledge to lop off around 45,000 barrels from its daily crude production as part of a deal reached by oil producers last December, be a limiting factor, he stressed.

“We have asked the operators to comply with the output reduction pledge but without cutting their activities, thereby building capacity as a result,” the Under-Secretary explained. “Thus, whatever wells they were planning to drill, they will continue to drill. In the normal circumstances, the operators would have hooked up these wells and begun producing them. But in the current circumstances, with the production cap in place, they will drill these wells, potentially hook them up, and
may or may not complete them, but not put them into production. However, if they start producing them, something else from their production assets will have to be sacrificed to make space for these wells.”

In line with its pledge to cut production by 45,000 barrels per day with effect from January 1, 2017, Oman has capped output at 970,000 bpd. The output cut is being shared pro rata among the nation’s oil producers, with Petroleum Development Oman (PDO), by far the largest producer, shouldering the lion’s share of the reduction.

In Numbers

In line with its pledge to cut production by 45,000 barrels per day with effect from January 1, 2017, Oman has capped output at 970,000 bpd.

WE SHOULD SEND A MESSAGE TO THOSE ON THE FRONTLINES OF OUR INDUSTRY – PARTICULARLY OUR WORKERS POSITIONED CLOSE TO THE WELLHEAD – THAT WASTE IS THE ENEMY OF OUR INDUSTRY

But with the Opec-led global agreement to cut crude production due for review in July this year, Oman is looking to be suitably primed to respond to either of the two outcomes anticipated from that mid-year review. Analysts foresee either a partial rollback of the production cuts or a complete lifting of the cuts, depending upon whether existing crude inventories have been substantially depleted. Thus by maintaining activity levels, Oman’s upstream operators are ramping up production capacity that can be rapidly brought on stream when required, HE Al Aufi explained. “If Opec decides to reduce or remove the production cap in July, our operators can respond very quickly by opening up wells. What we don’t want happening is that we cut oilfield activities in order to meet the 970,000 bpd cap and, come July, we are not able to respond to the new production figure if Opec decides to reduce the cuts or scrap them altogether. So we are advising the operators to maintain activity levels in preparation for a return to full capacity when the opportunity arises.”

Bumper production

Having delivered record output levels averaging over 1 million bpd in 2016, the industry now aims to sustain this level during 2017, an ambition that is some-dependent on what is in store at Opec’s mid-year review of the global production cut. Domestic production hit an all-time high of 1.015 million bpd in November, a peak that also served as the ceiling for the calculation of the 45,000 bpd cut agreed by Oman as part of the global deal reached by Opec and non-Opec producers last December. Complementing this historic achievement at the wellhead was the industry’s equally commendable success in paring operational costs and improving business efficiency across the board in 2016 – gains that have pushed down production costs even further, according to HE Al Aufi.

“Early in 2016, we said our unit operating cost was around $9.3 per barrel. This year, it is in the order of $8.3 - $8.5 per barrel, which means we have been able to shave almost a dollar from our cost of operations. So we have not only increased our production, but also reduced the cost,” he said.

Part of these cost reductions were the result of some oilfield contracts being renegotiated, others being extended on better price terms and perhaps, and most importantly, through waste elimination. These gains were garnered through collaboration between the operators and contractors, without compromising on safety and quality, the Under-Secretary said.

Waste reduction, he stressed, will be an ongoing objective. “We should send a message to those on the frontlines of our industry – particularly our workers positioned close to the wellhead – that waste is the enemy of our industry. During the boom years, when we were moving very fast, some waste was accepted because the cost of countering that waste would have been expensive at that point. Now we have the opportunity to scrutinize how we are executing our business, and if there is waste, it should be eliminated,” the official noted.

Redeployment revisited

Job losses, while inevitable in light of the ongoing challenges weighing down the industry, are unlikely to mirror levels seen at the outset of the crisis in 2015. Nevertheless, the industry’s landmark Redeployment Strategy – a ‘safety net’ put together with the support of OPAL
and the operators, amongst others – will be suitably tweaked to respond to those who actually face the axe because their employers have been left upended by the downturn.

Under the revised Redeployment Strategy, the industry will no longer feel compelled to take upon itself the task of securing suitable openings for Omani oilfield workers facing redundancy because business contracts signed by their employers are coming to their natural end.

“It is natural for an oilfield contract, particularly a construction contract, to come to an end upon the successful conclusion of the activity or project in question. Sometimes, contracts get renewed or extended, or may change hands. This is the nature of our business, whether in Oman or anywhere else in the world. But when oil prices crashed recently, there were voices claiming that the redundancies were the result of reduced oilfield activities stemming from low prices. This was partly true, but a significant number of the layoffs were the result of contracts coming to an end,” said HE Al Aufi.

Redundancies, the Under-Secretary argued, have long been a reality of the industry, even when oil prices were at highs of over $100 per barrel. Then, laid-off workers had, among other options, the opportunity to move to the employer’s other activities within or outside the oilfield sector. Those opportunities may have also involved a possible relocation outside of the oil province to other towns and regions where the employer had ongoing business activities. But, in the wake of the oil price plunge, redundancies resulting from the natural expiry of contracts being often pitched as the malign actions of employers taking advantage of the crisis to lay off workers. While some companies were indeed guilty of laying off Omani workers while retaining large numbers of expatriate staff, in the main, the job losses were simply the natural outcome of oilfield contracts coming to an end, he pointed out.

“Rather than leave it entirely to the government to find alternative employment, oilfield workers laid off upon the expiry of a contract would need to shoulder some responsibility and start looking for jobs just like anywhere else in the world,” said the Under-Secretary. “If I am terminated for whatever reason – be it performance-related or downsizing – then I should agree a settlement with my employer and then step out, market myself, and look for suitable openings.”

What is unacceptable, he said, is the expectation by many national staff that their employers are ultimately responsible for finding them suitable alternative placements upon the expiry of their contracts.

“Yes, we entertained this mindset for a while in the wake of the crisis, but we need to start sending a strong message: You are still accountable to yourself, to develop yourself, to train and nurture yourself, to make sure you are marketable, and to keep your eyes and ears open for opportunities.

He further added: “When a contract expires, we expect you to go through the settlement process, and when a job opportunity arises, you should compete for it. Don’t expect it to be given to you! Only those who are professionally good and competitive will flourish.”

But the private sector is not entirely off the hook, the official warns. Many companies have been remiss in meeting their Omanisation targets, as well as failing to invest in the training and skills development of their Omani staff.

“It’s simply not acceptable for companies to say that as their contracts are expiring they are letting go of their Omani staff. They should have invested in the recruitment and development of local talent with the goal of replacing their expatriate workers as part of a long-term effort. And if their business grows and they don’t have enough local talent, we will allow them to bring in foreign labour, but with proper succession planning in place.”

Conrad Prabhu

“Rather than leave it entirely to the government to find alternative employment, oilfield workers laid off upon the expiry of a contract would need to shoulder some responsibility and start looking for jobs just like anywhere else in the world.”

**In Numbers**

Early in 2016, we said our unit operating cost was around \$9.3 per barrel. This year, it is in the order of \$8.3 - \$8.5 per barrel.
Oil & Gas Regulations: The journey begins

Developing optimal regulations for Oman’s oil and gas industry is a multi-year journey that began about 18 months ago with a special dedicated team in the Ministry, taking this landmark initiative forward to its logical conclusion, says Dr Anwar S. Al Kharusi, Project Head, Ministry of Oil and Gas.

As the head of the Project Team at the Ministry of Oil and Gas tasked with drafting a high-level, fit-for-purpose regulatory framework for the upstream hydrocarbons sector, Dr. Anwar Al Kharusi knew he had his work cut out for him. The project at hand was by no means a run-of-the-mill initiative. On the contrary, it was perhaps the single most daunting and complex bureaucratic exercise undertaken by the Ministry to date. And given the fact that the bar was set quite high from the outset, it necessitated a pooling of some of the best minds at the Ministry, and from within and outside Oman’s oil and gas industry as well.

Now, nearly 18 months into this groundbreaking exercise, a draft of what promises to be a consequential and weighty regulatory framework is now ready. The guidelines are being presented to various stakeholders – a months-long process designed to garner feedback that will be incorporated into the final draft before it is rolled out tentatively during the third quarter of this year.

Initial feedback from the industry has been heartening, says Dr. Al Kharusi. “The operators are delighted that the regulations have now been suitably coded, in place of broad guidelines that were subject to interpretation in the past. The element of clarity, which is missing in the existing regulations, has been substantially addressed, thereby providing a complete picture of what is expected of the operators.”

Dr. Al Kharusi helmed a 15-strong team of Ministry officials with backgrounds in the oil and gas business, technology, finance, law and regulation. This multi-disciplinary team was backed by experts drawn from the wider industry, with various operators pitching in with technical assistance as well. The experiences of fellow regulators, notably the Ministry of Finance, Ministry of Environment and Climate Affairs, Ministry of Regional Municipalities and Water Resources, Ministry of Health, and so on, helped provide valuable insights on regulatory structures.

Over the past 18 months, the team also visited regulators in a number of countries, including Canada, Norway, Belgium and the United King-
dom, as well as engaged with the World Bank, European Commission and reputed international players like the International Association of Oil & Gas Producers, and Wood Mackenzie.

“Unlike a number of countries that had to build their regulations from scratch, thankfully we did have the Oil & Gas Law and the Exploration and Production Sharing Agreement (EPSA) guidelines to work with. Some countries took nearly a decade to reach where they are in terms of regulations. So the business of drafting regulations is clearly a multi-year exercise,” the official noted.

**Drawing a timeline**

For Oman, the journey to optimal regulations has just begun. The draft regulations are presently the subject of a succession of reviews by various stakeholders. A broad timeline drawn up by the Regulations Project Team in MOG envisages a mid-year target for the collection of feedback from the Operators and various government stakeholders. A revised draft, incorporating the submissions of the industry, will be submitted to the Ministry with the rollout of the approved framework targeted during Q3 2017.

“The review process will extend over the first six months of 2017, which provides enough time for the Ministry, the Operators and other stakeholder agencies, including the Ministry of Legal Affairs, to offer their feedback. The actual roll out to the operators is planned during the third quarter of this year, but strict enforcement is envisioned only with effect from January, 2018.”

In tandem with this initiative, the Ministry also plans to set up a dedicated unit that will oversee the smooth and effective implementation of the new Oil & Gas Regulations. Also as part of this process, a new Data Management System is being established at the Ministry.

“The Data Management System, which is essentially a portal, will allow for the automation of all of the major interactions between the Ministry and the Operators,” said Dr. Al Kharusi. “All of the reporting requirements, audits, applications for permits, and so on, can be uploaded into the system without the need for hard copy submissions, as is presently the case,” Dr Al Kharusi, who also heads the Data Management Project, added.
For this article we interviewed Thomas Meijssen, who has supported the Ministry of Oil and Gas over the past year to further develop regulations for the oil and gas industry in Oman.

Some industries have been working quite well with little regulations, while other clearly needed additional guidance. And when additional guidance was required, at times these regulations were not easy to be implemented. Fit-for-purpose regulations are therefore required to support the oil and gas industry in achieving its goal to maximise value from our hydrocarbon resources. The oil and gas industry in Oman is governed by the Ministry of Oil and Gas as stipulated in the Oil and Gas law. Oil and gas companies also have a license agreement for the blocks in which they operate. The most common license agreement is the Exploration and Production Sharing Agreement (EPSA), which provides articles on how to conduct petroleum operations.

With the number of oil and gas companies in Oman on the increase, it was felt that additional guidance was required to ensure a common approach to petroleum operations, meeting minimum requirements on health, safety and environment, drilling, facilities, operations, abandonment, finance, contracting and procurement and other topics.

To further develop regulations for the oil and gas industry, an oil and gas regulations team was established by the Ministry of Oil and Gas in 2015. The team was supported by regulators from United Kingdom, Canada and Norway, other governmental institutions and several oil and gas companies in Oman. In this way, a shared understanding of the regulations was created among key stakeholders.

“I was invited to join the regulatory team in March 2016 to support the team’s efforts,” said Thomas Meijssen. “For me this was a great oppor-
tunity to use my extensive experience in the oil and gas industry.” Thomas has been working for Shell International around the world for 32 years. Prior to joining the Ministry as a consultant, he was Country Chair for Shell in Jordan.

In January 2017, the regulatory team completed the first pass regulations, which are being rolled-out to oil and gas companies in Oman. The year 2017 will be a trial year in which feedback from key stakeholders on the new regulations is requested. The regulations not only provide guidance to oil and gas companies on how to conduct petroleum operations, but also provide clarity on the reporting requirements to the Ministry. The required documents can be uploaded in the newly developed MOG Portal to enable staff at the Ministry to review and process the documents and requests.

OPAL is supporting the Ministry by developing detailed standards for the oil and gas industry in Oman to ensure alignment among operators and contractors, thereby saving time and cost. As an example of this, OPAL with input from the industry developed a common standard for Road Safety thereby aligning the various standards used by the operators.

“As my wife is from Oman, I feel strongly about using my experience to the benefit of the Sultanate,” said Thomas. “We have a great team at the Ministry and with the support of people around us, we have been able to develop a set of fit-for-purpose regulations for the oil and gas industry. This will support all to achieve the objective of maximising the value from our hydrocarbon resources in Oman. From my perspective, fit-for-purpose oil and gas regulations for the oil and gas industry are indeed needed, and I believe the Ministry is on the right track to achieve this.”

"THE YEAR 2017 WILL BE A TRIAL YEAR IN WHICH FEEDBACK FROM KEY STAKEHOLDERS ON THE NEW REGULATIONS IS REQUESTED"
Bahja Rima: ‘Land of Diamonds’

Bahja Rima, which has more than seven billion barrels of oil in place, has already recorded a 30% increase over a two-year period with the addition of a huge volume of hydrocarbon resources.

The Bahja Rima team has tabled an ambitious plan which is set to make the cluster the highest producing in Petroleum Development Oman (PDO) within five years. Leaders have dubbed the cluster the ‘Land of Diamonds’ because of its rich potential and proposed a programme offering a 45% growth in production to 94,000 barrels of oil equivalent per day (boepd) by 2021 from conventional, low unit technical cost (UTC) projects. This would be a feat almost unprecedented in the global upstream oil and gas industry, especially in the current challenging, capital-constrained environment.

Bahja Rima, which has more than seven billion barrels of oil in place, has already recorded a 30% increase over a two-year period with the addition of a huge volume of hydrocarbon resources.

Cluster Leader Hamed Subhi said: “The success came from giving focus to all fronts of the business. In our long-term planning, and all fields have or are undergoing Field Development Plan (FDP) updates. “The studies have not been limited to the large fields, as the cluster is also at the forefront of PDO’s effort in unlocking value from small field assets, with FDP studies for 16 fields outsourced to Omani consulting firm Target Oilfield Services as part of the ‘Small Fields’ contract.”

Bahja Rima is a cluster of 30 fields that is located in central Oman. It is characterised by its geographically scattered brown to green fields. Activities range from exploration/appraisal to development which imposes challenges as well as opportunities.

Whilst considered ‘small’, the Bahja North and South fields contain oil-in-place in excess of 1.7 billion barrels and so provide an excel-
OUR SUCCESS DID NOT COME BY LUCK, BUT BY USING THE STRENGTH OF OUR PEOPLE AND GIVING THEM THE RIGHT SPACE TO PUT THEIR TECHNICAL THOUGHTS AND CREATIVITY INTO ACTION. DOING THINGS DIFFERENTLY, CHALLENGING THE OBVIOUS AND TAKING CALCULATED RISKS HAVE BEEN KEY SUCCESS FACTORS.
lent chance to drive growth in a mature, low cost per barrel cluster. This is being done whilst demonstrating strong ICV credentials by developing skill sets and workflows of local consultants which are already being deployed internationally.

Bahja Rima New Oil has grown in the last couple of years from three rigs drilling about 60 wells to seven rigs drilling 130 wells per year. New Oil production has increased four-fold with the yearly average rising from 2,400 bpd in 2014 to almost 9,400 bpd in 2016.

Early monetisation of high value projects is a key driver for Bahja Rima. The
cluster is using the ‘Early Development Facility’ (EDF) concept to accelerate production from the key Sadad North, Hawqa and Asfoor projects. Although Sadad North was only discovered in March 2015, strong co-operation between Exploration and the cluster resulted in a field handover within six months and to date over one million barrels of oil have already been produced. With the ‘EDF’ track being actively progressed, it is envisaged that the field will be delivered without a cash loss to PDO. This is a significant achievement, especially during times of uncertainty surrounding oil price developments. The accelerated development at Hawqa field from 2022 to 2018 should result in a net present value of US$500 million.

Another critical success factor is that the existing stock of over 800 wells is well managed through focused integrated well and reservoir reviews. Daily monitoring of the production performance through Lean principles using the NIBRAS exception-based surveillance tool has resulted in eliminating unnecessary time wasted on checking the wells, enabling immediate reaction to issues or opportunities. Furthermore, the expansion of the scope for hydraulic fracturing across several fields, turning the long-term closed-in wells into a valuable asset by intensive reviews and open-ups, and focus on the artificial lift system, have resulted in a significant increase to annual No Further Action (NFA) production and field management. The cluster NFA decline was arrested from around 10% to 6%, resulting in an NFA production increase of 4,000 bpd at a low UTC of around US$5 per barrel.

The growth of production and number of wells is linked to the execution of several projects, such as the Greater Rima project, which has led to the de-bottlenecking of the oil pipeline water disposal capacities. New pipelines were also built from Thuyfut all the way to Rima station, which also had its capacity upgraded. Three new stations are going to be operational within the coming two years; Zauliya gas plant (ZGP), Hawqa EDF and SDDN EDF. The fast-tracked engineering project is a key enabler in reaching the cluster’s potential as PDO’s top performer by 2021.

Hamed said: “The huge growth of well stock, increase in oil and gross production, and rise in hoist and rig activities are placing a huge challenge on the Operations team which is doing a tremendous job. “Our success did not come by luck, but by using the strength of our people and giving them the right space to put their technical thoughts and creativity into action. Doing things differently, challenging the obvious and taking calculated risks have been key success factors. “The Hawqa and Asfoor appraisals, Zarreef low resistivity pay projects, Zauliyah fracking and SDDN production through the well test unit are examples of success by doing things differently. We are now referring to Bahja Rima as ‘The Land of Diamonds’!”

**Bahja Rima, which has more than seven billion barrels of oil in place, has already recorded a 30% increase over a two-year period with the addition of a huge volume of hydrocarbon resources**

In Numbers

The cluster NFA decline was arrested from around 10% to 6%, resulting in an NFA production increase of 4,000 bpd at a low UTC of around US$5 per barrel.
Oil to average in the $50s/bl in 2017

Half of respondents to a Gulf Intelligence GIQ Industry Survey of 250 energy industry professionals say oil prices will average in the $50s/bl in 2017.
he average Brent oil price will be in the $50s/bl this year, according to 49 per cent of respondents to a Gulf Intelligence GIQ Industry Survey of 250 energy national and international industry professionals. Comparatively, nearly a third (29 per cent) expect the average oil price to be in the $60s/bl, which is a major turn-around from this time last year when prices dipped below $30/bl and hit a 12-year low. The relatively bullish sentiment is supported by the International Energy Agency’s (IEA) forecast that global oil supply will move into a 600,000 b/d deficit by June if OPEC and non-OPEC producers sustain the supply cuts that were agreed in late-2016. Some respondents (16 per cent) clearly have their doubts on whether the deal will hold and expect the average price to be in the $40s/bl. 59 per cent of survey respondents believed prices would not dip below $40/bbl and a similar percentage said they would not rise beyond the $60s/bl. Almost a third of the audience (28 per cent) were however more bullish, expecting that the highest prices hit may be in the $70s/bbl.

The majority (74 per cent) of respondents said OPEC’s recent agreement to cut supply alongside non-OPEC producers – the first such deal in 15 years – represents OPEC’s flag of surrender after a two-year fight for market share. Some oil producers however have countered that opinion, emphasising that the supply cuts, which should lead to a higher oil price, are targeted at bolstering investment into the energy sector, which has witnessed a drop for the past three years along with oil price erosion. Wood Mackenzie released a report this week saying that it expects investment in exploration and production worldwide to rise by 2 per cent in 2017 to $450 billion. But energy investments do not only rely on OPEC and non-OPEC producers’ ability to stick to the rulebook – the political scene will also have a major impact in 2017. In a recent report, the Eurasia Group said that 2017 marks the most volatile political risk environment since the 2nd World War. Given three political risk choices to rank in the survey, most Gulf Intelligence respondents (65 per cent) said that US President Donald Trump’s ‘America First’ philosophy would have the biggest ramifications on the global energy industry. Nearly a third (27 per cent) said the likely overreaction by China to geopolitical events ahead of its 19th Community Party Congress leadership shuffle in September, will have the most significant impact on energy dynamics. On a longer-term basis, 48 per cent of respondents expect it to be sometime in 2018 before the inventories of crude and refined oil in industrialized nations – which remain 300 million barrels above their five-year average – to be cleared. A fifth (21 per cent) of respondents said late-2017 is more likely, while another fifth expect it to be in 2019. As with the respondents’ price forecasts, their expectations for supply are within a relatively defined range. ☎

**ENERGY INVESTMENTS DO NOT ONLY RELY ON OPEC AND NON-OPEC PRODUCERS’ ABILITY TO STICK TO THE RULEBOOK – THE POLITICAL SCENE WILL ALSO HAVE A MAJOR IMPACT IN 2017**
Securing the future of natural gas in the GCC

Time for sustainable price reforms

By George Sarraf, David Branson and Dr Yahya Anouti
Gulf Cooperation Council (GCC) countries should reform how they price domestic natural gas in order to incentivize upstream gas investments. The prevailing regime of low and fixed prices — which power producers, downstream industries, and consumers have enjoyed for decades — is unsustainable.

**Low natural gas prices are not sustainable**

Abundant and cheap gas has played a critical role in the development and diversification of the economies of the GCC. Long considered a by-product of oil production, gas was almost entirely flared until the 1970s when governments and their national oil companies (NOCs) began to harness gas firstly for power generation and, subsequently, as a feedstock for petrochemicals and for export in the form of liquefied natural gas (LNG).

Gas supplies in each GCC country have been regulated by state monopolies with prices set considerably beneath comparable international prices. Low prices have reflected the relatively modest cost of capturing and processing gas that has been predominantly associated with oil production. For decades, this policy supported local economies by providing stability and competitive advantage to petrochemicals and energy-intensive industries, even though approaches to gas pricing vary across the GCC. In some cases, such as Saudi Arabia, gas prices have been stable and uniform across the industrial and power sectors. However, in a move in the right direction, Saudi Arabia decided on December 28, 2015 to increase methane and ethane prices from US$0.75/mmbtu for both to US$1.25/mmbtu for methane and $1.75/mmbtu for ethane. Other countries apply somewhat similar prices for their power and industrial sector albeit with some benchmark indexation in select joint-venture petrochemical industries.

Despite an abundance of gas resources, the current position is not sustainable. Production costs are set to rise steeply in coming years as output shifts from low-cost associated gas to increasingly challenging non-associated gas fields with greater technology requirements. Strategy&’s eval-
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ulation of future production costs, taking into account field-by-field variations, expected decline rates of existing production, and potential new developments, suggests that weighted average costs of gas production across the GCC will rise by one-third to two-thirds between 2015 and 2030 — from US$1.50 to $4.50 per thousand cubic feet in 2015, to $2.00 to $7.00 per thousand cubic feet in 2030. GCC governments will find it increasingly difficult to maintain current prices, which range from just $0.75 to $3.00 per thousand cubic feet, given the growing gap with production costs.

Without substantive reform of gas pricing, the gap between domestic production and future demand in the GCC is forecast to widen significantly by 2030. The shortfall will emerge in part because low wholesale gas prices provide a disincentive to develop new domestic gas supplies, which are required to replace stagnating production from currently producing fields. Indeed, the failure to agree on an appropriate gas price has been cited as a main reason for the decision not to proceed with the development of the Kidan sour gas field in Saudi Arabia.

A projected gas demand growth rate of 3 percent per annum implies a potential supply gap of over 300 billion cubic metres by 2030. In recent years, governments sought to temper gas demand and manage gas shortages by supplying liquid fuels for power and naphtha for petrochemicals. Taking these measures into account, unmet gas demand may actually be higher. Using an estimated 5 percent increase in gas demand per annum to account for such unmet demand, we forecast that the supply gap by 2030 may be over 600 billion cubic metres.

How to bridge the gap

The best approach to setting gas prices — and incentivizing investment in new production and demand management — is to use market mechanisms. Broadly speaking, there are two approaches for market-based gas pricing. The first is “oil indexation,” in which gas prices are linked to a basket of commodities including crude oil and oil products. The second is “gas hub pricing,” also known as “gas-to-gas competition,” in which gas is traded based on spot prices set by the market in a liquid trading hub and which better reflects the true price of gas to consumers. Although gas pricing in the Middle East is overwhelmingly regulated by national governments, elsewhere markets are increasingly liberalized and are gradually moving from oil indexation to gas hub pricing as the preferred pricing mechanism. In 2014, some 43 percent of all gas sold was subject to gas hub pricing, whereas only 17 percent was indexed to oil.

In the Asia Pacific region, just under 60 percent of the gas sold in 2014 was directly oil-indexed. However, discussions on the ways to delink gas prices from oil and reduce the import bill are becoming more frequent, as Asia Pacific gas importers pay the highest prices in the world. A number of parallel, though uncoordinated, developments are afoot to develop a price benchmark in the region. Japan, for example, has listed a dollar-denominated LNG futures contract on the Tokyo Commodity Exchange. Also, Singapore started commercial operations of its LNG import terminal in May 2013, and has ambitions to develop an LNG hub in the region to set its own LNG price benchmark.

In Europe, the gas market is rapidly moving from an oil-indexed to a gas-to-gas competition regime. Today, over 60 percent of European gas is sold directly or indirectly linked to gas hub pricing. This is a significant increase from 2005, when only about 15 percent of the gas sold was gas-indexed. The rapid change in the European pricing mechanism was primarily due to the significant over-supply of gas in Europe during the recent recession. Demand fell below “take-or-pay” levels

Production will not keep pace with demand

GCC Natural Gas Production and Demand, 2010–2030

Future demand (assuming 3% annual increase)
Future demand (assuming 5% annual increase)
Domestic production

Sources: OPEC Statistical Bulletin 2015; Oman National Centre for Statistics; BP Statistical Review of World Energy; Rystad Energy; Strategy & analysis
specified in long-term gas supply contracts. This meant that consumers had to pay financial penalties because they were not consuming the agreed amount of gas. As a consequence, long-term contracts were ended or renegotiated to move to partial or complete gas hub indexation. Other factors have also accelerated gas-to-gas competition. These include increased infrastructure connections within Europe, in terms of both pipelines and LNG supply; end-consumer activism; and a concerted push by national regulators and the European Commission.

In North America, which is a fully liberalized market, the gas hub has been the pricing method since 1990. Since then, the New York Mercantile Exchange (NY-MEX) has used the Henry Hub to set the price of what is considered the first futures contract for natural gas. The Henry Hub has become the world’s most heavily traded gas market and is the benchmark for wholesale gas prices in the U.S. As a result of those distinctive pricing mechanisms, the U.S., European, and Asian gas prices have evolved differently over time.

Taking the global trends and the specifics of the GCC into account, the region should consider gradually moving toward pricing that more accurately reflects the cost of supply and value of the gas to consumers. There are four possible short-term and longer-term gas-pricing regimes that should be considered.

1. **Use a cost-plus price:** At a minimum, GCC countries should seek to increase wholesale prices to match increasing production costs and encourage investment in new sources of supply. Such an approach can be considered on a country-by-country basis, or even on a field-by-field basis through the implementation of a cost-plus formula. Although such an approach does not require regional coordination, it does require a full understanding of how production costs are likely to evolve, and the establishment of transparent procedures for price setting.

2. **Index to oil:** GCC countries could adopt a formula that indexes the gas price to oil prices, or a combination of oil and other products used in the sector (e.g., fuel oil) to reflect better the value of gas as an alternative to oil in the power and industrial sectors. Such an approach would require an evaluation of the role that gas plays in the sector and potential alternatives, along with the establishment of a formula that reflects the full range of possible oil prices. Such formulae typically include S-curves, whereby gas prices move in tandem with oil prices in the middle of the oil price range, but the curve flattens when oil prices are at the high or low end of the range to reduce volatility.

3. **Link to existing gas hub pricing:** As an alternative to establishing a dedicated gas hub, GCC countries could link domestic gas prices to prices in existing hubs in other geographies. Such an approach would reflect the growing convergence of gas markets around the world, for example through LNG. An example of such an approach is India where the domestic gas prices are tied to a combination of gas hubs through a complex formula. As India’s experience shows, such an approach would require significant efforts to align national and regional stakeholders and ensure common understanding of the indexation formula.
4. Establish a GCC gas hub price: As an ambitious, longer-term option, GCC countries could consider establishing a dedicated GCC gas hub. Establishing such a hub would require investment in physical infrastructure at the national and regional levels, the implementation of a trading platform to set a benchmark price, and the establishment of a supra-national regulatory system. A prerequisite for such a hub would be extensive linkage of regional supply and demand centers. Given its infrastructure connections to Abu Dhabi and Qatar, as well as its LNG import and gas storage facilities, Dubai could be an option for a future GCC gas hub, although export infrastructure is currently lacking. Making any change to the gas-pricing regime will require careful consideration to ensure a proper risk–reward balance. The first consideration is the extent to which this will indeed create more appetite for domestic gas upstream investments and the degree to which the new regime reflects the true value of gas in a particular market. Second is the magnitude of the “shock” that can be reasonably absorbed by the economy, taking into account the effectiveness of mitigation actions, and the cost and effort of establishing a more complex price-setting mechanism. Proactive communication will be required with all key stakeholders to assess preparedness and key risks.

Mitigation mechanisms
The impact of a new gas-pricing mechanism would require proactive and target-ed mitigation measures to ensure that the considerable benefits of low-cost gas to the broader economy are captured. Domestic gas production has allowed power generators to provide a regular and reliable source of power that enabled industry and services to flourish throughout the region, diversifying the economy and providing employment opportunities outside of the oil sector. Power generation now accounts for some 27 percent of domestic gas consumption in the GCC, with Bahrain, Qatar, and the United Arab Emirates almost exclusively dependent upon gas for their power generation. Similarly, the growth of gas production has allowed the establishment of large-scale gas-based industries across the region, with industry accounting for 55 percent of domestic gas consumption in the GCC. Based largely on gas, the petrochemicals industry accounted for $87 billion in sales revenues in 2014. The petrochemicals sector now employs over 150,000 people directly, and supports 460,000 jobs indirectly, providing an important source of local employment.

Impact on the power and LPG sector
An increase in gas prices would require electricity companies to raise electricity tariffs to cover fuel and operating costs and depreciation, and to provide returns on assets to fund expansion. Tariff increases are the best policy tool to curb the fast-growing domestic demand that most power companies are struggling to meet. Consequently, policymakers should introduce support programs, such as financial assistance to the poorest households that cannot afford a large price hike in their energy bills or the cost of LPG bottles. As an example, the Bolsa Familia program in Brazil uses a cash transfer directed to poorer families that is also conditional on sending children to schools and vaccinating them.

Impact on the industrial sector
A hike in GCC gas prices would curtail the profitability of industrial concerns and risk eroding their competitiveness in global markets. Mitigation mechanisms may include a “grace” period for price rises to allow industrial enterprises the time to adjust to the new cost structure. Another approach is targeted financial support

In Numbers
Power generation now accounts for some 27 percent of domestic gas consumption in the GCC, with Bahrain, Qatar, and the United Arab Emirates almost exclusively dependent upon gas for their power generation.
for industrial sub-sectors that provide high levels of employment or have a significant multiplier effect in the economy. Such support could include differentiated feedstock or energy prices, export subsidies, financing assistance, or land provisioning.

These industrial-sector mitigation measures must be carefully crafted, focused on energy-intensive industries, and backed by a strong business case. Examples of such measures include subsidized loans that help an industry adopt energy-efficient technologies, or new credit lines to help mitigate the impact of higher gas prices on industrial-sector cash flows. Governments also need a means of ensuring that “savings” created from reduced subsidies are channelled to where they are really needed, whether to industries or households. Several ministries, authorities, and other relevant governmental bodies (e.g., industrial zone authorities) can participate but only as part of a cohesive governmental policy. Households, for example, will most likely deal with a ministry of social affairs, or its equivalent, to receive cash transfers or similar support. Industries will need a one-stop-shop to guide them through the specific benefits they can receive. Many such entities already exist in the GCC. They can adapt and build on their current capabilities relatively easily to assist enterprises.

**The importance of a gas regulator for price reform**

Implementing gas price reform also requires an autonomous and empowered gas regulator to manage, monitor, and enforce the gas price mechanism. The regulator’s oversight should cover well head gas and all the costs associated with the processing and transportation of the gas to its final destination. In addition, the regulator should be able to set and control technical standards and guidelines pertaining to the gas industry, in a manner akin to what electricity regulators do for private investments in power generation. When it is not legally possible for joint ventures to explore and develop gas fields — as is the case in some GCC countries — the gas regulator should subject the NOCs or their affiliated companies to oversight.

George Sarraf, David Branson and Dr Ya-hya Anouti are Partner, Executive Director and Principal respectively with Strategy&, part of the PwC network, based in Dubai.

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**Gas is used widely for both power and industry**

*GCC Domestic Natural Gas Consumption, 2014*

![Gas consumption chart](image)

**GCC Total**

- Flaring, re-injection, infield fuel: 55%
- Power consumption: 18%
- Industry/other: 27%

*Sources: OPEC Statistical Bulletin 2016; Oman National Centre for Statistics; Arab Union of Electricity; BP Statistical Review of World Energy; Strategy&, analysis.*

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**Implementing gas price reform requires an autonomous and empowered gas regulator to manage, monitor, and enforce the gas price mechanism.**
International Oil Companies (IOCs) have long played a dominant role in the development of the region’s oil sector – and have always seen the Middle East’s vast reserves as the prized asset. Competition amongst them has always been fierce; but more recently, structural changes in the oil market, political uncertainty and the emergence of shale in North America is changing the way IOCs view the Middle East.
The Middle East has always been an important region for the IOCs, thanks to its vast and cheap-to-extract reserves. Companies like ExxonMobil, BP, Shell, and Total have competed in countries like the UAE, Iraq, and Iran. Their interest in the region has always been strong and their presence has spanned many decades. However, the scene has fundamentally changed over the last few years, prompting IOCs to rethink their strategy in the Middle East. US majors ExxonMobil and Chevron are focusing more on their investments in North America, where they see more value and quicker returns. BP has been selling off assets to settle the Deepwater Horizon oil spill claims, while Shell’s recent takeover of BG is making its Middle East position less clear. Only Total is showing clear commitment to expand its portfolio in the region.

Multiple factors and trends have led to such a rethink. Falling oil prices and capital discipline has impacted overall investment, and the emergence of US shale offering new opportunities in the unconventional sphere have upset the previous dynamics of supply and demand; meanwhile the unattractive fiscal terms on offer have caused some IOCs to reconsider their position in key producing countries. Furthermore, competition from Asian players for limited opportunities, the international sanctions on Iran that have forced many companies to leave the country and heightened geopolitical uncertainty have all contributed to the change of approach.

**Shell’s position in the Middle East remains unclear**

Shell’s recent $70bn takeover of BG has turned its attention to restructuring its business and focusing on existing assets. The company is sending mixed signals about its desired role in the region. It decided against renewing its stake in the ADCO concession, but refused to rule out a return. It also withdrew from the $10bn Bab sour gas field in the UAE. On the other hand, it is expressing interest in Iran and Shell is one of the 29 prequalified companies that will be allowed to bid for upstream contracts. It signed an MoU to study the South Azadegan and Yadavaran fields, in addition to the Kish gas field. Shell’s presence in Iran before sanctions will put it in a favorable position if it decides to bid for some of the fields.
IN OMAN, BP IS INVESTING HEAVILY IN THE KHAZZAN TIGHT GAS FIELD, WITH DEVELOPMENT COSTS OF AROUND $16BN. THE FIELD IS ONE OF THE REGION’S LARGEST UNCONVENTIONAL GAS FIELDS AND IS EXPECTED TO BEGIN PRODUCING BY THE END OF 2017 WITH A PRODUCTION TARGET OF 1BCF/D

The picture is different in Iraq, where Shell is looking to sell its stakes in Majnoon and West Qurna 1. The company has a 45% stake in Majnoon’s 220k b/d field and around 15% in the 450k b/d West Qurna 1. If this happens, the company’s main oil-producing asset will be Petroleum Development Oman, where it owns a 34% stake in the 600k b/d company. Shell’s desired departure from Iraq’s oil sector is a testament to the more challenging financial environment and the unattractive terms on offer, as IOCs effectively operate as contractors for the government and receive margins of under $2/b. However, Shell is heavily involved in the country’s gas sector and holds a 44% stake in the Basrah Gas Company. The 25-year joint venture commenced in 2013 with the aim of capturing the country’s flared associated gas.

BP recovering lost ground

Over the past six years, BP has focused on recovering from the Deepwater horizon spill in 2010. The company was forced to sell in excess of $40bn worth of assets to fund payouts. But after a difficult few years, BP is beginning to invest again. It recently acquired a 10% stake in the ADCO concession, having been part of the old concession that expired in 2014. The 1.66m b/d concession will run through 2054 and will also involve Adnoc (60%), Total (10%), Inpex (5%), and GS Energy (3%). Having been adamant that a $2.2bn signing fee is excessive, it structured the deal in a way that allows the company to raise capital by giving the Abu Dhabi government approximately 2% of its shares, with estimates suggesting that those shares are worth around $2.3bn. The deal reinforces BP’s commitment in the UAE, and more specifically, to low cost barrels. The company’s share of the ADCO concession is estimated to be 165k b/d in 2017 and will send the company’s Middle East output to around 400k b/d. Additionally, BP has around 96k b/d from its 14.67% share in the Adma concession where it intends to remain beyond the concession’s expiration in 2018.
But the recent increase in its oil output is mainly attributed to Iraq where BP receives its payments in oil. In Iraq, BP was the first major to return in 2009 when it was awarded a 25-year technical service contract for the large 1.35m b/d Rumaila field. BP (47.6%) partnered PetroChina (46.4%) and State Oil Marketing Organization (6%) for the project. In Oman, BP is investing heavily in the Khazzan tight gas field, with development costs of around $16bn. The field is one of the region's largest unconventional gas fields and is expected to begin producing by the end of 2017 with a production target of 1bcf/d. BP has decided to remain out of Iran for now, with political uncertainties cited as the main reason.

Total is arguably the IOC most committed to investing in the region. It was the first to sign up for the ADCO renewal in 2014, agreeing to pay a $2.2bn signing fee. It also recently replaced Maersk in the 300k b/d Al-Shaheen field in Qatar while in Iran, it is aggressively pushing for deals in the upstream sector. Total is now the second largest IOC in the region in terms of liquid output, recently overtaking Shell when the latter opted against renewing its stake in ADCO. Although production figures haven’t changed much recently, Total has been busy signing deals to boost future production. Unlike the other majors, Total is focusing more in the Middle East in pursuit of cheap barrels, which has long been the cornerstone of its strategy. Even though focusing on the Middle East exposes the company to geopolitical risk, Total believes that other reserve bases such as US shale pose a ‘market risk’.

The company’s involvement in ADCO has been significant since it signed up in 2014. This is mainly because it had to step in temporarily and operate some fields as asset leaders in the absence of other major IOCs in the concession. In Qatar, Total replaced Maersk in the 300k b/d offshore Al-Shaheen field. Although a more geographically challenging field, production costs are below $10/b. Total’s ambition to be the dominant IOC in the region is evident by its desire to play a significant role in Iran. Recently, it signed an HoA for the development of Phase 11 of the South Pars gas field, at an expected cost of $1bn. Total

In Numbers
Total is arguably the IOC most committed to investing in the region. It was the first to sign up for the ADCO renewal in 2014, agreeing to pay a $2.2bn signing fee. It also recently replaced Maersk in the 300k b/d Al-Shaheen field in Qatar while in Iran, it is aggressively pushing for deals in the upstream sector.
has experience in Iran and is familiar with the Qatari side of the field. It also signed an MoU with Shell and Petronas to study the South Azadegan field to boost oil recovery from 5.5% to 20%.

In Iraq, the challenging environment has kept the company’s presence small. Its involvement there is mostly limited to the Halfaya oil field, where it has a 22.5% stake in the consortium, averaging 18k b/d in 2015. Additionally, Total has some interest in several exploration blocks in Iraqi Kurdistan. While it wants to be more involved in Iraq, Total feels that it needs to seek better financial terms before it invests further in the country. In the rest of the region, the company saw some investments falter in recent years. Its assets in Syria and Yemen are non-operational due to the ongoing civil wars, with resumption unlikely to happen anytime soon. Despite this, Total’s appetite for the region seems to be growing.

An uncertain role for IOCs

While IOCs continue to play an important role in the Middle East, we observe several factors that are setting the scene and making them rethink their strategies in the region.

First, in an environment of declining capex, IOCs are increasingly focusing on low cost barrels. Total used the low price environment in the past two years to reduce its cost structure and secure deals and projects that produce low cost barrels. Total is pushing to become the dominant IOC player in the region despite the heightened geopolitical risk.

Second, some IOCs no longer see the Middle East as their preferred destination. ExxonMobil and Chevron are diminishing their roles in the region, and decided against participating in Iran. Both companies are focusing more on their US operations. According to Chevron's CFO, “the value of the Permian – its tremendous economic capability and its capital efficiency, its great flexibility, its short cycle/high return attributes ensure that other parts of the portfolio have to compete for capital against that.”

Chevron's main involvement in the Middle East remains the Saudi-Kuwaiti neutral zone - with no indication that it wants to expand its regional presence. Currently, Chevron’s regional production has fallen to zero as production from the Saudi-Kuwaiti neutral zone remains shut. Chevron initially wanted to play a role in expanding this capacity, but with increasing focus in the Permian, it is likely to rethink its strategy. ExxonMobil didn’t renew its stake in ADCO after the 75-year concession expired in 2014, and repeatedly said that it doesn’t want to go back. It does, however, continue to operate in the UAE with its 28% stake in 670k b/d Zadco.

Third, IOCs are still wary of entering Iran over fears of violating regulations and risking heavy fines. Iran has made some progress with international shipping and insurance companies; but US residual sanctions are still in place, limiting access to international banking services. Many firms had reservations prior to the elections and are now seeking clarity over the US administration’s ‘Iran policy’ before committing. Iran also runs the risk of having sanctions re-imposed under the ‘snap-back’ provisions in the event of non-compliance. Companies that were operational in Iran before sanctions like Total will be especially wary of this.

Finally, the type of contracts will be key in attracting IOCs. Some of the largest reserves in Saudi Arabia and Kuwait are not open to foreign players and IOCs like Shell, ExxonMobil, and Total have had their involvement limited to some technical service agreements, technical studies and R&D. The real potential remains in Iraq and Iran though the opportunities are limited. IOCs in Iraq are usually offered low margins, and essentially operate as contractors. This has been the main reason behind Total’s small presence in the country, while Shell is considering selling its stake in Majnoon and West Qurna 1. In Iran, the IPC has replaced the unpopular buy-back contracts but it remains unclear how attractive are the new terms on offer. 29 IOCs have prequalified for bidding later this year, of which 15 were Asian companies.

What are the implications? The most obvious lie in Asia: as it remains the Middle East’s top export destination, its players will likely want to fill the void left by some of the Western majors. Companies like CNPC are putting the Middle East – particularly Iraq and Iran – at the forefront of their global upstream strategy. This makes good sense, given that Asia is the main importer of the region’s oil. Middle Eastern governments will also be keen to build stronger ties with Asian countries, the main source of demand growth for their commodity.
Enhanced Oil Recovery: Cleaning up “Dirty” Oil

By Omar Mawji
A current example of the balance of profits and sustainable oil extraction is happening in southwest Oman’s Amal heavy oil field.
The Vilification of Oil
As a Canadian I have witnessed firsthand the vilification of Canada's oil sands. Canadians concerned with the effect oil sands have on the world likely led to a shift of Canada's federal and Alberta's provincial governments from ones that did not actively address climate change to ones that ran on a platform of reducing greenhouse gas (GHG) emissions. Canada’s oil sands focus primarily on oil production (excluding the Syncrude Canada upgrading project) and are responsible for less than 20% of GHG emission from the oil well to its use in cars (combustion). In fact, around the world, oil production accounts for less than 20% of GHG emission from well to combustion. Canada's oil is refined in the US Midwest and Gulf Coast and mainly consumed or exported as refined products by the US (70%-80% of GHG emissions). Canadian environmentalist groups targeting to reduce GHG emissions have targeted the supply of GHG emission in Alberta instead of demand in the US that is responsible for most of the GHG emissions from the oil well to combustion.

Is Vilifying Oil Good or Bad?
The vilification of oil production is not just localized to Canada's oil sands. California has pushed for a reduction of its GHG emissions and many environment groups in the US are concerned with hydraulic fracturing and natural gas flaring which disrupts the environment and releases GHG into the atmosphere. North America may be acting on certain GHG reducing policies, but the global oil sector has taken notice to this trend. The pressure put on oil companies to reduce GHG emissions have forced them to accelerate in improving their environmental footprint by innovating the way they produce oil. Innovations in oil extraction and production are capital intensive and take years to reach commercial potential. As years have passed we are starting to notice the fruits of their labor as oil companies are finding successful ways to balance profitability for shareholders and sustainability for the environment.

Harnessing the Sun to Produce Oil
A current example of the balance of profits and sustainable oil extraction is happening in southwest Oman's Amal heavy oil field. Oman oil production depends on enhanced oil recovery (EOR) techniques which extract additional oil from fields by injected gas, steam, and polymers into the ground and increasing the flow of oil. Around 22% of the 1 million barrels per day (b/d) of oil production in Oman uses EOR techniques. The Amal field is unique to Oman's EOR endeavors, as the Petroleum Development Oman (PDO) national oil company, a company that controls 70% of Oman's total production, has pursued the use of the sun as a way to extract oil. This technology, owned and operated by GlassPoint Solar, had been used in the U.S. as early as 2011. GlassPoint’s technology uses solar thermal mirrors to concentrate the sun’s rays to heat water and generate steam. Steam is an integral part of EOR as it is primarily pumped through an injector well, flooding the oil formation, heating the oil, reducing its viscosity, and pushing the oil towards an adjacent producer well. To create steam, oil companies use natural gas, liquefied natural gas (LNG), and/or diesel, as the fuel input to heat water and gener-
With a growing petrochemicals sector and an electricity sector that has more than doubled output from 11 billion kilowatt hours (kWh) in 2004 to 26 billion kWh in 2013, Oman is planning on diversifying its economy from exporting oil and natural gas. Oman’s petrochemicals and electricity sector will depend heavily on natural gas consumption to grow. With 22% of Oman’s 56% consumption of domestic natural gas, rising domestic natural gas demand, which has tripled from 2004–2014 to 721 bcf per year, has pushed Oman’s LNG company to announce that it will divert its LNG exports from foreign markets to domestic consumption by 2024.

With a growing petrochemicals sector and an electricity sector that has more than doubled output from 11 billion kilowatt hours (kWh) in 2004 to 26 billion kWh in 2013, Oman is planning on diversifying its economy from exporting oil and natural gas.
natural gas production coming from EOR operations, solar EOR could free and divert significant natural gas resources to other sectors of Oman’s economy – helping diversification within Oman.

**GlassPoint in Oman - From Pilot to Project**

In early 2013 GlassPoint began and continues to produce steam from a 7 Megawatt (MW) solar EOR project in the Amal field, over 20 times larger than its Kern County project. Testing in Oman validated GlassPoint’s technology as the company established a breakeven equivalent natural gas price of $4.95 per MMBTU; making solar a competitive alternative to traditional fuels.

As GlassPoint has successfully established its Amal pilot, GlassPoint is looking to lower costs and increase operational efficiency with its larger Miraah project at the Amal field. The Miraah project will be 100 times larger than GlassPoint’s Amal pilot with 1 Gigawatt (GW) of thermal energy expected to be built by 2017.

**GlassPoint in Oman - Opportunities and Issues**

The Amal field in Oman is an open area that receives a lot of sun from September through May. The open area in Oman allows for the new Miraah project to take up 741 acres of land (equivalent to over 360 football fields) with 36 glasshouses that provide 1 GW of thermal energy.

Even though Oman has vast open space and a hot climate, the Amal pilot project in 2013 ran into some external issues. For one, the GlassPoint Amal pilot was starting up at the same time as oil production and would often encounter problems with securing water supply and deploying steam in the field. At peak sunlight and no cloud cover, the Amal project could produce over 500 b/d of steam but averaged 315 b/d of steam since operation in 2013. The heavy cloud cover in the summer months from the Khareef monsoon that passes into southern Oman meant peak daylight in Oman is hidden behind heavy cloud cover and reduces sun exposure to solar thermal mirrors.

The high cloud cover, sand storms, and constant dust fall in Oman reduces the amount of sun absorbed by GlassPoint’s solar mirrors. A 3% reduction in solar energy output occurs every day if GlassPoint’s glasshouses are not cleaned from dust fall; therefore, its automated cleaning system allows for efficient cleaning and optimized sun absorption by solar mirrors. By understanding Oman’s weather patterns, another potential solar EOR project for GlassPoint enclosed technology has been identified in the less cloud cover, but windy and sand storm ridden heavy oil fields in North and West Kuwait.

Kuwait, a net importer of natural gas, will rely on EOR oil production to maintain 500,000 b/d of oil in western Kuwait, but the country hopes to reduce its dependence on importing LNG for EOR operations. Kuwait currently imports LNG cargos at $9 per MMBTU and the country will need more natural gas for the expansion and diversification of Kuwait’s petrochemicals, electricity, and water desalination industries.

The future of solar EOR is still in its early phase to the markets of the Middle East, but the unique natural gas market, vast land, and constant sunlight provides a great foundation for solar thermal EOR to flourish and establish sustainable future oil production. Oil companies and countries are constantly looking to reduce dependence on non-renewable inputs. While companies in the Middle East attempt to replace natural gas,
LNG, and diesel with solar, another scarce and vital resource will need to be addressed with growing EOR operations: water.

**Heating Oil: Riding the Radio Wave**

Back in Canada’s oil sands, companies in Alberta share similar concerns with the Middle East over water usage. The two main forms of oil sands extraction is surface mining and underground in-situ EOR-like extraction – each form requires large quantities of water. According to the Canadian Association of Petroleum Producers (CAPP), mining oil requires an average of 3 barrels of water per barrel of oil extracted and in-situ operations requires an average of 0.4 barrels of water per barrel of oil. Concerns over water usage in Canada’s oil sands has forced more oil production to be extracted through in-situ processes that use less water and have a smaller land surface footprint.

While many of Canada’s new oil sands projects coming online are in-situ projects, water has still become a concern for conservation for companies who need to secure future water supplies. Many major oil companies control the largest in-situ projects in Canada’s oil sands and the leader of Canada’s oil sands, Suncor Energy (SU), is attempting to change its reliance on water.

Suncor has established the second phase of its Enhanced Solvent Extraction Incorporating Electromagnetic Heating (ESEIEH) pilot at Suncor’s Dover site in the first half of 2015. The ESEIEH pilot is a joint project between Suncor, Nexen Energy, Devon Energy (DVN), Harris Corporation (HRS), and Alberta Climate Change and Emissions Management Corporation (CCEMC).

The ESEIEH project uses two horizontal well pairings with Harris Corporation’s patented heat wave antenna inserted into the upper injector well and transmits low frequency energy to heat bitumen. Solvent (butane and propane) is heated and vaporized at 70 °C, requiring much less energy than to heat water at 200 °C to turn to steam. The vaporized solvent passes through the horizontal injector well, liquefies, diffuses into the bitumen, decreases its viscosity, and allows the oil to pump back up the lower horizontal production well. The ESEIEH technology is expected to reduce energy usage by 75% and land usage by 30% from traditional steam EOR and would eliminate Suncor’s need for water, water treatment, and water handling infrastructure. If the project is deemed commercially viable after its second phase in the first half of 2017, the next phase will lead towards a commercial ESEIEH project. This technology has much needed potential in the Middle East with rising dependence on EOR oil production and an isolation from water needed to produce steam for thermal oil recovery.

**Vilifying Oil is Good for Business**

The vilification of oil is bad for perception but good for business for the largest oil companies. Oil companies would enjoy the sustainable opportunity to sell a finite resource like oil using an infinite renewable source of energy. The incorporation of renewable energy and alternative innovative methods of oil extraction is pushing oil production in the right direction – a push that has been accelerated by environmental interests. Solar thermal EOR and the use of radio waves to heat oil is just the beginning of a changing oil industry with a focus on sustainable oil production and enhanced oil recovery.
Rising carbon emissions in the GCC

GCC countries need to adopt a structured technology adoption framework to overcome current challenges facing their transportation systems, according to a recent study by management consultancy Strategy& (formerly Booz & Company).

The GCC transportation system is currently facing three main challenges: 1) As oil prices continue to decline, GCC governments are cutting investments and can no longer justify spending freely on transportation infrastructure projects, 2) the region suffers from significantly higher rates of death from road accidents than international benchmark leading to economic losses equivalent to 2.5 percent to 4.5 percent of the GDP among GCC states including non-fatalities, and 3) transportation carries steep environmental costs with emissions levels far higher than the world average of 1.03 tons of carbon dioxide per capita (5.59 in Qatar, 4.12 in KSA, 3.58 in Kuwait, 3.49 in the UAE, 3.16 in Oman and 2.44 in Bahrain).

Commenting on these challenges, Dr. Ulrich Kögler, Partner at Strategy& in Dubai, said: “Innovative new technologies including autonomous vehicles, electric cars, drones and traffic management systems develop at unprecedented speed and are already allowing for the possibility of a smarter, safer, less expensive and more accessible transportation system coveted by governments around the world. As the GCC population grows and urbanization continues, governments have little choice but to upgrade their transportation systems. The wealth of existing and emerging new technologies can significantly help facilitate this process. Dubai is already taking measures to adopt more technologies into its transportation infrastructure, having recently announced plans to convert 25% of the emirate’s total number of passenger trips to autonomous by 2030.”

According to Strategy&, capitalizing on these technologies requires a four-part framework:
1) Regulate: GCC governments need to build the correct regulatory foundation by reviewing their current operating model and setting clear policy objectives and priorities to promote and rapidly deploy these new technologies.

2) Pilot: Evaluate the potential benefits by conducting pilot programs to test new technologies, potentially in conjunction with private-sector partners. For example, Dubai’s Road and Transport Authority recently partnered with Emaar properties to conduct trial runs of a 10-seat autonomous shuttle on a 700-meter track along Mohammed bin Rashid Boulevard. Another potential candidate for a pilot program is natural gas. The GCC is a major producer and when compared with standard fuel oil, LNG can reduce the greenhouse-gas emissions of ships by 20% and reduce other certain emissions by 85% to 100%

3) Build: Put the underlying infrastructure in place, including physical infrastructure (such as roads that can support autonomous vehicles, charging stations for electric cars, and facilities for greener maritime fuels) along with an IT backbone capable of handling the increased flow of information, and analytics tools to derive insights from the data.

4) Incentivize: Use incentives to encourage both customers and service providers to adopt these technologies. In the realm of commercial logistics, GCC countries are investing to become major logistics hubs. Yet to be globally competitive, they need to become more efficient and cost-effective for traders. Stressing the importance of embracing more technologies, Fadi Majdalani, Partner at Strategy& in Beirut said:

“It is important that governments stay flexible when adopting such a framework as it is almost impossible for governments to predict how well specific technologies will do. Governments should encourage experimentation by staying on top of developments in other markets, taking the best of what works elsewhere, and applying it to the unique needs of their markets. For example, Qatar’s Ministry of Transport and Communications recently signed an MoU with Qatar Postal Services Company (QPost) to develop an innovative pilot project for autonomous drone delivery services.”

Another key area that technology enabled transportation systems will support towards is substantially reducing the environmental costs and car emissions. In a bid to reduce car emissions, automobile manufacturers are making huge strides in electric powertrains; such cars could comprise 25% to 50% of the overall market by 2040, according to Bloomberg. GCC governments should prepare the ground for the wide adoption of electric cars, incentivize their use, and potentially even build a local industry around electric vehicles. Commenting on the importance of adopting such a framework, Camil Tahan, Principal with Strategy& said: “Technology offers GCC governments a means to not only address some of the most pressing fiscal, safety, environmental and accessibility challenges they face, but also build a state of the art transportation and logistics sector that can propel regional economies into the future and create significant employment opportunities.”

Facts:

- GCC suffers from emissions levels higher than the world average of 1.03 tons of carbon dioxide per capita, with the UAE coming in at 3.49
- GCC citizens continue to prefer large SUVs and luxury cars, which generate more emissions than other vehicles. SUV sales in the GCC in 2015 totaled 9.3 for every 1,000 residents, compared to 3.0 for the rest of the world
Energy is vital to modern societies. Without energy, we would not be able to power our home appliances, travel from one country to another or communicate the way we do in modern times. More importantly, energy is vital for the socioeconomic development of any country. From 2006 until 2015, the world's primary energy consumption has grown by almost 17% (BP statistical review of world Energy, 2016). The demand for energy will only increase further as the planet's population is expected to reach 9 billion people by 2040.

In today's energy hungry societies, energy can be obtained from two sources, renewable energy sources (RES) and non-renewable energy sources (NRES). In 2015, almost 90% of the planet's energy needs were satisfied by NRES, such as fossil fuels and nuclear energy (BP statistical review of world Energy, 2016). However, it is widely believed that RES will contribute significantly to the global energy demand in the near future, as governments around the world put in place policies and mandates to increase the usage of RES. In 2015, RES contributed almost 25% in global electricity production and this number is expected to significantly increase in the near future.

In addition to helping in reducing environmental pollution and providing an alternative source of fuels, RES have the added advantage of being readily renewed in a short time period and are not completely exhausted (hence the name renewable). RES can be broadly grouped into two categories: combustible and non-combustible. Wind, solar, geothermal and hydropower are considered non-combustible RES. On the other hand, biofuels derived from biomass (e.g. ethanol, bu-

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Biofuels: The Oman Connection

Dr. Mohab Ali Al-Hinai and his research team at Sultan Qaboos University (SQU) are investigating the production of biofuels from various organisms isolated from Omani ecosystems.

By Dr. Mohab Ali Al-Hinai
tanol and biodiesel) are considered combus-
tible RES, which are suitable for usage in modern day internal combustion engines that are widely used in various transportation methods – over land, air and sea. While non-combustible RES are currently used in the generation of electricity, it is alleged that they will not be the answer for the transportation sector. Biofuels are liquid fuels derived from living matter such as plants, microorganisms, animals and wastes. Depending on the source of the substrate used, biofuels have been traditionally characterized as first, second or third generation biofuels. First generation biofuels are those obtained from edible crops such as corn and sugarcane. Second generation biofuels are those produced from non-edible lignocellulosic portions of the plant (e.g. straw, forest residues) or municipal waste. Third generation biofuels are those produced from algal biomass. The major types of biofuels used nowadays are bio-alcohols (e.g. ethanol and butanol) and biodiesel.

Globally, many countries around the world have put in place mandates and incentives to encourage the fast adoption of RES. The European Union has mandated a 10% renewable content in the entire transport sector by 2020. Additionally, the United States of America has increased its lignocellulosic biofuel production targets in 2017 by 35% from the previous year. Sure enough, as these policies and mandates came into effect, the global biofuels production has in-

**Figure 1: Global Primary Energy Consumption 2006-2015.**

![Graph showing global primary energy consumption from 2006 to 2015](image)

**Figure 2: Share of renewables in global electricity production**

![Graph showing share of renewables in global electricity production](image)

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**Guest writer**

Mohab Ali Al-Hinai is currently an Assistant Professor at the Department of Biology, College of Science, Sultan Qaboos University (SQU). Dr. Al-Hinai earned his master’s degree in Biotechnology from Northwestern University (USA) before earning is Ph.D. from the University of Delaware (USA) where his research focused on the production of biofuels from microorganisms. In 2014, he and his research group at the University of Delaware were granted a patent that describes the use of genetically engineered Clostridia that utilize CO and CO2 to produce a variety of chemicals including biofuels. In addition to his academic credentials, Dr. Al-Hinai has studied a number of topics in the field of financial planning and analysis from the University of California, Berkeley (USA). He has also served as a technical advisor to an Omani sovereign investment fund to assess the feasibility of an international company’s proposal for a major project dealing with renewable energy. Currently, Dr. Al-Hinai and his research team at SQU are investigating the production of biofuels from various organisms isolated from Omani ecosystems. He has published numerous articles in several prestigious scientific journals. Dr. Al-Hinai has also organized a number of workshops on biofuels and renewable energy in collaboration with the independent learning center at SQU.

To date, the majority of liquid biofuels commercially produced depend on the process of photosynthesis, i.e. converting solar energy into chemical energy in the form of reduced carbon. However, this process is inherently inefficient with less than 1% of the captured energy converted to liquid fuels. Nonetheless, photosynthesis is only one process that enables the conversion of solar energy to chemical energy. For example, some microorganisms (called chemolithoautotrophs) are able to use chemical energy from inorganic substrates (e.g. H2) to reduce carbon. One important Class of microorganisms that are able to carry out this process is Clostridia. Following the conclusion of World War I, the acetone-butanol-ethanol (ABE) fermentation was widely used for the production of these commercially valuable solvents. However, this process was rendered obsolete following the development of the petrochemical industry in the 1950s, from which these valuable solvents were more feasibly produced.

However, there has been rekindled interest in this process due to the prolific ability of this Class of bacteria to produce biofuels. However, one of the major obstacles facing scientists working with Clostridia is the lack of efficient genetic tools that enable the swift and efficient engineering of Clostridia to increase biofuels production. Fortunately, our research group at the University of Delaware was able to invent and describe a novel tool that enables recombinant Clostridia that fix CO2 and CO for which a patent was awarded in June 2014 (patent number US8759070). Thus, this invention describes a genetic engineering method that enables this class of bacteria to fix inorganic carbon (e.g. CO2 and CO) into an organic matter and simultaneously convert it to biofuels by using H2 as an energy source. In essence, environmental and energy problems could be addressed simultaneously by reducing the amount of CO2 and CO, two notoriously harmful gases, in the atmosphere and converting them to renewable biofuels.

In conclusion, biofuels are becoming an important component of the global liquid fuels market and their importance and usage is forecasted to grow for both economic and environmental reasons.

PHOTOSYNTHESIS IS ONLY ONE PROCESS THAT ENABLES THE CONVERSION OF SOLAR ENERGY TO CHEMICAL ENERGY. FOR EXAMPLE, SOME MICROGRAMS (CALLED CHEMOLITHOAUTOTROPHS) ARE ABLE TO USE CHEMICAL ENERGY FROM INORGANIC SUBSTRATES (E.G. H2) TO REDUCE CARBON. ONE IMPORTANT CLASS OF MICROORGANISMS THAT ARE ABLE TO CARRY OUT THIS PROCESS IS CLOSTRIDIA
It has been raining MoUs and partnership agreements at OPAL’s Al Khuwair head office over the past several months as the Society steps up the pace of efforts to introduce and embed quality standards and best practice in the oil and gas industry. Nearly a dozen pacts were initialed in the last quarter of 2016 and the early part of 2017 – evidence of OPAL’s energetic agenda to underpin the growth of a professional and standards-driven industry. Signatories included prominent training services providers, international accreditation agencies and professional standards institutions as the Society enlists a diverse array of local and international players in its drive to enhance standards in this critical sector of the national economy.

2016 has indeed been a frenetically busy year for OPAL CEO Musallam Al Mandhri and the Society’s executive leadership, not least because of the pivotal role it played, jointly with the Ministry of Oil & Gas and industry stakeholders, in mitigating the impacts of the low price environment.

It was also a year punctuated by the launch of a plethora of far-reaching initiatives centring on, among other themes, vocational training standards, national occupational standards, harmonized road safety norms, and so on – schemes that promise to dramatically safety, quality and professionalism across the industry.

Consolidation phase

However, shifting gears from the dizzy pace of initiatives rolled out over the past two years, OPAL is now entering a phase of consolidation to allow for all of these landmark programmes to kick in and deliver their intended results, says Mr. Al Mandhri

“What we did over the past two years of our tenure at the helm of OPAL was to basically set in place the foundation for professional and qualitative human capital development within the oil and gas industry. Our signature initiative is the National Occupational Standards which we have established on a provisional basis in partnership with the Ministry of Manpower.”

The scheme promises to be transformational for the nation’s vocational training industry, elements of which have been tarnished by claims
that training curricula and teaching faculties are below par. Many companies have also bemoaned the caliber of graduates being churned out by vocational training institutes – shortcomings that will be addressed by the new National Vocational Qualifications, says Mr. Al Mandhri.

“We are on the threshold of a major accomplishment in the development of standards in vocational training in Oman,” said the CEO. “The programme is being piloted by the Manpower Ministry’s Vocational Training Institute in Al Seeb, where the curriculum, teaching staff and training methodology will be evaluated and accredited to deliver the minimum standards required by the oil and gas industry in Oman.”

Market ready talent

The 3-year, quality driven programme offers 18 – 24 months of initial classroom based training, with students spending the remainder of their programme learning on the job on the shop floor in various industrial outfits in the country. Thus, at the end of their programmes, the graduates will not only earn for themselves internationally accredited NVQ Level-3 qualifications, but also acquire the necessary skill-sets to hit the ground running when they join an employer eventually, said Mr. Al Mandhri.

“This represents the culmination of a journey that began a couple of years ago with OPAL engaging with the Ministry of Manpower, the operators and contractors, and other stakeholders, in embedding standards that will help deliver a higher grade of Omani workers for the oil and gas industry. The goal is to reduce ‘time to autonomy’ and to create market-ready local talent.”

The standards will be progressively rolled out to cover all of the vocational training institutes and service providers in the country, helping deliver young Omani technicians trained and certified against a common set of criteria. Already, standards have been formulated for trades that fall in the category of ‘Lifting Operations’ (such as crane operators, forklift operators, riggers, and so on), as well as Welding & Fabrication, and HSE. Similar standards are also being drafted for the Electrical, Mechanical and Instrumentation trades for completion before the end of 2017.

To assist in the evaluation and accreditation of training institutes in line with the new standards, OPAL has tapped a number of leading international institutions to support this effort. Notable are EAL, the UK’s leading industry specialist awarding organization; and SEMTA - an employer-led UK education and skills organisation which specialises in meeting the unique needs of the advanced manufacturing and engineering sector and associated industries.

Core standards

Another highpoint of the past year, with equally game-changing potential, is the finalization and approval of HSE standards pertaining to Road Safety, and Heat Stress Management in addition to Camp Standards.

Of particular satisfaction for the CEO is OPAL’s success in drafting guidelines for safeguarding oilfield workers from heat exhaustion and other perils associated with exposure to high ambient mid-afternoon temperatures.

Also laudable are the new, harmonized road safety standards which the operators will formally adopt at the Annual General Meeting of OPAL on March 29, 2017. The landmark initiative, first mooted by the Ministry of Oil & Gas, will supplant the multiplicity of standards adopted by individual operators with a common set of road safety, defensive driving skills, vehicle integrity, and related norms. Workshops are planned over the course of the coming
weeks and months to help the operators get acquainted with the streamlined standards.

“This is a landmark development for operators, and the industry as a whole,” said the CEO. “Instead of vehicles requiring a multiplicity of permits from individual operators, OPAL is now stepping in with a permitting system, that is not only acceptable to all the operators, but will be standards-driven as well. The new system will go live by September 1st, 2017.”

All of these achievements, Mr. Al Mandhri points out, stem from OPAL’s mandate agreed with members to deliver on the aforementioned initiatives over the 2016-2017 timeframe. Going forward, OPAL’s executive leadership aims to not only build on these accomplishments as part of its new mandate for the 2018-2019 period, but also pursue new goals of relevance to the oil and gas sector.

**Stepped-up localisation**

The CEO foresees a prominent role for OPAL in the development and implementation of a ramped-up Omanisation programme for the oil and gas industry in line with the Manpower Ministry’s localization strategy.

“As the principal umbrella body for the oil and gas sector, OPAL will be expected to do more to get our members – contractors in particular – to deliver on the Omanisation and manpower development obligations. A new set of localization criteria, applicable to the operators, has been formulated and approved by the Oil & Gas Omanisation Committee. We are now working on a parallel set of criteria for the rest of the industry.”

OPAL also sees a continuing role for itself as an intermediary in the Ministry’s effort to secure the redeployment of Omani oilfield workers made redundant as a result of the oil price downturn. More than 3,850 national workers have been successfully redeployed within the labour market since the crisis erupted in 2015. Around 450 newly laid off workers are in the pipeline for redeployment.!
OPAL Best Practice Awards
RECOGNISE INDUSTRY EXCELLENCE
The Oman Society for Petroleum Services (OPAL) hosted the 2016 edition of its Best Practice Awards at the Crowne Plaza Muscat on 7th December 2016 – an eagerly-anticipated annual event that recognizes innovation, excellence and best practice standards centring around areas of critical importance to the industry.
HE Salim bin Nasser al Aufi, Under-Secretary of the Ministry of Oil & Gas, was the Guest of Honour at the Best Practice Awards event at the Crowne Plaza Muscat on 7th December 2016 hosted by Opal. The event attracted a large number of CEOs and high-level executives from across the Sultanates’ energy sector.

Competing for top honours this year were companies showcasing initiatives exemplifying best practice in four key categories: Human Capital Development, Technical and Operational Excellence, Health, Safety and Environment, and Small Business Development. Each of the contestants took turns to make a short presentation outlining the novel features of their initiatives while a panel of judges weighed each of the entries against an agreed set of evaluation criteria.

Adjudged the best in their respective categories were: (i) Petroleum Development Oman’s (PDO) National Objectives Training Programme (Human Capital Development); PDO’s Fracc & Mill innovation concept (Technical and Operational Excellence); (iii) Baker Hughes’ Localised culture-based driver training project (HSE); and (iv) Oxy Oman’s SME Development Programme (Small Business Development).

Congratulating the winners on their success, OPAL Chief Executive Officer Musallam al Mandhry thanked the participating companies for their enthusiasm and commended them on the high quality of their entries.

Entries that made the cut:

Category I:
Human Capital Development
Winner: ‘National Objectives Training Programme’ – Petroleum Development Oman (PDO)
PDO’s National Objectives Programme was launched in 2011 in response to His Majesty the Sultan’s call to increase recruitment of skilled Omani in the private sector. The programme aims to develop and upskill young Omani job-seekers so they can take up guaranteed employment with PDO contractors in technical disciplines such as welding, mechanics, drilling, instrumentation, carpentry, scaffolding and electronics. As a result, more than 20,000 jobs, training and redeployment opportunities have been delivered in five years.

National Objectives courses take place at both training institutes and on-the-job, offering a mixture of foundation classroom learning and practical experience. The successful completion of the internationally accredited vocational courses will lead to guaranteed full-time positions with the PDO contractors.

Category II:
Technical and Operational Excellence
The new concept accelerates well delivery by 110 days yielding 0.3 million cubic metres/day (MMm3/day) per well from the SR Cluster. Annual savings average $5 million for the SR Cluster per set of 10 wells per year, which additional savings coming from flaring
Adjudged the best in their respective categories were: (i) Petroleum Development Oman’s (PDO) National Objectives Training Programme (Human Capital Development); PDO’s Fracc & Mill innovation concept (Technical and Operational Excellence); (iii) Baker Hughes’ Localised culture-based driver training project (HSE); and (iv) Oxy Oman’s SME Development Programme (Small Business Development).
OPAL

reduction of around $2 million for set of 10 wells per year. Flaring reduction of more than 50 per cent helps save around 7.2 million cubic metres of gas and 6,600 barrels of condensate for each set of 10 wells per year. The new concept utilizes available conventional resources while minimizing well interventions, thereby creating additional cash value of $23.2 million per 10 wells per year to shareholders. The concept can be applied in other gas or oil fields in Oman or internationally in both vertical or horizontal wells, particularly in highly depleted wells. A first of its kind in PDO, the concept showcases technical knowhow in handling operational and subsequent well completion delays, ensuring accelerated well delivery ahead of time.

Category III:
Health, Safety & Environment
Winner: Human Capital Development Practices – Baker Hughes

Baker Hughes completed a thorough driving training programme revision which was supplemented with video driving materials shot in Oman picturing local driving practices, peculiarities and hazards. This training put more emphasis on practical skills development behind the wheel other than the classroom theory part (where the instructor demonstrates and the students learns and repeats).

This new defensive driving programme, translated into Arabic, is available online or as DVDs for both employees and their families free of charge. This practice avoids potential misinterpretation of what defensive driving is, significantly improves the quality of driver training and as a result, reduces the number of motor vehicle accidents from 7 in 2014 to 2 in 2015 in the MEAP region. Since the introduction of the new training package, motor vehicle accidents within the company’s Oman operations have been nil. It has also enabled the promotion of defensive driving skills outside of the workplace with family members of employees embracing this programme, thereby contributing to enhanced road safety in the GCC.

Category IV:
Small Business Development
Winner: SME Development Programme – Occidental of Oman

Oxy Oman has established its own SME Development Programme to promote sustainable development in the Sultanate of Oman. This initiative is in line with the government’s objectives associated with SME development. The programme provides non-financial support to SMEs to achieve sustainable growth, sustainable development and capacity building of Omani SMEs that demonstrate high potential for maximizing In-Country Value (ICV) and Omani job creation.

Accordingly, Phase 1 of the programme was signed by the end of 2013 with three selected SMEs in the field of directional drilling, petroleum engineering consultancy and handicrafts. Phase 2 was signed in 2014 with two selected SMEs in the field of drill-bit solutions and equipment lifting inspections. Phase 3 was signed in 2015 with two selected SMEs in the field of manufacturing of flanges and tank maintenance.

Congratulating the winners on their success, OPAL Chief Executive Officer Musallam al Mandhry thanked the participating companies for their enthusiasm and commended them on the high quality of their entries.
OPAL is proud to introduce NEW Books of Standards!

RESERVE YOUR COPY
opal@opaloman.org
OPAL SUPPORTS LEADERSHIP TRAINING OF MID-MANAGEMENT LOCAL TALENT

Oman Society of Petroleum Services (OPAL) has agreed to partner with INSEAD, the world's leading graduate business school, to develop and support leadership program of mid & senior-management Omani oil and gas executives in skills.

As a first step in this endeavour, both sides signed a Memorandum of Understanding (MoU) setting out the broad outlines of a partnership arrangement to help advance this goal. Signing on behalf of OPAL was Mr. Musallam Al Mandhri, CEO, while INSEAD was represented by Mr. Bachar Tabbara, Senior Director – Executive Education.

The MoU signing, which took place at the Grand Hyatt Muscat, was attended by members of the Board of Directors of OPAL. Also present was His Excellency Mohammed Al Busaidi, Majlis Ash'shura Representative and Head of the Tanfeedh initiative on Omani Leadership Development. Taking a lead role in the conceptualization of this initiative was Mr. Abdullah Al Sinani, OPAL HR Executive Manager, who helped rope in INSEAD as a key partner in this training venture.

Pact to enhance professional skills of Omani engineers

Oman Society for Petroleum Services (OPAL) has roped in the prestigious London-based Institution of Mechanical Engineers (iMechE) to help develop the technical competencies of Omani engineers whose professional development is critical to the continuing success of the nation's oil and gas industry.

A Memorandum of Understanding (MoU) to this effect was signed on OPAL’s behalf by Mr. Majid Al Toky, Chairman of the Board of Directors. The Institution of Mechanical Engineers was represented by its Chief Executive Mr. Stephen Tetlow.

Also present at the signing, which took place at the British Embassy, were Mr. Jonathan Wilks, British Ambassador to the Sultanate, and a number of dignitaries representing oil and gas companies and training institutes.

The MoU enshrines a commitment by iMechE, one of the world’s foremost professional engineering institutions, to support the local professional development of graduate Omani engineers with the aim of guiding them towards iMechE member status at Chartered (CEng), Incorporated (IEng) or Engineering Technician (EngTech) levels. Semta International, EAL and iMechE are working collaboratively to assist the Sultanate in developing frameworks that support the sustainable outflow of suitably trained and qualified Omani engineers and technicians from universities, colleges and vocational training institutes into the labour market.

EMPLOYABILITY ENHANCEMENT TRAINING FOR OMANI ENGINEERS

Oman Society for Petroleum Services (OPAL) and TRACEZ Training Services Oman have signed an MoU to deliver the Employability Enhancement Programme (EEP), an internationally accredited training programme for newly graduated engineers in Oman.

The EEP, designed and developed by TRACEZ and OPAL, will enhance the employability of engineers and help them find employment with various establishments in Oman. EEP is an exclusive programme for engineers that helps bridge the knowledge and skill gaps of engineering graduates in line with employer expectations. EEP transforms an engineering degree holder to a real engineer who can deliver more at work.

Mr. Musallam al Mandhari, CEO of OPAL, commented: “We are delighted to work with TRACEZ in rolling out this far-reaching initiative to help our Omani engineering and technical professionals close any skills gap necessary for their employers to perform at the top of their game. This is in line with OPAL’s mandate to support and enhance the professional development of Omansis across all manner of technical disciplines.”

The duration of the EEP is three months, which includes two months’ classroom study and one month field-based training. Advanced engineering modules delivered as part of EEP are tailored to the candidate’s engineering discipline and completely focus on the practical applications of engineering. EEP also provides opportunities for young engineers to interact and learn from highly experienced professionals from various industries and disciplines.
Oman Society of Petroleum Services (OPAL), the umbrella organization representing the Sultanate's oil and gas industry, has signed agreements with two leading training services providers for the training to qualify number of young Omanis as Maintenance Mechanics, Machine Operators and Commercial Promoters.

In all, 100 Omani jobseekers selected by OPAL in coordination with the Ministry of Manpower and the National Objective Programme funded by Petroleum Development Oman (PDO) will benefit from these training initiatives. Upon the successful conclusion of their training, the recruits will be eligible for full-time employment in several firms under an arrangement reached by OPAL with its members to help absorb local talent in the industry.

In the first of two contracts inked at OPAL's Al Khuwair head office last week, well-known training services provider MHD Training Institute LLC has undertaken to train and qualify 45 Omanis as Maintenance Mechanics and Machine Operators. Mr. Musallam al Mandhari, CEO, inked the agreement on behalf of OPAL, while Polyglot Institute was represented by Mr. Al Qassim Al Harthy, CEO.

Oman Society for Petroleum Services (OPAL) has joined hands with Petroleum Development Oman (PDO) to support the training of 100 young Omanis in preparation for careers across a number of technical and non-technical disciplines.

To this end, a Memorandum of Understanding (MoU) setting out the terms of a collaborative arrangement was signed by the two organizations late last December. PDO was represented at the MoU signing by Mr. Abdul-Amir al Ajmi, External Affairs and Value Creation Director. Mr. Musallam al Mandhari, Chief Executive Officer, signed on behalf of OPAL. The initiative stems from PDO’s pledge to support the creation of 50,000 jobs in response to His Majesty the Sultan’s Royal directives, and as part of its longstanding efforts to develop the vocational qualifications of young Omanis on a par with internationally recognized standards. Under the MoU, PDO fund the training of 100 Omanis who are registered as job-seekers in technical trades such as welding, electrical, mechanical, pipe-fitters, carpentry, and machine operators, among other technical or non-technical disciplines/skills that are identified from time to time. Also offered as part of this initiative are managerial skills in line with NVQ level international certifications or equivalent, delivered through a six to 12-month training programme. The programme will include a foundation period imparting soft skills, such as English language, Work Ethics, Health and Safety, and IT. For its part, OPAL has pledged to interact with prospective employers within and outside the oil and gas sector to help secure suitable placements for these recruits in line with procedures and guidelines mandated by the Ministry of Manpower, amongst other government agencies.

Oman Society for Petroleum Services (OPAL) and the International College of Engineering and Management (ICEM), a Muscat-based higher learning institution, have agreed to work together to help develop the skill-sets of Omanis through vocational training and advisory services support. A Memorandum of Understanding (MoU) was formalised to this end at a ceremony held at the Public Authority for Civil Aviation (PACA) around mid-January 2017. Mr. Musallam Al Mandhri, CEO – OPAL, and Mr. Affan Al Akhzami, Managing Director & Chief Executive – ICEM, signed the document on behalf of their respective organizations. In particular, the MoU will support the training of young Omanis as firefighters at ICEM’s facilities with funding support secured by OPAL. Candidates for firefighter training will receive a minimum of six months training leading to accredited qualifications. The pact was the latest in a succession of agreements inked by OPAL with local and international institutions in recent months with the aim of advancing, among other objectives, the technical and vocational training development of young Omanis, introducing standards in academic curricula and training methodologies, and benchmarking locally issued certifications against internationally approved qualifications. Both sides have also agreed to join forces in exploring mutually beneficial opportunities that would leverage, on the one hand, the higher learning and vocational training capabilities of ICEM, and on the other, OPAL’s expertise in the field of advisory services.

SKILLING OF OMANIS AS FIREFIGHTERS

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QUALIFYING 100 OMANIS FOR JOBS

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In the second contract, concluded with prominent training facility Polyglot Institute, 55 young females Omanis will be suitably trained and qualified to serve as Commercial Promoters. Mr. Musallam al Mandhari, CEO, inked the agreement on behalf of OPAL, while Polyglot Institute was represented by Mr. Al Qassim Al Harthy, CEO.
Postgraduate education UNDERPINS Oman’s R&D ecosystem

Education is the foundation of civilization; it is what enables communities, companies and countries to excel and push the boundaries of knowledge. A well-educated and committed population is integral to a successful economy, especially as a national vision evolves.
A post-graduate community of Masters and PhD students are supporting Oman’s transition from being a hydrocarbon-based economy for nearly half a century – oil was first exported in 1967 – to a knowledge-based economy with a rich research and development (R&D) ecosystem, as per the National Vision 2020.

Muscat’s plans for economic diversification into sectors such as manufacturing, mining, transport and tourism do not dampen the need for an innovative and cost-efficient energy sector, as oil and gas currently accounted for nearly 80% of government revenues last year. It is more important than ever to recognize and support the country’s brightest minds.

Herein lies the value of the inaugural OXY Oman Student Awards for the Advancement of Post-Graduate Education, which was hosted by Sultan Qaboos University (SQU) in Muscat on the 18th October 2016. The Awards aim to enhance the prestige and attitudes toward research-focused education by providing an environment in which the most skilled and ambitious students can put their best foot forward and gain recognition from the industry, academia and government for their contribution to Oman’s future.

The Winners of the 2016 Awards were chosen by esteemed members of the Selection Review Committee, who have international standing in the energy markets including Dr. Rahma Al-Mahrouqi, Deputy Vice-Chancellor of Postgraduate Studies and Research at SQU, Dr. Khalil Al Riyami, Vice President of Exploration at Occidental Oman and Professor Dr. Michael Georg Modigell, Rector, German University of Technology in Oman. The Award Winners will become positive role models for the Advancement of Post-Graduate Education in Oman, which will help inspire the next generation to strive for professional excellence that can directly benefit Oman’s economy and national vision.

The bar of success within Academia, Industry and Government for post-graduate success is forever rising in Oman and employers increasingly require talents that have a mix of ‘hard’ and ‘soft’ skills. Hard skills generally fall under the umbrella of science, technology, engineering and mathematics (STEM) learning, while soft skills tend to be an ability to think critically and be a strong communicator. Cross-leveraging skill sets means that petroleum engineers are expected to communicate well and public relations professionals must understand the intricacies of oil and gas production, for example. Almost half of the world’s petroleum engineers are scheduled to retire over the next decade, which highlights a shortage in just one highly-skilled area. Economists, accountants and analysts are just a few of the professions that are vital to the success of Oman’s energy sector, along with traders, lawyers, financiers and regulatory bodies. Consequently, post-graduate students face an increasingly steep learning curve. But, this will stand them in good stead as they look to take advantage of the knowledge-based jobs that will be on offer. Such opportunities will be supported within Oman as the first phase of the Innovation Park Muscat (IPM), which aims to become a hub of R&D in Oman, becomes operational by the end of this year.

Employers’ support of the post-graduate community can have rewarding results, as illustrated by Occidental of Oman’s instrumental role in enrolling 33 employees in the company’s scholarship program since 2013.

After securing Masters and PhDs, Omanis can push back against fierce competition to secure jobs overseas in multi-national energy companies and then import their newly-found knowledge when they return...
home. The energy sector has a global face and Oman’s energy professionals who understand such practical and cultural complexities will sharpen their competitive edge and capacity to support Oman’s national vision.

Oman has timed its economic transition well as global demand for expertise in energy R&D is strongly correlated to global energy demand, which the US’ Energy Information Administration (EIA) expects to climb by 48% by 2040. Nurturing the development of post-graduate communities and a R&D ecosystem in Oman through initiatives like the OXY Oman Student Awards will enable Muscat to export knowledge to other energy producers in the Gulf and beyond.

Occidental of Oman has done a magnificent job developing Omani staff and improved oil recovery (IOR) and enhanced oil recovery (EOR) technologies. A massive EOR steam flood using gas injection and water flooding was implemented at the Mukhaizna heavy oil field, for example. Occidental of Oman, State-owned and Shell-led Petroleum Development Oman (PDO) is also gaining international renown for its innovative EOR strategies. Such innovation will help Oman climb higher on the global university rankings and encourage Omani students to register their patents locally and not via foreign universities.

The recognition and celebration by Industry, Academia and Government of today’s post-graduate thought leaders, as facilitated by the OXY Oman Student Awards, is a vital step in enabling future generations to steer Oman down a prosperous path.

Testimonials:

**Mahir Mansour Al-Wahaibi**

I am honoured to receive the Award, which has further empowered me to pursue professional opportunities that support Oman’s growth. I am currently working in the solid waste sector and supporting the Government’s plan to restructure and enhance waste management services across the country. I look after the transfer station facilities that manage waste processing and transport and I hope to become more involved in recovering energy and resources from waste. During my postgraduate studies at the University of Leeds in the UK, I developed a proposal that primarily aims to convert waste into energy and the production of high quality Solid Recovered Fuel (SRF). The fuel produced was subjected to detailed physical and chemical analyses to ensure safe handling and utilization in the cement industry. There are multiple benefits to this project, such as reducing the cement industry’s growing demand for natural gas by using SRF instead. Re-using waste would also extend the lifespan of landfills, reduce the costs associated with building more landfills and support Oman’s goal to develop alternative energy resources as per the National Vision.

**Dr. Lamya Adnan Al-Haj**

My confidence has been significantly boosted thanks to the recognition of my research and I am encouraged to work even harder to achieve my goals. I thoroughly enjoy researching algae biofuels and bio products and utilising genetic engineering tools in the modifications of algae strains for enhanced production of foreign and novel products. My team and I at Sultan Qaboos University (SQU) have published several scientific papers since 2014 in the field of bio fuels and genetic engineering of algae. As part of my role in teaching undergraduate students, I try to encourage them to pursue higher education and to continually push the boundaries of what they think is possible. I am also supervising two PhD students and an undergraduate who are all working in the aforementioned fields of research. Next, I would like to apply the findings of my research to the ‘real world’ so that my research can evolve into useful industrial products that support Oman’s National Vision to diversify the hydrocarbon-based economy.
Petroleum Development Oman LLC:

Leading the way in promoting diversity in the workplace

Through implementing a multi-faceted programme promoting inclusion and diversity, PDO has succeeded in ensuring that a third of its directorial team - four out of 15 directors - comprises women, both in technical and non-technical roles.

Chasing perceptions of women in leadership roles, acquiring and retaining local female talent, and overcoming practical challenges in terms of logistics and infrastructure are key issues that employers in the GCC face. These are the findings of a report released by The Pearl Initiative, a forerunner of women’s empowerment in the Gulf. Developed in collaboration with the Sharjah Business Women’s Council (SBWC) the report is titled ‘Women’s Careers in the GCC – Four Good Practice Case Studies’ – and focuses on various aspects of diversity in the workplace. This has been done through surveys of four of the region’s leading companies – Petroleum Development Oman (PDO), General Electric (GE), Olayan Group, and Pepsico - each a leader in their domain. The participants shared best practices that ensure inclusion and diversity in the workplace while discussing the strategies they devised to acquire and retain top female talent, thereby achieving stronger governance.

The results suggest that an integrated approach involving schools and universities, aggressive awareness drives at multiple levels, implementing supportive infrastructure and work environment, family engagement as well as women-specific policies and programmes are the most effective ways to address the challenges of female employment. Developing more role models from the region, creating women-centric opportunities, investing in segregated offices and other useful services at the workplace, and organising transportation to and from work are a few of the strategies companies can adopt to create an enabling work environment.

In the recent years, Oman has recorded increasing female enrollment in higher education - a promising sign towards further inclusion in the workplace. According to the Oman Education
Council’s Higher Education Report, 45,029 female students were enrolled in private colleges and universities, compared with 23,723 men during the 2014-2015 academic year. The Ministry of Education is also collaborating with private sector companies to offer scholarships to Omani students pursuing higher education in various fields.

Commending Oman’s efforts in enriching education, and discussing the way forward in promoting further diversity, Carla Koffel, Executive Director of The Pearl Initiative said: “Even with scores of highly qualified women graduating from universities, the real challenge now lies in attracting and incentivizing the right talent, fostering an organisational culture which will retain them and providing professional development tools to enable them to climb to top positions in every sector and industry. When women are provided with the right opportunities, they can demonstrate the business benefits they bring to any institution, and shift the region’s social perceptions on working women in the process. In fact, it has already begun, and Petroleum Development Oman is a great example of this.”

**Multifaceted efforts**

Through implementing a multi-faceted programme promoting inclusion and diversity, PDO has succeeded in ensuring that a third of its directorial team - four out of 15 directors - comprises women, both in technical and non-technical roles. The fact that over 30 percent of senior leadership team comprises of Omani women has made PDO the employer of choice for female engineering graduates in Oman.

Raoul Restucci, Managing Director, Petroleum Development Oman said:

Ibtisam Al Riyami (PDO) with fellow participants discussing best practices that ensure inclusion and diversity in the workplace.
PDO fully supports this excellent endeavour and congratulates all involved for their invaluable contribution to this cause and the raising of awareness, challenges and opportunities across the region. Oman is already seen as a pioneer in female empowerment in the Middle East and this is very much underpinned by the unwavering support and wise leadership of His Majesty, Sultan Qaboos bin Said. During his first speech when he ascended to power in 1970, His Majesty stressed his ‘interest in the importance of the role of women in society, and in supporting the economy.’ Since then, women have increasingly and impressively contributed to the country politically, economically and socially.

“PDO is determined to do all we can to advance the cause of women in the workplace both within our own boundaries and beyond as a pre-requisite and fundamental enabler for delivering and sustaining high performance, greater equity, respect and collaboration.”

Developed in cooperation with the United Nations Office for Partnerships in 2010, The Pearl Initiative is the leading Gulf business-led organisation fostering a corporate culture of accountability and transparency. It seeks joint collaborative action between regional and global business leaders, international institutions, government bodies and wider initiatives within the Gulf region, exhibiting positive leadership and sharing knowledge and experience in order to influence the entire regional business and student community.

As a leading independent, not-for-profit, by-business for-business organisation, the Pearl Initiative works across the Gulf region to improve corporate accountability and transparency through good governance best practices, including positioning women in leadership roles. The organization’s goal is particularly important in today’s economic landscape given that diversity breeds innovation, creativity, and business sustainability. In fact, industry experts find that companies which practice diversity in leadership enjoy better financial returns and higher profitability.

Career-driven

In April 2015, The Pearl Initiative released a breakthrough report titled Women’s Careers in the GCC: The CEO Agenda, based on the findings of a Gulf-wide research programme conducted in partnership with the Sharjah Business Women Council. The study revealed that working women in the GCC are as ambitious and career-driven as their counterparts in the rest of the world, with over 50 per cent of those surveyed aiming at senior or board-level positions within the next seven years.

In addition, the Pearl Initiative invited top business leaders in the Gulf region to take a business pledge during their second regional forum, Sustainability in Action: Business and the Sustainable Development Goals, hosted in collaboration with the United Nations Global Compact in late October 2016. ‘The Business Pledge’ serves as both a commitment to and
a guide on the Private Sector’s journey towards responsible growth, and suggests practical and implementable solutions across four areas, namely: Setting Targets for Sustainable and Responsible Workplace Growth, a More Inclusive Workplace, Promoting Integrity, and Collaborations & Partnerships. In addition to PDO, General Electric, Olayan Group and PepsiCo also shared success stories on fostering diversity in GCC leadership in The Pearl Initiative’s 2017 Women’s Careers in the GCC report.

GE, whose female workforce has reached 100 since hiring the first woman employee in 2009, recruits high achievers and boosts career growth through actively encouraging employees to take up challenges and reap the rewards. The company has created a growth-supportive environment combining classroom learning with live project responsibilities as well as individual coaching and career planning.

Having firmly established itself as a pioneer of female employment in the Kingdom of Saudi Arabia, Olayan Group helps young ambitious women rise on the career ladder. The group has successfully increased the number of women in managerial or executive roles more than threefold in the last 15 years.

In less than a decade, the percentage of female employees in PepsiCo’s Saudi office increased from five to 20, with women holding four out of 12 positions on the leadership team. The company has adopted a tailor-made gender diversity and inclusion programme with four main focus areas: improving work/life balance, nurturing a culture of understanding by setting the right tone, creating opportunities for women and communication.

The Pearl Initiative summarised the findings of the case studies under two broad headings:

- critical issues faced by companies in the GCC region
- recommendations based on the outcome of the research

While the studies have found acquisition and retention of the right female talent to be the biggest challenge, they also suggest a solution for employers in the form of adopting five best practices:

- Creating balanced corporate culture by setting stage for diversity in the workplace and providing role models.
- Investing in building career paths through structured career planning, mentorship and networking.
- Improving work/life balance through implementing flexible work policies and offering support systems.
- Adopting HR policies that ensure equality, such as harassment prevention, making facilities more women-friendly.
- Taking on the role of advocates of female employment within the wider community by proactively increasing awareness, launching initiatives and, in general, acting as ambassadors.

The findings of the case studies as well as the level of ongoing participation in the Business Pledge prove that there is a real need for and interest in achieving gender diversity in the region, which meets with increasing acceptance and encouragement at all levels. Through its multi-level interventions, The Pearl Initiative is committed to changing the mindset of the entire regional business and student community in favour of diversity in the workplace.

In Numbers

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Siemens:
A strong partner for Oman

Siemens operations in Oman are broadly in sync with the government’s vision to modernize and diversify the national economy, with a focus on three strategic pillars: electrification, automation and digitization, says Markus-Erich Strohmeier, CEO – Siemens Oman.

Siemens is a global technology powerhouse that has stood for engineering excellence, innovation and quality for over 165 years. The company is active in around 200 countries, focusing on the areas of electrification, automation and digitalization. Siemens has been present in Oman since 1972 through a number of key infrastructure projects. About future of energy in Middle East and other plans we spoke with Markus-Erich Strohmeier, CEO – Siemens Oman.

Siemens is a global technology powerhouse that has stood for engineering excellence, innovation and quality for over 165 years. The company is active in around 200 countries, focusing on the areas of electrification, automation and digitalization. Siemens has become one of the world’s largest producers of efficient power generation ad power transmission solutions and a leading supplier of infrastructure solutions as well as automation, drive and software solutions for industry.

The Middle East has been a key region for Siemens since the company first established presence here over 150 years ago. This long-term sustained commitment is still intact, contributing to the region’s economic growth, improving the competitiveness of and creating value for local businesses and more importantly, enhancing the overall quality of life for the people here.

Over the past decades, the company has played a key role in helping build the infrastructure of the region – including power infrastructure, airports, ports, public buildings, hospitals among others.

In the following Q&A, OPAL Oil & Gas magazine invites Mr. Markus-Erich Strohmeier, CEO, to shed light on the company’s decades-long operations in Oman and the wider region.

Q: Siemens has been doing business in Oman for many years. What is the background of Siemens’ operations in the country, and what are the sectors that Siemens is mostly focused on?
A: Siemens has been present in Oman since 1972 through a number of key infrastructure projects. Today, with over 100 employees in the country, the company is actively supporting the sustainable, long-term growth of the Sultanate through the ex-
execution of a number of the most important projects, for the economic diversification and the expansion of the downstream industries in Oman coupled with the know-how transfer and the continuous application of cutting-edge technologies that support Oman’s national goals and economic vision.

Today, Siemens’ technology has enabled Oman to conserve the Sultanate’s natural resources by significantly reducing the gas consumption in power generation, and we have supplied a significant proportion of the country’s power transmission and distribution equipment. We’re proud to say that our share in the market has been growing thanks to our employees who’ve implemented these projects to the satisfaction of our customers as well as the company’s strong local presence and ongoing commitment to support its customers.

During the Oman Energy and Water Exhibition in Muscat, we have demonstrated new solutions, structured to help the Sultanate mitigate the impact of lower oil prices and rising energy demand.

Just to give you an example, Siemens’ highly-efficient gas and steam turbines have enabled our Independent Power Producers (IPP) customers and ultimately, the Oman Power and Water Procurement Company (OPWP), as the electricity off-taker, to save approximately 31% of the gas in power generation. Last year, we have signed another 10-year supply and service agreement with Petroleum Development Oman (PDO) for Siemens state-of-the-art compressors – the first three will arrive in Oman during 2017.

In the water treatment sector, our customer base is steadily expanding to include leading suppliers such as, PDO; British Petroleum (BP); Oman Oil Refineries; the Petroleum Industries Company (ORPIC), among others.

Overall, our operations in Oman are in line with Oman’s vision to diversify the economy, with a focus on three strategic pillars: electrification, automation and digitization.

“Siemens’ technology has enabled Oman to conserve the Sultanate’s natural resources by significantly reducing the gas consumption in power generation, and we have supplied a significant proportion of the country’s power transmission and distribution equipment.”

30MW power plant combined cycle and digital control center for 30MW power plant.

In April 2013, Siemens delivered the turnkey Barka 3 power plant to meet Oman’s power demands, which grow at nearly 10 percent a year.
**How do you look at the energy landscape in Oman?**

We believe Oman has witnessed one of the world’s fastest rates of growth in the power generation sector at around 8% per annum. The country is also one of the world’s leading natural gas producers, contributing 3% of the global production. Yet, the cost of upstream production in Oman is increasing due to new and complex developments in tight and shale gas formations.

Demand for power in the Sultanate will continue to rise over the next five years. For example, by 2021, the Muscat Integrated System (MIS) will need an additional power capacity of at least 1 GW; in addition to the already awarded projects. As such, we believe that digitalization and technological innovation are the next big thing that will be central to achieving Oman’s national goals as digital solutions can help oil and gas companies to reduce their costs while increasing production.

**What about the future of energy in Middle East region?**

Siemens has carefully studies the energy landscape in the Middle East until 2030, taking into account region’s current power generation scenario, upcoming challenges, allocation of energy sources and the role digitalization will play in the future energy mix. The company found today’s power generation challenges to be affordability, sustainability, efficiency and energy security. To overcome these, power generation needs to allow for fuel diversity, and to become more affordable, reliable, highly efficient with lower emissions, and flexible enough to complement renewables.

While the share of renewables in the region’s energy mix is set to increase, we also see natural gas as the main source of power generation by 2030, with energy efficient combined-cycle power plants leading in new capacity additions. Demand for gas is expected to grow by 4.3 percent annually until 2030. CCPPs can increase fuel efficiency in power plants by around 50 percent. Besides building new power plants, the region has a 45 GW potential for efficiency improvements by upgrading facilities which are older than 30 years.

While the share of energy generation, represented by renewables is on the rise, their production costs will decrease, paving the way for the growing role of renewables in the Middle East; in line with regional countries’ emissions reduction targets and climate change action plans. Power generation from solar is gaining momentum in the region, with around 16 GW of capacity additions expected by 2030.

At any rate, the energy system of the future must be reconceived. That is because the more renewable, fluctuating electricity flows through the grids, the more flexible the grids...
must become – something that can be achieved only through the use of storage technology. Hydrogen electrolysis can serve as a long-term storage medium by converting electricity into hydrogen or chemicals such as ammonia and methanol.

Oman is witnessing growth in infrastructure development projects. How can Siemens contribute to this vital sector?

A Our business strategy is always aligned with the growth and development of the Sultanate; we always keep an eye on future infrastructure projects. Intelligent infrastructure paves the way for smarter, more integrated systems that contribute to economic success, efficiency savings, and improves our environmental footprint. By combining engineering and data expertise, Siemens has the portfolio, the know-how and the consulting expertise that can help the Sultanate as it moves towards a smarter, and increasingly digitized environment. For example, Siemens is the only company in the world that offers a complete spectrum of products and solutions for smart grid infrastructure – including Decentralized energy management systems, smart grids, smart meters and analytics. With the company’s Total Building Solution, functions such as fire protection, access control, alarm systems, video surveillance, lighting, building management, low-voltage power distribution and all other connected building equipment can be integrated. This enables the building’s environment to be optimized for the comfort of its uses, operating costs to be reduced and the safety
and security of people and assets to be increased. The company also has the technologies, which used advanced command and control software to increase situational awareness and response capabilities, raising the security level of critical infrastructure. With its experience and expertise, Siemens is ready to support Oman on the long way to achieve the economy's diversification program.

**Q** So, what can businesses in Oman do to further enhance their operations through digitalization?

**A** We believe that digitalization is a key driver of economic diversification, and we view it as a transformation journey, not a single technology. Companies need to decide whether they want to use digitalization to keep up with the competition, grow their business or disrupt their industry to create new business models. It’s important for organizations to develop a business strategy for the digital era, assessing its impact on their industry and how it fits with their ambitions. Open innovation and collaboration are key, so finding the right digital partner is crucial and that’s where Siemens can support. There is significant appetite for digitalization and digital skills in the region. Our own GCC report found that 73 percent of regional businesses see digitalization as a driver of improved profits and margins, and we believe in some cases digitalization can enable GCC businesses to become global leaders. This applies both to smaller operation and to major companies. Increasingly shorter innovation cycles mean that industrial enterprises constantly need to shorten their development and production times. This requires seamless integration of data along the value chain, from the idea of a product to services. Making use of the opportunities provided by digitalization to respond faster and more flexibly to customer’s requirements will provide an advantage on the market. So that means the best time to enter the digital era is right now.
Oxy Oman:

A commitment to maximizing ICV and job creation

OPAL editorial team interviewed Zahir Al Hashar from Oxy Oman regarding the ICV and SME’s Development Program

Would you please tell us about the ICV strategy of Oxy Oman and what role does the SMEs sector play in this strategy?

As we may all know, In-Country Value (ICV) is defined as “the total spend retained in-country that can benefit business development, contribute to human capability development and stimulate productivity in the Omani economy. In short, products made and services provided by Omani nationals (in Oman)”. To materialize this vision, in 2013, Occidental Oman (Oxy Oman) launched an In-Country Value (ICV) initiative and a development program for small and medium enterprises (SMEs) to foster economic development and job creation for Omani citizens. Oxy Oman’s continued support, along with that of the Omani Ministry of Oil & Gas (MOG), demonstrates our commitment to developing a strategy and a roadmap to enhance the ICV contribution made by the Oil and Gas industry to the economy of the Sultanate of Oman and to be in line with Oman’s National Objectives Program.

Oxy Oman’s In-Country Value (ICV) strategy aims to increase and improve the sustainable employment of Omani nationals together with improving the incorporation of Omani goods and services with the focus on the below components:

- Human Resources
- Technology
- Business Development
- Contracting and Procurement

Oxy Oman regards the SMEs as the backbone of the economy. These enterprises represent an essential source of economic growth and job creation within the country. Most businesses start up as small or spring out of other businesses which then have the opportunity to develop,
grow and become a critical and major business locally, regionally and internationally. Oxy Oman’s goal is to provide the right environment to support SMEs as they go through this cycle of development and success.

Q What have been your key programs to support entrepreneurship in Oman?
A Oxy Oman is dedicated to supporting and promoting entrepreneurship and SMEs as a main element of its ICV contribution. As part of this goal, the effort to encourage and stimulate Omani small and medium enterprises (SMEs) is continuing in 2017 with the evaluation of fourth cycle of Oxy Oman’s SME Development Program. The Program supports the capacity building of Omani SMEs that demonstrate high potential for maximizing ICV and job creation. Its strategy aims to provide proper training and development, accelerate the transferring of skills and technologies and award long term contracts to local companies with the view to enable them to set up businesses that provide services to the Oil and Gas industry in Oman and beyond. One year after joining the program, some participant SMEs increased their contract’s value by 94% and achieved 100% growth rate in employment. Oxy Oman is also dedicated to youth development as part of its ICV contribution as it plays a key role into future development of the human capabilities. Oxy Oman is the exclusive sponsor of Al Roya Youth Initiative Awards, organized by Al Roya & Publishing LLC. The initiative contributes to the development of the youth by encouraging young generations to unleash their talents and demonstrate their creativity, innovative skills and abilities. Oxy Oman will also continue to sponsor the annual program initiated and organized by the Environment Society of Oman to help develop youth public speaking skills and improve student personalities and confidence. In 2016, 173 students from 14 colleges and universities in Oman participated in the program.

Q Under the lower oil price environment, how are you managing the balancing act of supporting entrepreneurship and becoming more cost-efficient?
A Oxy Oman has gone through an extensive review of all possible areas that will be best suited for SMEs development considering not only employment opportunities but also the development of in-house technical and manufacturing skills to make them more cost effective. We have also engaged a specialized consultant to assist the SMEs in establishing a structured organization of experienced personnel and developing robust procedures and processes. This should allow SMEs to develop efficiencies sooner and reduce their overhead costs resulting in more competitive pricing. Through these initiatives, Oxy Oman managed to source some of the services and supplies from the SMEs at prices considerably better than existing established competitors.

Q What’s your advice to the upcoming entrepreneurs to succeed in oil & gas related businesses?
A It is important for upcoming entrepreneurs to have a good understanding of existing market conditions and also current technologies being used for products sold in the oil and gas industry. With that, they should look for any opportunity to be able to develop manufacturing capabilities here in Oman utilizing as much of the local resources (people, materials, equipment, etc.) to ensure better competitiveness in quality and pricing. Development of good internal practices specific to continuous improvement processes will allow the SMEs to maintain ‘best in class’ status that will further guarantee them a continued share of the market.

“OXY OMAN IS DEDICATED TO SUPPORTING AND PROMOTING ENTREPRENEURSHIP AND SMES AS A MAIN ELEMENT OF ITS ICV CONTRIBUTION”
As head of the Sultanate’s largest and oldest group of private training institutes, Sheikh Al Qassim Al Harthy’s consummate grasp of the thorny issues at the heart of the debate on Omanisation and training is unparalleled. After all, the organisation he represents – Polyglot Group – is credited with pioneering the introduction of private training services in the Sultanate. Over the 42 years since Polyglot was launched, it has diversified its offerings to encompass a broad array of subjects, trades and skills – general, technical, administrative and vocational – helping qualify, among others, several thousand Omanis for rewarding jobs in the public and private sectors.

It is this astute insight of the labour market industry that has earned him a place on some of Oman’s most high-profile committees tasked with charting the way forward for Omanisation. Notable is his membership of the Education Committee at the Oman Chamber of Commerce and Industry (OCCI). Sheikh Al Qassim also heads the Chamber’s Vocational Training Committee and works directly with the Apex Educational Council established by the Omani government.

In an interview with OPAL Oil & Gas, Al Harthy offered his take on a broad range of issues of pertinence to Oman’s all-important Omanisation goals. He noted in particular the need for an integrated and coordinated national framework for vocational training development in the Sultanate, suitably designed and implemented to produce skilled and competent market-ready Omani graduates.

“When you look at the large numbers of dropouts from universities and colleges, you begin to wonder if the academic route is being foisted on these people,” said Al Harthy. “Have we evaluated their interests and aptitude for the programmes that they were enrolled for? Is the academic path the only career pathway for our children? Not everyone is destined to be a doctor or an engineer. Shouldn’t they be offered vocational options across technical, administrative and other alternative career paths?”

While vocational education has been accorded a great deal of importance, deficiencies in the delivery of the overall strategy have undermined the efficacy of this effort, according to the CEO. Private training institutes, for example, continue to remain shut out of the vocational training system despite longstanding pleas to authorities for this situation to be remedied.

“We have a good number of private training institutes in Oman that have made massive investments in the quality and standards of their training centres and programmes. In fact, standards at some of these institutes are several notches higher than those of private colleges and some government institutes. But, as the current system of allocation of students for vocational
PRIVATE TRAINING INSTITUTES CAN PLAY AN IMPORTANT ROLE COMPLEMENTING GOVERNMENT-RUN CENTRES IN THE DELIVERY OF VOCATIONAL TRAINING PROGRAMMES

Omanis get priority in the labour market by default, provided that they have the requisite competency skills for the job. An expat can only be considered if a suitably qualified Omani is not available for that position at that point.

Significantly, Sheikh Al Qassim also strongly moots the introduction of assessment centres to test expatriate workers for proficiency in their professed areas of expertise. This follows the shocking revelation at a recent manpower conference indicating that an estimated 250,000 expatriates, falling in the category of assistant engineers and technicians, are currently employed by the private sector in the Sultanate. The grossly inflated number, according to the CEO, is primarily the result of private businesses using a loophole to recruit foreign labour masquerading as assistant engineers and technicians.

Testing centres supervised by the Ministry of Manpower will not only be able to uncover expatriates trying to play the system, but assess their competency as well, said Al Harthy. Those who fail to make the cut can be encouraged to attend local training courses at the cost of their private employer or be sent back to their country of origin. The entire exercise, he stressed, will also help establish the true numbers of jobs – sector and category-wise – that are available for Omanis in the private sector.
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7. Airmoch Oman LLC
8. Akzo Nobel Oman SAOC
9. Al Anjad Trading Company LLC
10. Al Atnain Co. LLC
11. Al Berwaz Trading
12. Al EZ Trading Transport & Contracting Co. LLC
13. Al Fajer Al Arabiya LLC
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38. Aman Establishment LLC
39. Anwar Fahud Projects International LLC
40. Arab Center for Engineering Science LLC
41. Arab Sand Oasis Trading & Cont. Est.
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<td>Swiss Sohar LLC</td>
<td>Waleed Catering &amp; Services Co. LLC</td>
<td>Vision Advanced Petroleum Solutions LLC</td>
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<td>Target LLC</td>
<td>Waleed Catering &amp; Services Co. LLC</td>
<td>Wapro Gulf LLC</td>
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<td>Tawees Industrial Services Co. SAOC</td>
<td>Waleed Catering &amp; Services Company</td>
<td>Weatherford Drilling International (Oman) LLC</td>
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<td>Technical &amp; Administrative Training Institute LLC</td>
<td>Well Maintenance Services LLC</td>
<td>Weatherford Oil Tool Middle East Ltd</td>
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<td>Technical Trading Co. LLC</td>
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<td>Western Atlas International Inc.</td>
<td>Weatherford Drilling International (Oman) LLC</td>
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<td>The Petroleum Projects (Petrotex &amp; Partners LLC)</td>
<td>Wipro Gulf LLC</td>
<td>Western Gulf Deserts LLC</td>
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<td>Thomassen Services &amp; Contracting Co. LLC</td>
<td>Zawawi Parsons Oman Engineering LLC</td>
<td>Weather Solution FZE-Oman Branch</td>
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<td>TMT Tec Trad &amp; Technical Services LLC</td>
<td>Zawawi Business Development Co. LLC</td>
<td>Wipro Gulf LLC</td>
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<td>Torque Trade &amp; Control Systems LLC</td>
<td>Zawawi Powertech Engineering LLC</td>
<td>Zawawi Parsons Oman Engineering LLC</td>
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<td>Taylor Woodrow Oman LLC</td>
<td>Zubar Oil &amp; Gas (ZOGAS)</td>
<td>Zawawi Business Development LLC</td>
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<td>TR Engineering Consultancy LLC</td>
<td>TR Engineering Consultancy LLC</td>
<td>Zawawi Powertech Engineering LLC</td>
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<tr>
<td>Training &amp; Development Institute (TDI) LLC</td>
<td>Training &amp; Development Institute (TDI) LLC</td>
<td>Zubar Oil &amp; Gas (ZOGAS)</td>
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</tbody>
</table>
**4-6 April 2017**

**Oman Downstream Exhibition & Conference:**
Platform for showcasing products, services and capabilities in the downstream petroleum sector. Organised by Oman Expo and World Refining Association
Venue: Oman Convention & Exhibition Center, Muscat - OMAN

**16-19 April 2017**

**2nd Argus Iran Commodity Week 2017**
The Argus Iran Commodity Week is the largest annual Iranian commodities platform; focused on Bitumen, Base Oils and LPG. Organized by Argus Media.
Venue: Tehran - IRAN

**15 – 17 May 2017**

**12th Annual Asset Integrity Management Summit**
The region’s annual event for asset integrity management experts
Venue: Grand Hyatt Muscat - OMAN

**17 May 2017**

**OPAL Oil&Gas Forum 2017**
Organized by Oman Society for Petroleum Services (OPAL)
Venue: Details to be announced

**1-2 May 2017**

**8th Middle East Bitumen/Asphalt ‘17**
Organized by Conference Connection Inc.
Venue: Dubai - UAE

**26-27 April 2017**

**StocExpo Middle East 2017**
Organized by EasyFairs
Venue: The World Trade Centre, Dubai, UAE

**30 April-2 May 2017**

**25th Annual Middle East Petroleum & Gas Conference (MPGC 2017)**
MPGC brings together the global oil markets’ leading NOCs, IOCs, Traders, Refiners, Petrochemical, Storage, Financial Institutions and Technology companies, in a confluence of dialogue, debate and business interactions at the highest level as the global and Middle East upstream and downstream oil and gas markets re-emerge from the recent turbulence. Organized by Conference Connection Inc.
Venue: Dubai - UAE
50th Anniversary of first Omani oil exports & PDO’s 80th Anniversary

In 1937
Sultan Said bin Taimur grants a 75-year concession to the company to carry out operations.

In 1967
The first cargo of Omani oil is exported.

In 1974
The Government acquires a 40% stake in the company.

In 2002
A new strategy to grow oil production by applying enhanced oil recovery techniques is launched.

In 2012
Nimr field development project is inaugurated.

In 2013
His Majesty Sultan Qaboos bin Said visits the Mina Al Falaj Headquarters on 12 May.

In 2015
PDO begins building Masirah, one of the world’s largest solar plants.

In 2016
The company makes a historic pledge to create 50,000 job opportunities for Omanis.

Proud to Serve Oman

Today, PDO, the engine of Oman’s economy, looks back with as much pride in our momentous journey that began 80 years ago in 1937, as we look forward to being part of the nation’s bright future.

This year also marks 50 years of the very first export of Omani oil in 1967. Since then, PDO’s numerous accomplishments have been synonymous with the achievements of our nation in its steady march on the path of progress.

On this occasion, we reiterate our pledge to continue to serve Oman – by securing its energy needs, fueling its economic development, investing in our communities, and by helping young Omaniis to play a greater role in the economy.
LET’S BRIGHTEN THEIR IMAGINATION

Oman’s solar resource is world class. Shell has brought together and trained SMEs on solar technologies, and has initiated the first pilot school sites. Over the next 5 years, Shell with the help of Omani SMEs will continue to install solar PV arrays into 22 public schools across the Sultanate of Oman.

www.shell.com.om    #ShelltoOman

STAY TUNED