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Ardiseis, CGG complete survey

Ardiseis and CGG, have completed the world's highest-density broadband seismic survey – Page 2



Glencore posts strong results

Glencore chief executive Ivan Glasenberg has hailed the group's results as its "strongest" – Page 32



Oil market likely to rebalance soon

The UAE energy minister Suhail Al Mazrouei said stability was slowly returning to the market – Page 36

Bahrain key projects register progress

MANAMA: Bahrain's flagship oil and gas projects – the Bapco Modernisation Programme (BMP), the Banagas expansion project, and new crude oil pipeline between Abqaiq and Bahrain are making "strong progress", Oil Minister Shaikh Mohammed bin Khalifa Al Khalifa has said.

A consortium of France's TechnipFMC, South Korea's Samsung Engineering and Spain's Tecnicas Reunidas was announced on December 4 as the winner of the \$4.2 billion lump sum turnkey engineering, procurement, construction and commissioning (EPCC) contract to expand Bapco's 79-year-old refinery at Sitra, in the kingdom's north-east. The contract will see capacity increase from 267,000 bpd to 360,000 bpd and units will be added enabling the production of cleaner, lighter, higher-value fuels, predominantly for export.

Facilities to be added under the BMP include residue hydrocracking, hydrocracking, hydro-



Shaikh Mohammed ... bringing about transformation in the oil and gas sector

desulphurisation, crude and vacuum distillation, hydrogen production, hydrogen and sulphur recovery, tail gas treatment, sour water stripping, amine recovery, bulk acid gas removal and amine recovery units and facilities for the recovery, solidification and handling of sulphur. Completion is scheduled for 2022.

Nogaholding will also soon complete the new crude oil pipeline between Abqaiq in Saudi Arabia and Bahrain. This will be a critical piece of infrastructure to support increased refining capacity at Bapco, and reflects the unbreakable ties between Bahrain and Saudi Arabia, as well as the close commercial relationship between Bapco and Saudi Aramco, a relationship that has spanned over 70 years.

"More than 50 per cent of the construction and modernisation of the pipeline has been completed and the pipeline is now being buried in the south of Bahrain. The project, to be completed this year, is moving steadily according to the plan and budget," he said.

Shaikh Mohammed said the oil sector in the kingdom is currently working out a clear strategy for involving the private sector in the implementation and management of the oil

projects, citing the case of the Bahrain LNG Import Terminal, which is being developed in partnership with the private sector (with a consortium of Teekay, GIC and Samsung).

Nogaholding has awarded a build, own, operate and transfer contract for a liquefied natural gas (LNG) import terminal to a consortium of Teekay LNG, Samsung C&T and the Gulf Investment Corporation. The project is scheduled for completion by February 2019 and will have the capacity to import up to 8.3 billion cubic metres (bcm) per annum.

Bahrain LNG has disclosed that South Korea-based GS Engineering & Construction and subcontractor SixConstruct will begin the offshore construction work at its import terminal located at Khalifa Bin Salman Port in Bahrain from mid-January. The terminal will feature a floating storage unit (FSU), an adjacent re-gasification platform, subsea gas pipelines from the platform to shore, an onshore nitrogen production facility and an onshore gas receiving facility. The terminal is expected to be completed by February 2019.

Full report Page 6

IN BRIEF

Motiva Port Arthur restarts HCU



HOUSTON: The large hydrocracking unit was running normally at Motiva Enterprises' 603,000-barrel-per-day (bpd) Port Arthur, Texas, refinery after restarting during the weekend, said sources familiar with plant operations. Motiva spokeswoman Angela Goodwin declined to comment on operations at the Port

Arthur refinery, which is the nation's largest.

Motiva began restarting the 105,000-bpd Hydrocracking Unit 2 on February 14, the sources said. HCU-2 was shut on February 6 for what was expected to be about a week of repairs to fix a seal that failed on the unit's compressor.

Noble Energy profit beats estimates

HOUSTON: US oil and gas producer Noble Energy reported adjusted quarterly profit that easily beat analyst estimates due to cost cuts and higher crude prices, sending shares surging more than 7 per cent in morning trading.

The results came as Noble's US shale oil production jumped in the fourth quarter through December 31, reflecting the greater attention the industry is giving to improving profit and output.

Houston-based Noble plans to spend \$2.8 billion each year through 2020, about 6 per cent more than it spent in 2017.

Thailand's PTTGC to invest \$952m



BANGKOK: Thailand's PTT Global Chemical said it will invest 30 billion baht (\$951.78 million) this year to expand its business. PTTGC, the petrochemical arm of state-owned energy conglomerate PTT, expects 480 billion baht in sales this year, up 10 per cent from 2017 on higher crude oil and polymer prices,

Executive Vice President of Finance and Accounting, Duangkamol Settanung, told reporters. Last week the company reported earnings of \$1.25 billion, 53 higher than a year earlier.

Santos flags China LNG sales push

MELBOURNE: Santos Ltd, Australia's No 2 independent gas producer, reported a more-than-fivefold rise in annual underlying profit, and flagged it may soon be in a position to revive its dividend and embark on growth. Two years of deep cost cuts and a rebound in oil and gas prices have helped Santos escape from a massive debt overhang and put it in a better position to fend off predators, like private equity-backed Harbour Energy.



23-page annual preview (Pg 5 to 27)

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BUILT IN THE GCC WITH MIDDLE EASTERN PRIDE

Ardiseis and CGG complete key high-density seismic survey



Argas ... setting new limits

AL KHOBAR: Ardiseis, a subsidiary of the Arabian Geophysical and Surveying Company (ARGAS), the Middle East's seismic acquisition specialist, and its technology partner, CGG, have announced the successful completion of the world's highest-density broadband seismic survey ever acquired onshore or offshore. The ultra-high density of the data recorded on the West-Kalabsha survey on behalf of Apache Corporation (Apache) heralds a step-change in the quality of seismic that can be economically acquired in Egypt's Western Desert and a quantum leap in imag-

ing for the Middle East and North Africa region.

Apache set Ardiseis the ambitious challenge of delivering reservoir characterization-ready broadband seismic data from a 2,000-sq-km, ultra-dense survey, representing 72 million traces per sq km, two-to-three times denser than any survey acquired to date worldwide.

To achieve the ultra-high productivity acquisition required to produce the data at a comparable pace and cost to conventional land acquisition, Ardiseis deployed CGG's proprietary Unconstrained Blended Acquisition technology for the first time in Egypt.

This technique optimises field operations to the extreme, with a large fleet of vibrators operating simultaneously and independently from each other non-stop. CGG successfully deblended the data by running its proprietary sophisticated deblending algorithm on its massive computing resources.

In addition, Ardiseis used CGG's broadband suite of technologies, CleanSweep and EmphaSeis, to acquire the required low-frequency-rich broadband data (starting from 1.5Hz), which is free of the harmonic noise contamination that has so far hindered industry adoption of true broadband high-productivity Vibroseis acquisition.

Joe Versfelt, Apache's Egypt region exploration manager, said: "Since Apache was awarded the West Kalabsha concession in 2004, 19 oil fields have been discovered and production capacity is currently over 55,000 bpd and growing. However, the large volume of 3D seismic data Apache has acquired over the years has limitations for imaging some structures, faults and stratigraphy. Apache saw the potential of new land broadband 3D technology to deliver a quantum leap in imaging and resolution as well as our ability to take advantage of the most advanced quantitative interpretation technologies. Our focus was to reduce risk in existing plays, develop new prospects and potentially discover new plays. We are extremely grateful to EGPC for once again supporting us in our ongoing efforts to introduce new technologies to Egypt in order to optimize our E&P operations. The preliminary results of the West Kalabsha 3D survey are extremely encouraging and we plan to acquire more of this high-grade seismic data in the region."

Jean-Georges Malcor, CEO, CGG, said: "CGG was pleased to have had this opportunity to continue our pioneering work with Apache and Ardiseis, and once again introduce new acquisition technologies to Egypt. By deploying our suite of land broadband technologies, ARGAS and Ardiseis have shown that it is possible to acquire affordable high-fidelity data that can be used for both exploration and field development purposes on a large scale. The benefits in terms of reduced costs, increased chances of identifying secondary prospects, more efficient field development plans and earlier returns on investment are obvious when we compare the previous approach of acquiring sparse 3D exploration surveys and returning at a later date to separately acquire smaller higher-density datasets for field development."

Saad Saud A Al-Akeel, ARGAS CEO and Ardiseis MD, said: "On this game-changing survey we demonstrated how the combination of outstanding operational performance from ARGAS and Ardiseis, together with technical excellence and innovation from CGG, can make this new generation of high-fidelity seismic an affordable reality. Having proven the feasibility of this technology in Egypt with reduced turnaround time and quality improvements, we can see its potential for successful application in other desert areas in the wider Middle East region for both exploration and field development applications."

ARGAS (www.argas.com) was established in 1966 as a joint venture between the Industrialization & Energy Services Company (TAQA) of Saudi Arabia and Compagnie Générale de Géophysique (CGG) of France. Throughout its 50-year history seismic data acquisition has been at the heart of its business. Until 2007, ARGAS specialized in 2D and 3D land acquisition in the Kingdom of Saudi Arabia.



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OIL & GAS NEWS

Bahrain

Annual Review
2018



Banagas expansion on track, CGP-III startup seen in Q4

By exporting recovered petroleum constituents as commercial products, the project will contribute to the development of the oil and gas industry in Bahrain and generate additional revenue for the Government of Bahrain

BAHRAIN National Gas Company's (Banagas) sales turnover reached \$148.28 million in 2017 enabling the company to successfully turn around projected losses into a net profit for the year, says the company's Chief Executive Dr Sheikh Mohamed Bin Khalifa Al-Khalifa.

"As per market projections, we expect our product prices to moderately improve in 2018. However, that might not be sufficient to counter the many challenges faced by the company in 2018. These include an escalation in the price paid for gas and utilities, the need to continue funding the significant capital expenditure needed to modernise our plant facilities and the resources necessary to maintain the company's excellent record in Safety, Health and Environment," says Sheikh Mohamed in an exclusive interview with *OGN*.

The biggest challenge for Banagas in 2018 is to successfully complete its expansion project. This involves bringing on line the third gas plant (Train-III), with 350 mmscfd (million standard cubic feet per day) capacity, double that of the current processing capacity, and expansion of its storage facilities together with all necessary supporting facilities.

Every effort is and will be made to ensure this project is completed on time and to budget. Upon the project completion, Banagas will significantly increase its contribution to the national economy as well as the employment market by providing more than 100 additional jobs for Bahraini nationals, he says.

The engineering, procurement and construction (EPC) contract for CGP-III had been awarded to JGC Corporation in Yokohama, Japan on January 27, 2016 and work commenced on site by mid-May 2016. Through 2017 the majority of equipment was delivered and installed with associated piping, electrical and instrumentation works progressing in parallel. Works are proceeding on schedule to commence pre-commissioning and commissioning activities in 2018 and to achieve first production sometime in the Q4 2018. As of the year-end (2017), 100 per cent of engineering, 98 per cent of procurement and 68 per cent of construction activities have been completed where the overall project progress was 87 per cent, he says.

The EPC contract for the Field Pipelines and Sitra Storage Expansion was awarded to JGC Gulf International of Saudi Arabia on October 4, 2016. The contract involves installation of a



Sheikh Mohamed ... on the cusp of changes

new pipeline system to transport gas from Tatweer Petroleum's compressor stations to the CGP-III, a pipeline system to return residue gas to the existing Tatweer reinjection header, tie in to existing pipelines and approximately 21 km long additional butane product pipeline from CGP-III to Sitra. The scope also include modifications to the Sitra Storage facility to accommodate the additional production. This includes installation of two additional storage tanks, one 200,000 bbl for propane and one 100,000 bbl for butane, addition of a new propane compressor train, new flare, fire water pumps, control room, switch room, land reclamation to accommodate the new equipment being installed and associated

instrument and electrical works.

As of the year-end (2017), 100 per cent of engineering, 98 per cent of procurement and 68 per cent of construction activities have been completed where the overall project progress was 72 per cent against the planned 74 per cent. Commissioning is expected to commence in September 2018 in preparation to receive the product from CGP-III, says Sheikh Mohamed.

Excerpts from the interview:

How were the operational and financial results for Banagas in 2017? Please give the company's turnover, profits and revenue earned in 2017?

The 2017 operational and financial results are moderately much better than 2016. This was mainly attributed to the increase in crude oil prices from \$43 (average 2016) to \$54 (average 2017) which directly influenced the company's propane, butane and naphtha prices. However, such increasing gains did not stop the cost saving initiatives started in 2015 and its effects which was felt in 2016 and 2017.

The company produced a total of 2.5 million barrels of product, 5 per cent lower than the previous year. In addition we have managed to keep unplanned shutdowns to a minimum while working three million man-hours without a lost time accident. Financially, our sales turnover reached \$148.28 million and we were able to successfully turn around projected losses into a net profit for the year.

How did Banagas tackle the challenging year of 2017 when oil prices kept falling? And what is your market outlook for 2018? What are the major challenges that you will be facing over the next few years?

Crude oil prices averaged \$54 in 2017 and as per various reports and analysts it will average \$60/bbls in 2018 and \$61/bbls in 2019. In January 2018 oil prices briefly hit \$70/bbls which was the highest monthly average since 2014. Oil price forecasts depend on the interaction between supply and demand for oil on international markets. Among the most important supply-side factors are the US shale oil production, US crude oil stocks and Opec oil supply. The comforting news is that Opec oil production cuts will be extended to March 2018 which may stabilise crude prices during the year.

We at Banagas still think that the market is facing difficulties even with such moderate product price gains. The company responded by reducing capital spending and aggressive cost cutting which will continue without any compromise in development projects which will affect the production and safety of our employees and plant operations. Despite all sluggish market condition, the company will significantly continue its turnaround inspections to minimise the frequency of shutdowns and maintain production at optimum levels.

As per market projections, we expect our product prices to moderately improve in 2018. However, that might not be sufficient to counter the many challenges faced by the company in 2018. These include an escalation in the price paid for gas and utilities, the need to continue funding the significant capital expenditure needed to modernise our plant facilities and the resources necessary to maintain the company's excellent record in Safety, Health and Environment.

The biggest challenge for Banagas in 2018 is to successfully complete our expansion project. This involves bringing on line the third gas plant (Train-III), with 350 mmscfd capacity, double that of the current processing capacity, and expansion of our storage facilities together with all necessary supporting facilities. Every effort is and will be made to ensure this project is completed on time and to budget. Upon the project completion, Banagas will significantly increase its contribution to the national economy as well as the employment market by providing more than 100 additional job places for Bahraini nationals.

When exactly do you plan to commission Bahrain's 350 MMSCFD (million standard cubic feet per day) Central Gas Plant III, part of the Banagas expansion project, and Bahrain National Gas Expansion Company's (BNGEC) \$99 million Field Pipelines and Sitra Storage Expansion Project?

The engineering, procurement and construction (EPC) contract



Banagas ... operational excellence



The Banagas team

for CGP-III had been awarded to JGC Corporation in Yokohama, Japan on January 27, 2016 and work commenced on site by mid-May 2016. Through 2017 the majority of equipment was delivered and installed with associated piping, electrical and instrumentation works progressing in parallel. Works are proceeding on schedule to commence pre-commissioning and commissioning activities in 2018 and to achieve first production sometime in the Q4 2018. As of the year-end (2017), 100 per cent of engineering, 98 per cent of procurement and 68 per cent of construction activities have been completed where the overall project progress was 87 per cent.

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Since the expansion is moving forward in anticipation of long-term supply of gas, what plans are in place to ensure adequate gas supplies?

Currently 350 mmscfd of associated gas is re-injected into the reservoir without processing. Tatweer Petroleum forecasts indicate that this volume of gas will be available even after 2029. However, there will be a slight decline in the yield of LPG and naphtha over the lifetime of the project.

Tatweer Petroleum will supply CGP-III with the required amount of associated gas through an Incremental Associated Gas Processing Agreement.

What will be the biggest benefits from the expansion?

The new CGP-III facility will recover high-value-added petroleum constituents (LPG and naphtha) contained in the petroleum-entrained gas which have not been recovered in the past. By exporting recovered petroleum constituents as commercial products, the project will contribute to the development of the oil and gas industry in Bahrain and generate additional revenue for the Government of Bahrain.

The project also will increase employment opportunity in Bahrain by generating additional jobs.

With the kingdom making sizeable efforts to boost production and increase recovery levels from the mature Bahrain field for which further gas will be needed for reinjection, do you see gas imports starting even before the LNG terminal becomes operational by 2019?

Development of Bahrain's own gas resources goes side by side with LNG importing facilities. According to a forecast the associated gas supply to Bahrain National Gas will be available even after 2029. Therefore, the kingdom is not expected to import any gas for before commissioning of the LNG terminal scheduled for 2019.

As you are aware, our business activity depends on the availability of associated gas as feed, even as Tatweer Petroleum with no holding are closely working together to ensure that gas injection continues in the oil field.

What were some other new projects/contracts signed during the year? Please give details.

- Completed installation and commissioning of new XV in the main fuel gas line to glycol dehydration unit CGP-II, CS-1, CS-3, CS-4 and CS-9;
- Completed Phase-II of CGP firewater network revamp;
- Successfully completed T&I Shutdown works on the following: Central Gas Plant II, Sitra Storage II, Compressor Stations 5 and 9;
- Awarded contract for the construction of additional warehouse and maintenance workshop and work started;
- Life assessment and repair works on major equipment foundations as part of aging policy;
- Awarded the project for the construction of new landfill area as part of waste management system;
- Upgrading of fence works of company facilities as part of security plan;
- Field pipeline maintenance in accordance with agreed schedule;
- Project to replace the GE Frame-3 gas turbine modules, control systems, starting system and local control from pneumatic to electronic at compressor stations 1, 3 and 4;
- Contract for exchanging Ruston gas turbines at CGP-1 and CGP-2, these gas turbines, driving the refrigeration compressors, two each in CGP-1 and CGP-2, have been operating since 1979 and 1990 respectively. CGP-I gas turbines will be exchanged with TB-5400 turbines which is slightly higher in power. The starting system will also be replaced;
- Completed Mechanical Seal retrofit of two Pumps with double mech.seal in CGP-I for improved safety and reliability;
- Installed, Commissioned 10KVA UPS connected to CGP-I DCS system; and
- Awarded annual maintenance contract for 40KVA UPS.

What is your gas production and consumption forecast for the next years for Bahrain?

Average production from CGP-I/II for the next 5 years will be:

Propane: 3,800 bpd

Butane: 3,900 bpd

Naphtha: 4,700 bpd

Fuel gas consumption by CGP-I/II will be about 35 mmscfd. Average production from CGP-III after commissioning in 2019 will be:

Propane: 3,700 bpd

Butane: 3,000 bpd

Naphtha: 5,700 bpd

Fuel gas consumption by CGP-III will be about 8.5 mmscfd.

What is your take on the pricing of gas supplied to the industrial sector? Do you think there is need for price revision taking into consideration the current economic situation?

In the GCC, the low gas prices, which are set considerably below international prices to encourage investment, have traditionally provided the region's industrial sector a significant competitive advantage. Low prices allowed many LPG and petrochemicals companies to quickly capture a larger share of the global market, thus proving good financial returns to pay off capital investment. While abundant and cheap gas has played a critical role in the development and diversification of the economy, the current financial model is not sustainable as the cost of new gas production is continuously and significantly on the rise. According to market reports, gas production costs are in the increasing trends (\$7.00 per thousand cubic feet by 2030). Therefore, in a move in the right direction, many countries across the region, and Bahrain is one of them, have taken major and decisive steps to increase gas prices. I believe such price increases are fair and a reasonably sound market strategy considering that gas prices should accurately reflect the cost of supply and value of the gas to consumers.

I think there definitely should be a need for a price revision taking into consideration the current economic situation and therefore the need to adopt a gas pricing reform that should react to market fundamentals. However, the gas pricing structure should be carefully crafted through a mechanism that would place the GCC gas prices closer to its true value and somehow reflect the global and regional dynamics of supply and demand. Nonetheless, and as quoted by many gas pricing reviews, gas prices should follow a formula that is linked to either the crude oil index or an international/ local price gas hub. Either way, it will have adverse consequences on current and old consumers if not managed carefully. The formula should be flexible and targeted to capture the risk mitigation measures of gas prices increases versus product prices decline to ensure that the benefits of the new pricing model are accepted by all parties.

What national, regional and international recognition has Banagas received during the last year? How does Banagas ensure quality in its operations? What have been your achievements in this regards?

HSE Awards Received by Banagas in 2017:

- "Industry Sector Winner Award (Oil & Gas Industry)" from the Royal Society for the Prevention of Accidents (RoSPA) – UK;
- "International Safety Award with Distinction" from British

Continued on Page 22

Banagas expansion on track, CGP-III startup seen in Q4

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- Safety Council (BSC) – UK;
- “International Safety Sector Award Winner” from British Safety Council (BSC) – UK;
- “First Place, Division II classification, International Safety Award” from Gas Processors Association (GPA) – USA;
- “Occupational Excellence Award” from the National Safety Council – USA; and
- “Combined OHSAS 18001:2007 and ISO 14001: 2004 Re-Certification from Bureau Veritas Certification (BVC).

How does Banagas ensure quality in its operations?

Banagas follows all international standards in its operations and is benchmarked against international companies across its activities.

In December, the Company Quality Management System was audited by BSI and recommended for continued ISO 9001 – 2015 certification. Based on ISO 9000 family of quality management systems standards, Banagas developed comprehensive Quality Policy and Quality Management Plan which is designed to help Banagas to ensure that they meet the needs of customers and other stakeholders while meeting statutory and regulatory requirements related to LPG production.

How is Banagas addressing environmental concerns associated with gas production?

Banagas addresses environmental concerns associated with gas production as follows:

- Prevention or reduction of environment concerns in context to our operations are integrated with corporate strategic planning and aligned to annual business plan objectives;
- Reporting Greenhouse Gas emissions to the National Oil & Gas Authority (Noga);
- Sustainability continues to be a fundamental for our Corporate Strategy and it emphasises in particular the protection of environment by striving to achieve “no venting, no flaring”;
- Empowerment of existing HSE Policy and management systems;
- Strictly complying with ISO 14001 (Environment Management System) requirements;
- Bahrain Environment regulations and standards are completely complied with in the design of all our new facilities;
- Identification of potential environmental aspects and establishment of suitable operational controls is integrated into Manage-



Banagas ... meeting the gas needs of Bahrain

- ment of Change system, which controls all process changes;
- As part of our obligation towards protecting the surrounding environment, actions agreed under 5 years Environment Compliance Plan signed between Banagas and Bahrain’s Supreme Council for the Environment is being timely implemented;
- As part of our commitment to continually improve company’s environmental performance the following projects are being undertaken:
 - An ambitious project to retrofit existing gas starting motor powered by high pressure gas with high efficient electrical motor controlled by variable speed drive is being undertaken

since 2017 to minimise venting of fuel gas during start-ups. In 2017, two retrofits completed and the remaining retrofits planned for completion by 2022.

- A Lube Oil Mist Eliminator has been installed and successfully commissioned at Compressor Station – 6 to minimise oil vapour emissions to the atmosphere.
- Replaced all Mercury Vapour type street & CCTV light are changed to LED type in CGP-I and CGP-II, as a part of energy conservation & environmental improvements.
- Successfully organised Safety, Health, and Environment Week on the theme “Health is Wealth”.



Banagas expansion in progress

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BMP to double foreign earnings
BMP is an optimum refinery configuration that places Bapco refinery amongst the most competitive and profitable – Page 12



GPIC reinforces its prime position
Despite a global volatile economy, GPIC continued to ensure its operational excellence and production achievements – Page 16



Banagas expansion seen on track
By exporting recovered petroleum constituents, the project will contribute to the development of the oil and gas industry – Page 20

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Transformative energy moves

The oil sector in Bahrain is currently working out a clear strategy for involving the private sector in the implementation and management of oil projects



Shaikh Mohammed ... energy sector to bring in revenues

THREE major projects in the oil and gas industry are expected to generate ‘substantial’ additional revenue for Bahrain, according to Shaikh Mohammed bin Khalifa bin Ahmed Al Khalifa, Minister of Oil and Chairman of Nogaholding.

Nogaholding is in the construction phase of the Banagas expansion project in the gas processing sector. Once completed, this project will generate substantial additional revenues from increased production of natural gas liquids and, importantly, will provide significantly increased supply of natural gas to the industrial network in Bahrain.

Nogaholding will also soon complete the new crude oil pipeline between Abqaiq in Saudi Arabia and Bahrain. This will be a critical piece of infrastructure to support increased refining capacity at Bapco, and reflects the close ties between Bahrain and Saudi Arabia, as well as the close commercial relationship between Bapco and Saudi Aramco, a relation-

ship that has spanned over 70 years.

“For my own part, I am perhaps most excited about the opportunities we see in the upstream part of our portfolio across both oil and gas, with Tatweer now under full control of Nogaholding,” he says.

The flagship projects -- the Bapco Modernisation Programme, the Banagas expansion project, and new crude oil pipeline between Abqaiq and Bahrain are making ‘strong progress’, says Shaikh Mohammed.

These projects are forecast to generate substantial additional revenues from increased refining capacity and enhanced product slate at Bapco, enhanced liquid petroleum gas capture and expanded natural gas production for the kingdom.

“Our investment in the new crude pipeline reflects the unbreakable ties between the kingdoms of Bahrain and Saudi Arabia, as well as the close commercial relationship between Bapco and Saudi Aramco, a relation-

ship that has spanned over 70 years,” he says.

A consortium of France’s TechnipFMC, South Korea’s Samsung Engineering and Spain’s Técnicas Reunidas was announced on December 4 as the winner of the \$4.2 billion lump sum turnkey engineering, procurement, construction and commissioning (EPCC) contract to expand Bapco’s 79-year-old refinery at Sitra, in the kingdom’s north-east. The contract will see capacity increase from 267,000 bpd to 360,000 bpd and units will be added enabling the production of cleaner, lighter, higher-value fuels, predominantly for export.

Four teams had submitted bids for the deal in December last year, with the team led by TechnipFMC which also carried out the front-end engineering and design (Feed) contract reported to have offered the lowest price.

Facilities to be added under the Bapco Mod-

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ArcelorMittal

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ArcelorMittal, the world's leading steel and mining company, together with our joint venture partners Al-Tanmiah, has started in 2014 its new state-of-the-art seamless mill in Al-Jubail, Kingdom of Saudi Arabia. With a diverse portfolio of high quality seamless pipes including OCTG, Line Pipes and Process pipes, ArcelorMittal Jubail is a strong partner for the Oil & Gas and Petrochemical industry in the Middle East and beyond.

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Bahrain takes vital decisions to boost energy sector

Continued from Page 6

ernisation Programme (BMP) include residue hydrocracking, hydrocracking, hydro-desulphurisation, crude and vacuum distillation, hydrogen production, hydrogen and sulphur recovery, tail gas treatment, sour water stripping, amine recovery, bulk acid gas removal and amine recovery units and facilities for the recovery, solidification and handling of sulphur. Completion is scheduled for 2022.

The scheme aims to add value to heavy bottom of the barrel components of the crude, to broaden the product slate, and to increase energy efficiency. Some of the refinery's units date back to the 1930s.

The project will also include a delayed coker unit, says the minister. The unit is intended to produce coke from heavy refining residues (tar, fuel oil), which is raw material in electrodes production for aluminium industry. The coke produced can be used by the nearby Aluminium Bahrain's (Alba) calcine unit. Alba will be able to use all the coke produced by the delayed coker, he said.

"We also have new technologies coming from technology providers including converting LC-Fining technology to LC-MAX technology or Hybrid Slurry," Shaikh Mohammed said. LC-Fining efficiently hydrocracks residuum to high-quality fuel oils and transportation fuels.

LC-Fining is ebullating bed residue hydrocracking process, which provides high conversion of residues selectively to liquid products and high removal of metals, sulphur and CCR from difficult feedstocks. LC-Fining provides this superior performance with ease, safety and reliability at the best economics.



Bapco ... modernisation in progress

"We also have the option of the Fluid Catalytic Cracking (FCC) and Resid FCC (RFCC) processes which have long been trusted workhorses in the refining industry," he says.

Bapco has to look at all these technologies to see which will deliver the optimum value, he says.

In view of the International Maritime Organisation's decision to implement the 0.50 per cent sulphur limit in 2020, refineries are planning changes in their production profiles in response to the impact of regulation. Therefore it is important to focus on capital investment and tailor one's products to meet the new environmental standards, the minister says.

"Refineries sometimes go through severe cycles. There are times when the margins are good, but there are times when we lost money refining. The last few years, despite the low oil prices, we enjoyed good margins, but it doesn't mean it will be the case all the time. We don't want to go back to that era where we lost money refining. To avoid it we should focus on capital investment and technology," he says.

Talking about technology, catalysts have emerged as some sort of game-changer in the refining industry. The technology has come to the region and Bapco's new hydrocracking units will see more of its use, he says.

The upgrade spent many years on the drawing board as debates over scope and financial concerns dragged out the decision-making process.

However, execution accelerated in 2015, when Australia's WorleyParsons was awarded the project management consultancy (PMC) contract. Perhaps more importantly, the main engineering, procurement and construction (EPC) packages were also apportioned on a similarly long-awaited scheme to replace and expand from 230,000 bpd to 350,000 bpd the pipeline supplying the refinery with Saudi Arabian crude feedstock from the Abqaiq processing

Continued on Page 10



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Continued from Page 8

hub in the Eastern Province.

“More than 50 per cent of the construction and modernisation of the pipeline has been completed and the pipeline is now being buried in the south of Bahrain. The project, to be completed this year, is moving steadily according to the plan and budget,” he says.

Shaikh Mohammed says the oil sector in the kingdom is currently working out a clear strategy for involving the private sector in the implementation and management of the oil projects, citing the case of the Bahrain LNG Import Terminal, which is being developed in partnership with the private sector (with a consortium of Teekay, GIC and Samsung).

He also says that the third gas plant, owned by Bahrain National Gas Company (expansion), will start operating by the last quarter of this year.

The minister stresses the need for more investments and advanced technology and engineering solutions to the various challenges facing the refining industry. As a result of population growth and increased demand on energy, there was need for further effort in order to strengthen the cooperation between the refining industry and technology.

This represents a challenge facing technology companies today to devise creative solutions that help refining companies to improve financial returns and enhance operational efficiency. It was also vital to take full advantage of technological solutions available to rationalise operational expenditure in this sector, he says.

A roughly \$1 trillion decline in upstream investment since the 2015 drop in oil prices has set up a likely global supply crunch and relatively dramatic increase in prices by 2021, the minister says.

“I think the era of easy oil is behind us,” he says adding: “The system could be shocked again.”

He says for Middle East producers, the growth of US shale oil “came out of nowhere,” and has already caused a dynamic shift in the market.

While he credits advancements in technology for the growth in US output, he says the US Federal Reserve’s quantitative easing programme flooded the market with cheap credit, allowing production to ramp up without restrictions.

“This was an industry that would give you yield and so a lot of money went into it, without worrying too much about the economics,” he says. “This created a very fast ramp up of production, created a global glut in supply and the 2015 crash of the oil price.”

But that increase in credit is now being countered by an equally severe drop in investment, setting up a looming supply crunch.

“If things don’t change quick for the better and bring back investment, which is the litmus test, you want investment back, there is a potential supply challenge that’s coming in the future,” he says. “That’s what markets don’t see.”

The minister says the Opec supply-cut agreement, and the extension of that agreement, are likely to boost upstream investments.

Opec members “want markets to be balanced enough to trigger investments back,” he says.

Bahrain’s oil industry dates back to 1932, when Standard Oil made an initial discovery on the island nation in the Arabian Gulf, but produces only a modest amount of oil, which keeps it out of Opec, he says.

The country has two oil fields: the Bahrain Field, which produces around 50,500 bpd of oil, according to the US Energy Information Administration; and the offshore Abu Safah field, which is jointly shared with Saudi Arabia and produces about 300,000 bpd, according to EIA.

Shaikh Mohammed says Bahrain is working with US service companies, including Halliburton and Schlumberger, on enhanced oil recovery work in the Bahrain field and is in the development stages of some new exploration work offshore.

Bahrain is in talks with service companies to develop a new tight gas resource, but is also building an LNG import facility which could be opened by the end of this year. The project will have a capacity of 0.8 bcfd. The country currently consumes about 1.5 bcfd, all sourced domestically, he says.

“One of our responsibilities is to make sure we diversify the sources of gas,” he says.

He says Bahrain is looking to procure LNG from various sources, including the US.

“I think the good thing about an LNG terminal is that you’re open to what the world market can offer,” he says.

Meanwhile, nogaholding, the investment arm of Bahrain’s National Oil and Gas Authority (Noga), hosted an event to mark the debut issuance of \$1billion senior unsecured notes, due in 2027 under the Global Medium-Term Note Programme.

The issuance was rated BB+ by Fitch Ratings Limited, the same rating as is assigned by that agency to Bahrain.

Shaikh Mohammed says: “It gives us great pleasure to celebrate the issuance of the first global bond issue at this closing dinner, with all our partners in attendance, with special thanks to our joint global coordinators JP Morgan and Citi Group. This success has supported nogaholding in its central role in the execution of the Kingdom of Bahrain’s policy in the oil and gas sector and stewardship of the Kingdom of Bahrain’s investment in oil, gas and petrochemical assets.

“The debt raised from this, and future issuances, will be an important tool in enabling nogaholding to deliver on its stated objectives of developing commercially attractive projects across the oil and gas value chain, to the benefit of the people of the Kingdom of Bahrain,” he adds.

The minister extended his sincere thanks to the investment team at nogaholding for bringing this strategic project to close, as well as to partners and banks for their key roles in making this inaugural global bond issuance an unprecedented success and positioning the country as a key international player.



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Bapco modernisation project to double foreign earnings

The Bapco Modernisation Programme is an optimum refinery configuration that places Bapco amongst the most competitive, profitable, energy efficient and environmentally compliant refineries in the world, says Dr PETER BARTLETT, Bapco CEO

THE post-BMP Bapco refinery should help Bahrain to almost double its foreign earnings through the export of larger quantities of higher value products, and will ensure the long-term sustainability of the company, thereby providing a sound foundation for realising Bahrain's Vision 2030, says Bapco CEO Dr Peter Bartlett.

"The concept of the Bapco Modernisation Programme (BMP) is an optimum refinery configuration that places Bapco amongst the most competitive, profitable, energy efficient and environmentally compliant refineries in the world," says Dr Bartlett in an exclusive interview with *OGN*.

"We expect construction of the new AB pipeline, and preparation of site works to be completed during 2018, with BMP targeted for completion by 2022," he says.

The preparation work for the BMP sites inside the refinery and to the south of the refinery were contracted to Bahraini companies Downtown and Al Hussainain respectively. In addition, over 30 engineering projects are in progress to continuously improve and upgrade the refinery facilities.

For all Bapco projects, the construction phase is typically executed by local contractors, either directly awarded by Bapco or by the main contractor responsible for the project engineering, procurement and construction (EPC), he says.

The technologies selected for the BMP units are all state-of-the-art proven technologies provided by internationally reputable licensors.

Extensive studies of multiple residue upgrade technologies, covering the options available for a modern refinery in several different refinery configurations were carried out. Results showed that the RHCU option integrated with Bapco's existing refinery offered the most favourable economic return on the BMP investment.

The BMP has been planned so that the existing refinery continues to operate with the normal turnaround strategy right the way through to the BMP final acceptance. Tie-ins will be installed during scheduled turnarounds. After the construction of the new BMP facilities is complete and before decommissioning of the redundant existing refinery units, Bapco will have superior operational flexibility by optimising both old and new assets at the refinery. The units that are to be retired will remain available until all newly installed BMP facilities have passed start up and commissioning final acceptance tests.

Referring to the complexity of the refinery post-BMP, he says the Nelson Index is a measure of the complexity of an oil refinery. Refineries that are higher on the Nelson Index are valued higher relative to their peers. Bapco refinery's Nelson complexity increases by almost 1 as a result of the BMP, establishing the refinery amongst the leading medium-size complex refineries in the region.

On the question of financing the BMP, Dr Bartlett says Bapco continues to progress its discussions on BMP financing primarily with prospective lenders.

The kingdom has earned a stellar reputation in the market as a reliable investment destination, once again evidenced by noga-holding's close last year of its substantially over-subscribed \$1 billion notes under the \$3 billion, 144A/Reg S, Global Medium-Term Note (GMTN) Programme, he says.



Dr Bartlett ... Bapco is the primary generator of foreign earnings

Excerpts from the interview:

What were the highlights of Bapco's performance in 2017?

Bapco's operational and financial performance for 2017 was strong. This marks the 4th consecutive year of increasingly reliable operating performance accompanied by the benefits of good financial performance in a continuing favourable economic environment for merchant refiners.

Highlights of 2017 include:

*We profitably ran an excess of 1.6 MM bbls of crude versus plan in 2017, backed by safe, stable and reliable operations together with astute marketing in a challenging International Market that was over-supplied with middle distillates;

*There were zero lost time injuries over the full year. This remarkable achievement has only occurred twice in the recorded history of the company; and

*Bapco was named a double winner of the British Safety Council Sword of Honour in Health and Safety, and also won its first Globe of Honour in Environmental Management, by demonstrating Operational and Business Excellence through the management of health and safety. Bapco is the first refinery in the region and the first company in Bahrain to win these prestigious British Safety Council awards.

What contributions did Bapco make to the national economy of Bahrain during the year?

Bapco is the primary generator of foreign earnings for the kingdom, via export to international markets of the refinery's production of refined products, and the sale of crude oil (on behalf of the government) from Bahrain's share of the offshore Abu Safah oilfield.

The preparation work for the BMP sites inside the refinery and to the south of the refinery were contracted to Bahraini companies Downtown and Al Hussainain respectively. In addition, over 30 engineering projects are in progress to continuously improve and upgrade the refinery facilities. For all Bapco projects, the construction phase is typically executed by local contractors, either directly awarded by Bapco or by the main contractor responsible for the project engineering, procurement and construction (EPC).

Bapco is also a leading sponsor of education, industry events held in Bahrain, and national events such as the Grand Prix and bi-annual Bahrain international Air Show, amongst others.

What are the projects planned by Bapco for 2018?

For all projects we follow Tender Board rules and regulations and projects are awarded after obtaining necessary Tender Board approval, which is also published on the Tender Board website. There are 13 major multi-year projects currently in progress, geared towards continuous improvement of the refinery reliability, safety, profitability and environmental footprint. For example, the foundation and tie-ins for a \$26.5 million project to replace the 3 heaters of a Crude Unit with one vertical cylindrical (VC) high efficiency heater were installed during the refinery's recent planned turnaround and inspection, and the project is planned to be completed by 2019. This investment will significantly reduce the fuel gas consumption, increase unit availability, reduce maintenance costs and improve operability and environmental performance.

Having chosen the TechnipFMC-led consortium to execute the EPCC of the Bapco Modernisation Programme (BMP), when do you expect the actual work to start? What are the main objectives and scope of the BMP?

The emphasis will shift towards project execution during 2018, driving the requirement for much closer collaboration between the project and operations in the core business as the pace of execution picks up.

The concept of the Bapco Modernisation Programme is an optimum refinery configuration that places Bapco amongst the most competitive, profitable, energy efficient and environmentally compliant refineries in the world. The investment should help us to almost double our foreign earnings through the export of larger quantities of higher value products, and will ensure the long term sustainability of Bapco, thereby providing a sound foundation for realising Bahrain Vision 2030.

What are the new units that will be added to the Bahrain Refinery as part of the BMP? What are the new technologies that we would see in operation? What are the advantages of the Ebullated Bed Residue Hydrocracking Unit (RHCU)?

The technologies selected for the BMP units are all state-of-the-art proven technologies provided by internationally reputable licensors.

Extensive studies of multiple residue upgrade technologies, covering the options available for a modern refinery in several different refinery configurations were carried out. Results showed that the RHCU option integrated with Bapco's existing refinery offered the most favorable economic return on the BMP investment.

What are the targets set for the BMP's completion? How much of it will be achieved in 2018?

We expect construction of the new AB pipeline, and preparation of site works to be completed during 2018, with BMP targeted for completion by 2022.

Post BMP, the refinery capacity will increase from 267,000 to 360,000 bpd. How complex will the new refinery be?

The Nelson Index is a measure of the complexity of an oil refinery. Refineries that are higher on the Nelson Index are valued higher relative to their peers. Bapco refinery's Nelson complexity increases by almost 1 as a result of the BMP, establishing the



Bapco ... personnel at work in Bapco

Existing Refinery Units (Pre BMP)		+	New Refinery Units Added By BMP	
5 Crude Units (3 to be retired)	3 Vacuum Units (2 to be retired)		New Crude Unit (Technip, Italy)	New Vacuum Units (Technip, Italy)
Diesel Hydrodesulphuriser (Revamped in 2007)	Unifiner/Platformer		Saturated Gas Plants (Technip, Italy)	Hydrogen Plants (Technip Stone & Webster, USA)
HVGO Hydrocracker (New Unit in 2007)	FCCU & Polymer (To be retired)		Residue Hydrocracking Unit (Chevron Lummus Global, USA)	VGO Hydrocracking Unit (Chevron Lummus Global, USA)
Visbreaker (To be retired)	Base Lube Oil (New Unit 2011)		Sulphur Recovery Units (Worley Parsons, UK)	Diesel Hydrotreating Unit (UOP)
			Offsites, Utilities, Revamps/Upgrades	

refinery amongst the leading medium size complex refineries in the region.

It is learnt that BMP needs significant amounts of Hydrogen. Where do you plan to source it?

Whenever a refiner upgrades heavier “bottom of the barrel” “residues to lighter products by hydrocracking, hydrogen is required. To meet the demands of the BMP high conversion units, two new hydrogen production units will be installed with a capacity of 125 mmscf/d each.

What has been the outcome of your talks with export credit agencies (ECAs) to finance the BMP, a project estimated at around \$4.2 billion? Has the credit ratings downgrade of the kingdom thrown a damper on the negotiations?

Bapco continues to progress its discussions on BMP financing primarily with prospective lenders. The Kingdom has earned a stellar reputation in the market as a reliable investment destination, once again evidenced by its closing last year of its substantially over-subscribed \$1 billion notes under the \$3 billion, 144A/Reg S, Global Medium-Term Note (GMTN) Programme.

With the kingdom’s key oil revenues based on Bapco’s refining capacity and exports of refined fuels, will revenues suffer a setback when work on the BMP progresses and old units are retired?

The BMP has been planned so that the existing refinery continues to operate with the normal turnaround strategy right the way through to the BMP final acceptance. Tie-ins will be installed during scheduled turnarounds. After the construction of the new BMP facilities is complete and before decommissioning of the redundant existing refinery units, Bapco will have superior operational flexibility by optimising both old and new assets at the refinery. The units that are to be retired will remain available until all newly installed BMP facilities have passed start up and commissioning final acceptance tests.

How has the lower oil price environment affected Bapco’s business?

Bapco’s main income derives from its refining margin, which is the difference between what is realised in the sale of products versus input costs, mainly crude oil as feedstock. The lower crude oil price environment has stimulated global demand growth for refined products. Bapco has benefitted from the strong margins across all regions as a result of the lower feedstock costs coupled with robust sales realisations incentivised by strong underlying product demand.

Are Bapco’s margins holding? How has it been for Bapco in terms of stable, reliable operations?

The world economy grew faster than anticipated during 2017, on the back of an unusually well synchronised growth platform in all major regions. The International Monetary Fund (IMF) expects this strong momentum to continue into 2018 and 2019 providing some support for margin businesses like refining and marketing. Bapco continues to take maximum advantage of market opportunities by maintaining safe and reliable operations. The refinery Operational Availability (Solomon rolling average) was 96.51 per cent last year, the highest in five years.

How much crude oil did you run in 2017 and how was it compared to previous years? How did your earnings perform in 2017?

We profitably ran an excess of 1.6 MM bbls of crude versus plan in 2017. Bapco’s operational and financial performance for 2017 was strong. This

marks the 4th consecutive year of increasingly reliable operating performance accompanied by the benefits of good financial performance in a continuing favourable economic environment for merchant refiners.

How is Bapco executing the National Oil and Gas Authority’s strategies for promoting value-added industrialisation in Bahrain?

A significant number of energy projects at Bapco are either in progress or in advanced stages of planning (see above), offering many opportunities for both investors and entrepreneurs. Bapco also executes a number of projects on behalf of the National Oil and Gas Authority, for example providing the engineering services for additional gas supply to Alba’s new power station that will feed the new Pot Line 6.

Bapco has also taken training and development of the workforce of the future to a new level with the establishment of an Oil & Gas Academy in Awali. The facility has accreditation from the Institute of Leadership and Management (ILM) and City & Guilds, both part of the United Kingdom’s City & Guilds Group, specialised in setting the standard for professional and technical education and corporate learning and development around the world. On 3rd October 2017, the Academy welcomed its first intake of 20 rigorously selected high school graduates beginning their three-year Diploma Programme in Oil and Gas Operations. The curriculum follows recognised further education best practice and has been tailor-made to meet Bapco’s requirements.

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HPC's plant in Bahrain

HPC plays a vital role

The company is meeting the increasing power and water demands of the kingdom

HIDD Power Company (HPC) is an independent power and water company providing Bahrain with reliable power and potable water supplies 24/7.

HPC's plant has power and water installed capacity of 992 MW and 90 million imperial gallon per day (MIGD) respectively based on a 20-year Power and Water Purchase Agreement (PWPA) with the Electricity and Water Authority of Bahrain (EWA).

"HPC is a major contributor to the growth of the kingdom. Our brand-driven company is meeting the increasing power and water demands of the kingdom and currently provides approximately 30 per cent and 55 per cent of the total power and water requirements respectively for Bahrain," says a company spokesman.

The company is privileged to have the support and access to the experience of three major international companies – Malakoff Corporation, Sumitomo Corporation and Engie, he says.

HPC's power generation and desalination facilities have been constructed in three phases. Phase 1 comprises two

Alstom 13E2 gas turbine units with a total power capacity of 272 MW with associated heat recovery steam generators (HRSG) producing electricity and heat for four multi-stage flash (MSF) desalination units producing 5,682 cu m/hr or 30 MIGD of desalinated water with each unit rated to 7.5 MIGD. Phase 2 comprises three Alstom 13E2 gas turbine units with three HRSG and a steam turbine (ST) unit with total power capacity of 720 MW, which have the capability of supplying heat to the Phase 3 desalination plant, he says.

Phase 3 provides ten multi-effect distillation (MED) units capable of producing 11,365 cu m/hr or 60 MIGD of desalinated water with each unit rated to 6 MIGD. The product distillates from Phase 1 and Phase 3 desalination units are directed to the re-mineralisation plant and disinfection system before the water is delivered into EWA storage tanks.

The HPC plant has received ISO 14001 and ISO 18001 certifications. HPC has excellent safety standard and records. It has been awarded with the UK RoSPA Health and Safety Gold Award for the past three consecutive years, he adds.

GPIC attends AFA

A DELEGATION of the Gulf Petrochemical Industries Company (GPIC), led by its President, Dr Abdulrahman Jawahery, took part in the 24th meeting of the Arab Fertiliser Union (AFA) in Cairo, Egypt.

In a statement, Dr Jawahery said the participation came as part of the company's desire to be present in the various AFA activities and gatherings and take part in discussions on important topics that support the Arab fertiliser industry.

He said the participation was an important step towards the industry's development since the meeting was one of the largest and most important events attended by heads of major industrial companies along with experts from around the world.

The event this year was held on the theme, Struggle for sustainable agriculture and environmental protection in the Arab world.

Dr Jawahery stressed the importance of providing all support to the AFA's role since it seeks to achieve the industry's most important goals and assists in its development.

He said he is proud of GPIC's contributions to the AFA and continues to provide training programmes to members. This, he said, contribute to raising the companies' performance and improving it. Dr Jawahery spoke of the large attendance at the event and the accompanying exhibition and said some of the largest Arab and international companies specialised in the fertiliser industries and equipment were in attendance. He said the activities were also supported by raw material manufacturers. He praised the AFA General Secretariat in organising the event.



Beyond excellence

GPIC reinforces its position in the petchem sector

Despite a global volatile economy, GPIC continued to ensure its operational excellence and production achievements as well as maintain all its plants to the highest levels of safety, productivity and reliability

BAHRAIN-based Gulf Petrochemical Industries Company (GPIC) had exported a total of 1.23 million tonnes of ammonia, urea and methanol in 2017, representing an increase of 4.2 per cent over 2016, says its President, Dr Abdulrahman Jawahery.

“GPIC’s exports by product showed 454,667 tonnes of methanol, 6.3 per cent over 2016, 709,791 tonnes of urea, 3.9 per cent over 2016 and 74,021 tonnes of ammonia, 14 per cent more than what we planned to export during the year. The products were shipped by 73 vessels to their final destination,” says Dr Jawahery in an exclusive interview with *OGN*.

In 2018, GPIC will carry out a total plants turnaround after being in operation for almost three years continuously. Hence, the projected production and exports are expected to be less compared to 2017. The total planned production of ammonia, urea and methanol in 2018 will be 1.48 million tonnes, out of which 1.12 million tonnes will be available for export, he says.

Referring to GPIC’s export markets, he says the traditional markets have witnessed a dramatic shift and the company is exploring potential new emerging opportunities and customers coming to the front from a number of key regions around the globe.

Markets like Taiwan, India, US, Brazil and countries in East Asia have shown sound and growing trends in imports for GPIC’s products, whilst more traditional markets have witnessed an internal consolidation of their imports in general, resulting in a shift in market purchasing patterns.

For GPIC, Taiwan has the highest share of the company’s exports in 2017 with a 17 per cent followed by India and US by 14 per cent and 12 per cent respectively. All this, has been achieved smoothly and without hindrance and in accordance with the marketing plan and contractual obligations, also the employees who have a relentless pursuit and commitment to optimum professionalism in spite of an unstable global market and low oil prices.

Referring to capex projects, he says the 22 metric tonnes per day (mtpd) urea formaldehyde (UF85) unit was awarded to JGC Gulf International Company, Saudi Arabia, for a lump sum cost of \$13 million. Actual production is expected to start during the third quarter of 2018. The project will contribute to securing GPIC’s chemicals requirements for the manufacturing process of granular urea. The unit will manufacture urea formaldehyde, a necessary and key component in the production and manufacture of urea granules. (GPIC currently imports this from other countries).

Also, a new cryogenic nitrogen unit with a capacity of 950 Nm³/hr is being installed to meet the additional demand of nitrogen. The plant is expected to start production of nitrogen by March 1, 2018.

Excerpts from the interview

What were the highlights of GPIC’s performance in 2017?

In 2017, GPIC continued to build on its success and received recognition for its relentless and driven attitude towards sustainability, corporate and social responsibility and beyond excellence results. In order to remain competitive in the challenging global market, GPIC revised and updated its 2020 Corporate Strategic Plan incorporating it completely into GPIC’s forward-looking 2030 Corporate Strategy. The continuing market instability and global economic downturn during 2016 and 2017, combined with escalating energy costs, provided GPIC’s leadership with a golden opportunity to initiate new and bold innovative business strategies for optimising the company’s processes and overall business approach.

Despite a global volatile economy, GPIC continued to ensure its operational excellence and production achievements as well as maintain all its plants to the highest levels of safety, productivity and reliability.

2017 was another extremely successful year for GPIC in terms of Safety, Security, Health and, Environmental (SSHE) excellence. These continual improvement efforts have continued to enhance our behavioral safety culture and has culminated in us achieving a record 27 million working hours for its workforce and contractors without any lost time accident this past year.

GPIC was recently awarded with the coveted ‘Her Majesty Queen Elizabeth II Gold Category (RoSPA) Award and more recently the Company received the Saudi Arabia Award for Environmental Management in the Private Sector.



Dr Jawahery ... achieving targets

During September 2017, some of the world’s leading experts in the fertiliser industry visited Bahrain to take part in the 8th Gulf Petrochemical and Chemical Association (GPCA) Fertiliser

Convenation. The event was held from September 26 to 28, 2017 in Bahrain and hosted leading industrial leaders from the Gulf and beyond. Participants discussed important issues, including the potential impact of changes in fertiliser trade; key factors of future growth and, topics related to creating a stable environment, recreating global distribution channels and, linking innovation to business. The Convenation showcased the latest and most important regional and global technological developments in the industry.

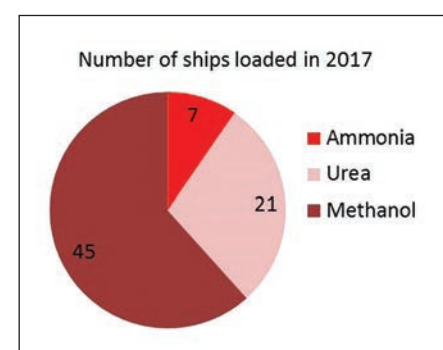
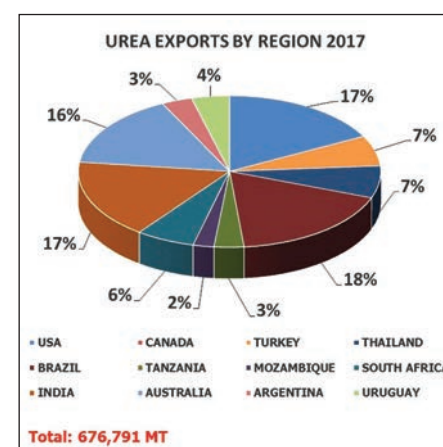
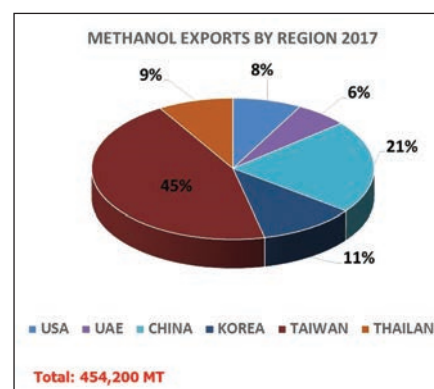
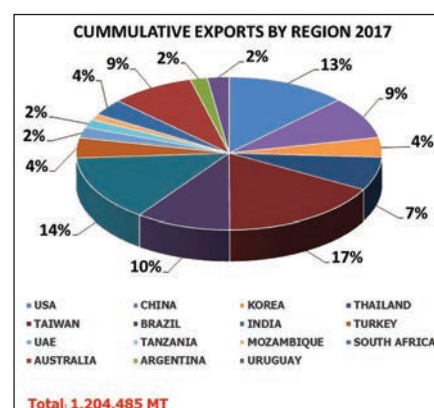
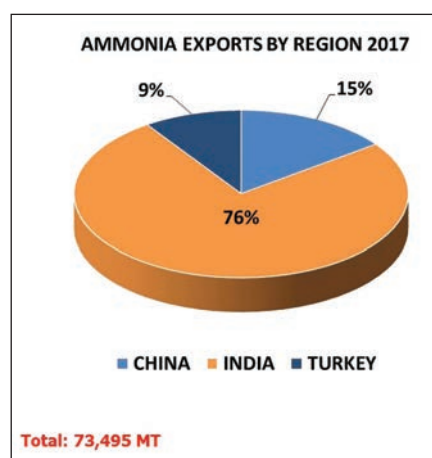
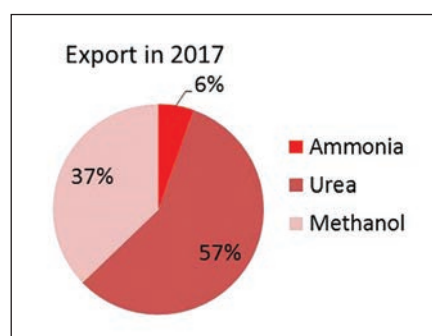
What was the total production target for 2017? What was the capacity utilisation at all the three plants? What have been the production trends for GPIC in terms of all three products?

Despite a global volatile economy, GPIC continued to ensure its operational excellence and production achievements as well as maintain all its plants to the highest levels of safety, productivity and reliability. The company was able to achieve its production targets and exceed its overall production targets by 1.4 per cent above the budgeted amount. Some of the highlights of production performance during 2017 were as follows:

- The monthly urea production of 62,300 tonnes for January 2017 was the highest ever achieved.
- The daily urea production of 2,055 MT on December 12 was the highest ever.
- The urea plant completed 933 days of continuous production run.
- The ammonia plant completed 804 days of continuous production run.
- The methanol plant completed 576 days of continuous production run.

As you know, GPIC is at the forefront of its drive for state of the art technology and its approach to supreme maintenance for its operations. Production performance in terms of the on-stream factor and utilisation factor, also reflects the high levels of safety, stability and productivity maintained over the last ten years for all three GPIC plants. This performance is attributed to the rigorous maintenance and inspection programmes practised by GPIC.

GPIC’s strict preventive, corrective maintenance programme and intensive inspection regime, supported by ideal operating



The event was the first of its kind in the Middle East and was aimed at enhancing the role of companies and their potential ability to play a key role in global chemical industries and ensure sustainable industrial growth.

As per new government regulations, all companies operating private jetties in the Kingdom of Bahrain are required to acquire a licence from the Bahrain Government. GPIC successfully ac-

quired licence for its Urea Marine Terminal in the first week of July 2017.

What were the export statistics for 2017? How does it compare with 2016? What is the projection for 2018?

Owing to the close cooperation with our marketers at Saudi Basic Industries Corporation (Sabic) of Saudi Arabia and Petrochemical Industries Company, Kuwait, GPIC was able to enjoy smooth export operations of the company’s products. In 2017, a total of 1.2 million metric tonnes of products were shipped on board 73 vessels.

As part of GPIC’s commitment towards encouraging and sup-



GPIC's board of directors

porting Bahrain's economy, methanol tanker loading was initiated on December 25, 2016 for local sale. This progressed very well during 2017 resulting in a total of 1,196 MT methanol being sold in that year. The methanol sold in Bahrain is used in the downstream industry thus boosting the sustainable development of the country.

What is GPIC achieving in terms of sustainability and the environment?

GPIC is not only a market leader in business but a well-known champion in sustainability.

Through the years we have scaled up the sustainability practices and initiatives and currently lead in a number of ways. Our focus on sustainability initiatives continues to be in leadership, collaboration and innovation.

Like other responsible businesses, GPIC too has directed its focus onto the Sustainable Development Goals and has proactively started to review, link and align its business priorities with the global priorities as articulated in the 17 Sustainable Development Goals. As a first step, we have shown our alignment to the global goals by linking our long term sustainability goals to the SDGs.

We have also started engaging the youth of our company and Bahrain through awareness campaigns on SDGs.

GPIC's leadership commitment and support for sustainable agriculture, food security and poverty eradication and its engagement with international organisations such as UNGC, UNEP, FAO gained significance and further momentum throughout 2016 when GPIC's president became the International Fertiliser Industry Association (IFA) president. GPIC's president is also an active member of UNEP's HLG for GEO 6 and provides guidance and policy position on regional assessments.

What was the cost of capex projects undertaken by GPIC in 2017? What were the main projects undertaken?

2017 was a challenging year for all industries, however GPIC maintained its commitments in terms of maintenance, modifications and new specification technologies as it gears up for the company's major turnaround in 2018.

Major approved Capex Projects during the upcoming Turnaround 2018 are well under way and will no doubt, facilitate in enhancing the safety and reliability of our process plants. This year our engineering department completed around 200 modifications

arising from rigorous Process Hazards Assessments conducted by the division.

GPIC has continued its major investments in various projects, including those that contribute to the preservation of the environment, such as the Carbon Dioxide (CO₂) Recovery Unit, which was successfully commissioned in December 2009 to contribute to the limitation of CO₂ emissions. The CO₂ Recovery Unit currently recycles around 450 metric tonnes daily of CO₂ for reuse in plant operations.

- The urea plant's dedicated flare system project was commissioned in November 2012. Modification of the ammonia plant venting system was also commissioned during November 2012.
- Installation of the new high-pressure boiler, new electrical substation and new hypochlorite unit was carried out in 2012 to enhance the plants' safety features and requirements of steam and electricity, aiming to further improve reliability.

During 2017, GPIC undertook a series of targeted cost optimisation projects initiated by every department across the organisation. This resulted in further enhancements to processes, systems and cost effective operational practices of the company.

UF85 project: The contract for a 22 metric tonnes per day (mtpd) urea formaldehyde (UF85) unit was awarded to JGC Gulf International Company, Saudi Arabia, for a lump sum cost of \$13 million. Actual production is expected to start during the third quarter of 2018. The project will contribute to securing GPIC's chemicals requirements for the manufacturing process of granular urea. The unit will manufacture urea formaldehyde, a necessary and key component in the production and manufacture of urea granules. (GPIC currently imports this from other countries).

The project reflects GPIC's commitment towards ensuring the sustainability and economic efficiency of its operations and the effective use of natural resources, minimising its impact on the environment and biodiversity.

The unit will be designed and constructed for GPIC's captive consumption, making the existing operation more reliable and eliminating any dependency on external agencies. The new unit will run at low and optimised costs to produce the critical raw material needed for Urea manufacture.

New Nitrogen plant: A new cryogenic nitrogen unit with a capacity of 950 Nm³/hr is being installed to meet the additional demand of nitrogen on normal operations and during plant turnarounds. This nitrogen generator package system is supplied by 'Air Liquid, Global E & C solutions' who have extensive experience in air separation plants with over 3,500 plants built around the world. This new plant will utilise the standard cryogenic distillation technology, enabling the separation of air into one of its main component: nitrogen. The plant is being installed and expected to start production of nitrogen by March 1, 2018.

The installation of the plant will improve the availability of nitrogen to GPIC's methanol storage tanks and other critical equipment during maintenance downtime of the existing nitrogen unit.

Continued on Page 18



GPIC's urea plant

GPIC reinforces its position in the petchem sector



GPIC ... technical personnel at work

Continued from Page 17

What were the tasks undertaken by the maintenance department in 2016 to improve reliability? How many orders were undertaken for 1) preventive maintenance 2) corrective maintenance 3) modifications?

In 2017, GPIC's Maintenance Department continued its consistent efforts to enhance safety and reliability throughout the complex, placing special emphasis on the process plants. Accordingly, the objectives and key performance indicators for the department were set and monitored closely on a quarterly basis, resulting in the company's objectives being achieved.

GPIC's maintenance activities of note were as follows:

Major jobs executed during 2017:

- Employee car park extension at south of Mosque: all activities are completed;
- Desalination Plant I: All maintenance activities are completed;
- Desalination Plant II: All maintenance activities are completed;
- Installation of new tank T-4201C: Overall construction activities completed;
- Fin Fan Coolers: All PM maintenance activities are completed as per Winter Schedule;
- Installation of marine floating barrier at urea jetty;
- Biological treatment plant unit shutdown maintenance activities are completed;
- Painting of methanol plant structures for 15 & 18 areas completed;
- Ammonia export vapour line repair works are completed;
- Replacement of 415V switchboard at substation#3;

- Replacement of R-1102 catalyst;
- Constructing of a new nitrogen plant project [In progress]; and
- Refurbishment of boiler B-5201B [In progress].

How much CO₂ is being treated daily after the commissioning of the carbon capture system at GPIC?

In partnership with Mitsubishi Heavy Industries (MHI), GPIC hosted a technical conference on carbon dioxide extraction during the latter part of 2015. GPIC was the first company in the region to successfully construct its Carbon Dioxide Recovery Unit and employ such technology. The conference gave us the opportunity to share our extensive expertise and knowledge with the industry sector in this regard.

Our organisation holds the protection and sustainability of the environment in the highest regard and we will continue to endeavour to share our capability with everyone in this sector and seek out the latest environment-friendly technologies in the petrochemical manufacturing process.

Our CDR, which has been in full operation since 2009, has so far extracted over 750,000 tonnes of Carbon Dioxide, which has been used to enhance the production of urea and methanol. This translates to an average of 200,000 Nm³/day CO₂ being captured by the CDR recovery unit.

How did GPIC enhance and strengthen its Health, Safety and Environmental (HSE) management systems in 2017? What were the achievements?

GPIC achieved well over 22 million accident free man-hours in

2015 and by the end of 2017, it achieved over 24.5 million accident free hours. The table top exercises conducted each year contribute to the company's record of 24.5 million safe man-hours and no lost time accident days reaching 5,400 to date.

The following is a list of significant SSHE achievements during 2017:

- Safety training continued to be provided for both Operations and Non-Operations personnel. During 2017 there were 27 Modulised Emergency Response Training (MERT) sessions, attended by plants operation and maintenance personnel;
- GPIC's First Aid training and Community outreach programme with National Safety Council(NSC)-USA which started in 2012 is continuing and to date we have trained more than 400 employees, contractors, industrial and university students, summer camp children, employees' wives and others;
- As part of responsible care we provided fire and safety training to personnel from Civil Defense, BDF, Bahrain Society of Engineers, Royal Court, industrial trainees, contractors, etc;
- GPIC is constantly outreaching and engaging contractors for SSHE training certification with IMIST (International Minimum Industry Safety Training). This certified learning training tool is being used at GPIC to enhance the safety knowledge and capacity building of contractors. The certification is based on the OPITO (Offshore Petroleum Industry Training Organisation) guideline, UK. To-date 108 number of contractors have been certified which includes all levels such as, safety officers, site engineers, site supervisors / foremen and different crafts to ensure that safety is well understood and implemented at all times;
- 208 employees have attended Safety Media e-learning courses and 238 hours of Safety Media e-learning were completed in 2017. These courses are instructionally designed to engage staff for maximum knowledge retention, including full testing and risk analysis of employees. All courses are SCORM (Sharable Content Object Reference model) compliant and CPD (Continuing Professional Development) certified, with majority now achieving RoSPA accreditation;
- GPIC revamped and enhanced its risk management procedure and the new IT based platform was enabled. In addition to this the new GPIC Incident management system (GIMS) has been rolled out and the company's Permit to Work (PTW) procedure has been further improved;
- GPIC hosted the ASIS Middle East 2017 conference with the theme Securing Economic Diversification. The conference was held in Bahrain in November. The ASIS International is the leading organisation for security professionals worldwide and it is dedicated to increasing the effectiveness and productivity of security professionals. GPIC SSHE manager is a member of Middle East Regional Advisory Council of ASIS International;
- Replacement of existing conventional lights in process areas, non- process areas, buildings and street lights with energy efficient LEDs. 455 LED light fittings were installed in 2017, with an energy saving of 272 MWH/year and a total reduction in carbon emissions by 157 tonnes per year;
- As part of Post COP 21 requirements, GPIC in collaboration with NOGA provided training to its Greenhouse gas (GHG) inventory reporting team members on the use of IPCC GHG Inventory software and issued its second GHG Inventory Report in 2017;
- GPIC in cooperation with UN Environment and Ministry of Education continued with the Green Wave initiative that was launched in 2015. Through this programme we sponsor and facilitate the planting of local trees at public schools in order to promote biodiversity awareness and encourage environmental stewardship. At each school a variety of local tree saplings, such as pomegranate and olive, are planted by the students. The campaign for the 2017/2018 academic year is now concluded, with a total of 20 primary, intermediate and secondary boys and girls schools participating. Furthermore, during October and November, 800 local sapling trees were planted at the participating schools. It is worth mentioning that since the launch of the programme in 2015, 50 schools have benefited from the programme with the distribution of 2,000 sapling trees in total; and
- To date we have recycled 111 tonnes of plastic, paper, metal cans and card board. Additional waste recycling points were introduced in employee's car park areas and the GPIC Club. This has resulted in a reduction of our carbon emissions by 190 tonnes.



GPIC ... safety is paramount for the company



شركة توسعة غاز البحرين الوطنية (ش.م.و.)
Bahrain National Gas Expansion Company (S.P.C)



شركة غاز البحرين الوطنية (ش.م.ب.)
BAHRAIN NATIONAL GAS COMPANY (B.S.C)



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Banagas expansion on track, CGP-III startup seen in Q4

By exporting recovered petroleum constituents as commercial products, the project will contribute to the development of the oil and gas industry in Bahrain and generate additional revenue for the Government of Bahrain

BAHRAIN National Gas Company's (Banagas) sales turnover reached \$148.28 million in 2017 enabling the company to successfully turn around projected losses into a net profit for the year, says the company's Chief Executive Dr Sheikh Mohamed Bin Khalifa Al-Khalifa.

"As per market projections, we expect our product prices to moderately improve in 2018. However, that might not be sufficient to counter the many challenges faced by the company in 2018. These include an escalation in the price paid for gas and utilities, the need to continue funding the significant capital expenditure needed to modernise our plant facilities and the resources necessary to maintain the company's excellent record in Safety, Health and Environment," says Sheikh Mohamed in an exclusive interview with *OGN*.

The biggest challenge for Banagas in 2018 is to successfully complete its expansion project. This involves bringing on line the third gas plant (Train-III), with 350 mmscfd (million standard cubic feet per day) capacity, double that of the current processing capacity, and expansion of its storage facilities together with all necessary supporting facilities.

Every effort is and will be made to ensure this project is completed on time and to budget. Upon the project completion, Banagas will significantly increase its contribution to the national economy as well as the employment market by providing more than 100 additional jobs for Bahraini nationals, he says.

The engineering, procurement and construction (EPC) contract for CGP-III had been awarded to JGC Corporation in Yokohama, Japan on January 27, 2016 and work commenced on site by mid-May 2016. Through 2017 the majority of equipment was delivered and installed with associated piping, electrical and instrumentation works progressing in parallel. Works are proceeding on schedule to commence pre-commissioning and commissioning activities in 2018 and to achieve first production sometime in the Q4 2018. As of the year-end (2017), 100 per cent of engineering, 98 per cent of procurement and 68 per cent of construction activities have been completed where the overall project progress was 87 per cent, he says.

The EPC contract for the Field Pipelines and Sitra Storage Expansion was awarded to JGC Gulf International of Saudi Arabia on October 4, 2016. The contract involves installation of a



Sheikh Mohamed ... on the cusp of changes

new pipeline system to transport gas from Tatweer Petroleum's compressor stations to the CGP-III, a pipeline system to return residue gas to the existing Tatweer reinjection header, tie in to existing pipelines and approximately 21 km long additional butane product pipeline from CGP-III to Sitra. The scope also include modifications to the Sitra Storage facility to accommodate the additional production. This includes installation of two additional storage tanks, one 200,000 bbl for propane and one 100,000 bbl for butane, addition of a new propane compressor train, new flare, fire water pumps, control room, switch room, land reclamation to accommodate the new equipment being installed and associated

instrument and electrical works.

As of the year-end (2017), 100 per cent of engineering, 98 per cent of procurement and 68 per cent of construction activities have been completed where the overall project progress was 72 per cent against the planned 74 per cent. Commissioning is expected to commence in September 2018 in preparation to receive the product from CGP-III, says Sheikh Mohamed.

Excerpts from the interview:

How were the operational and financial results for Banagas in 2017? Please give the company's turnover, profits and revenue earned in 2017?

The 2017 operational and financial results are moderately much better than 2016. This was mainly attributed to the increase in crude oil prices from \$43 (average 2016) to \$54 (average 2017) which directly influenced the company's propane, butane and naphtha prices. However, such increasing gains did not stop the cost saving initiatives started in 2015 and its effects which was felt in 2016 and 2017.

The company produced a total of 2.5 million barrels of product, 5 per cent lower than the previous year. In addition we have managed to keep unplanned shutdowns to a minimum while working three million man-hours without a lost time accident. Financially, our sales turnover reached \$148.28 million and we were able to successfully turn around projected losses into a net profit for the year.

How did Banagas tackle the challenging year of 2017 when oil prices kept falling? And what is your market outlook for 2018? What are the major challenges that you will be facing over the next few years?

Crude oil prices averaged \$54 in 2017 and as per various reports and analysts it will average \$60/bbls in 2018 and \$61/bbls in 2019. In January 2018 oil prices briefly hit \$70/bbls which was the highest monthly average since 2014. Oil price forecasts depend on the interaction between supply and demand for oil on international markets. Among the most important supply-side factors are the US shale oil production, US crude oil stocks and Opec oil supply. The comforting news is that Opec oil production cuts will be extended to March 2018 which may stabilise crude prices during the year.

We at Banagas still think that the market is facing difficulties even with such moderate product price gains. The company responded by reducing capital spending and aggressive cost cutting which will continue without any compromise in development projects which will affect the production and safety of our employees and plant operations. Despite all sluggish market condition, the company will significantly continue its turnaround inspections to minimise the frequency of shutdowns and maintain production at optimum levels.

As per market projections, we expect our product prices to moderately improve in 2018. However, that might not be sufficient to counter the many challenges faced by the company in 2018. These include an escalation in the price paid for gas and utilities, the need to continue funding the significant capital expenditure needed to modernise our plant facilities and the resources necessary to maintain the company's excellent record in Safety, Health and Environment.

The biggest challenge for Banagas in 2018 is to successfully complete our expansion project. This involves bringing on line the third gas plant (Train-III), with 350 mmscfd capacity, double that of the current processing capacity, and expansion of our storage facilities together with all necessary supporting facilities. Every effort is and will be made to ensure this project is completed on time and to budget. Upon the project completion, Banagas will significantly increase its contribution to the national economy as well as the employment market by providing more than 100 additional job places for Bahraini nationals.

When exactly do you plan to commission Bahrain's 350 MMSCFD (million standard cubic feet per day) Central Gas Plant III, part of the Banagas expansion project, and Bahrain National Gas Expansion Company's (BNGEC) \$99 million Field Pipelines and Sitra Storage Expansion Project?

The engineering, procurement and construction (EPC) contract



Banagas ... operational excellence



The Banagas team

for CGP-III had been awarded to JGC Corporation in Yokohama, Japan on January 27, 2016 and work commenced on site by mid-May 2016. Through 2017 the majority of equipment was delivered and installed with associated piping, electrical and instrumentation works progressing in parallel. Works are proceeding on schedule to commence pre-commissioning and commissioning activities in 2018 and to achieve first production sometime in the Q4 2018. As of the year-end (2017), 100 per cent of engineering, 98 per cent of procurement and 68 per cent of construction activities have been completed where the overall project progress was 87 per cent.

The EPC contract for the Field Pipelines and Sitra Storage Expansion was awarded to JGC Gulf International of Saudi Arabia on October 4, 2016. The contract involves installation of a new pipeline system to transport gas from Tatweer Petroleum's compressor stations to the CGP-III, a pipeline system to return residue gas to the existing Tatweer reinjection header, tie in to existing pipelines and approximately 21 km long additional butane product pipeline from CGP-III to Sitra. The scope also include modifications to the Sitra Storage facility to accommodate the additional production. This includes installation of two additional storage tanks, one 200,000 bbl for propane and one 100,000 bbl for butane, addition of a new propane compressor train, new flare, fire water pumps, control room, switch room, land reclamation to accommodate the new equipment being installed and associated instrument and electrical works. As of the year-end (2017), 100 per cent of engineering, 98 per cent of procurement and 68 per cent of construction activities have been completed where the overall project progress was 72 per cent against the planned 74 per cent. Commissioning is expected to commence in September 2018 in preparation to receive the product from CGP-III.

Since the expansion is moving forward in anticipation of long-term supply of gas, what plans are in place to ensure adequate gas supplies?

Currently 350 mmscfd of associated gas is re-injected into the reservoir without processing. Tatweer Petroleum forecasts indicate that this volume of gas will be available even after 2029. However, there will be a slight decline in the yield of LPG and naphtha over the lifetime of the project.

Tatweer Petroleum will supply CGP-III with the required amount of associated gas through an Incremental Associated Gas Processing Agreement.

What will be the biggest benefits from the expansion?

The new CGP-III facility will recover high-value-added petroleum constituents (LPG and naphtha) contained in the petroleum-entrained gas which have not been recovered in the past. By exporting recovered petroleum constituents as commercial products, the project will contribute to the development of the oil and gas industry in Bahrain and generate additional revenue for the Government of Bahrain.

The project also will increase employment opportunity in Bahrain by generating additional jobs.

With the kingdom making sizeable efforts to boost production and increase recovery levels from the mature Bahrain field for which further gas will be needed for reinjection, do you see gas imports starting even before the LNG terminal becomes operational by 2019?

Development of Bahrain's own gas resources goes side by side with LNG importing facilities. According to a forecast the associated gas supply to Bahrain National Gas will be available even after 2029. Therefore, the kingdom is not expected to import any gas for before commissioning of the LNG terminal scheduled for 2019.

As you are aware, our business activity depends on the availability of associated gas as feed, even as Tatweer Petroleum with no holding are closely working together to ensure that gas injection continues in the oil field.

What were some other new projects/contracts signed during the year? Please give details.

- Completed installation and commissioning of new XV in the main fuel gas line to glycol dehydration unit CGP-II, CS-1, CS-3, CS-4 and CS-9;
- Completed Phase-II of CGP firewater network revamp;
- Successfully completed T&I Shutdown works on the following: Central Gas Plant II, Sitra Storage II, Compressor Stations 5 and 9;
- Awarded contract for the construction of additional warehouse and maintenance workshop and work started;
- Life assessment and repair works on major equipment foundations as part of aging policy;
- Awarded the project for the construction of new landfill area as part of waste management system;
- Upgrading of fence works of company facilities as part of security plan;
- Field pipeline maintenance in accordance with agreed schedule;
- Project to replace the GE Frame-3 gas turbine modules, control systems, starting system and local control from pneumatic to electronic at compressor stations 1, 3 and 4;
- Contract for exchanging Ruston gas turbines at CGP-1 and CGP-2, these gas turbines, driving the refrigeration compressors, two each in CGP-1 and CGP-2, have been operating since 1979 and 1990 respectively. CGP-I gas turbines will be exchanged with TB-5400 turbines which is slightly higher in power. The starting system will also be replaced;
- Completed Mechanical Seal retrofit of two Pumps with double mech.seal in CGP-I for improved safety and reliability;
- Installed, Commissioned 10KVA UPS connected to CGP-I DCS system; and
- Awarded annual maintenance contract for 40KVA UPS.

What is your gas production and consumption forecast for the next years for Bahrain?

Average production from CGP-I/II for the next 5 years will be:

Propane: 3,800 bpd

Butane: 3,900 bpd

Naphtha: 4,700 bpd

Fuel gas consumption by CGP-I/II will be about 35 mmscfd. Average production from CGP-III after commissioning in 2019 will be:

Propane: 3,700 bpd

Butane: 3,000 bpd

Naphtha: 5,700 bpd

Fuel gas consumption by CGP-III will be about 8.5 mmscfd.

What is your take on the pricing of gas supplied to the industrial sector? Do you think there is need for price revision taking into consideration the current economic situation?

In the GCC, the low gas prices, which are set considerably below international prices to encourage investment, have traditionally provided the region's industrial sector a significant competitive advantage. Low prices allowed many LPG and petrochemicals companies to quickly capture a larger share of the global market, thus proving good financial returns to pay off capital investment. While abundant and cheap gas has played a critical role in the development and diversification of the economy, the current financial model is not sustainable as the cost of new gas production is continuously and significantly on the rise. According to market reports, gas production costs are in the increasing trends (\$7.00 per thousand cubic feet by 2030). Therefore, in a move in the right direction, many countries across the region, and Bahrain is one of them, have taken major and decisive steps to increase gas prices. I believe such price increases are fair and a reasonably sound market strategy considering that gas prices should accurately reflect the cost of supply and value of the gas to consumers.

I think there definitely should be a need for a price revision taking into consideration the current economic situation and therefore the need to adopt a gas pricing reform that should react to market fundamentals. However, the gas pricing structure should be carefully crafted through a mechanism that would place the GCC gas prices closer to its true value and somehow reflect the global and regional dynamics of supply and demand. Nonetheless, and as quoted by many gas pricing reviews, gas prices should follow a formula that is linked to either the crude oil index or an international/ local price gas hub. Either way, it will have adverse consequences on current and old consumers if not managed carefully. The formula should be flexible and targeted to capture the risk mitigation measures of gas prices increases versus product prices decline to ensure that the benefits of the new pricing model are accepted by all parties.

What national, regional and international recognition has Banagas received during the last year? How does Banagas ensure quality in its operations? What have been your achievements in this regards?

HSE Awards Received by Banagas in 2017:

- "Industry Sector Winner Award (Oil & Gas Industry)" from the Royal Society for the Prevention of Accidents (RoSPA) – UK;
- "International Safety Award with Distinction" from British

Continued on Page 22

Banagas expansion on track, CGP-III startup seen in Q4

Continued from Page 21

- Safety Council (BSC) – UK;
- “International Safety Sector Award Winner” from British Safety Council (BSC) – UK;
- “First Place, Division II classification, International Safety Award” from Gas Processors Association (GPA) – USA;
- “Occupational Excellence Award” from the National Safety Council – USA; and
- “Combined OHSAS 18001:2007 and ISO 14001: 2004 Re-Certification from Bureau Veritas Certification (BVC).

How does Banagas ensure quality in its operations?

Banagas follows all international standards in its operations and is benchmarked against international companies across its activities.

In December, the Company Quality Management System was audited by BSI and recommended for continued ISO 9001 – 2015 certification. Based on ISO 9000 family of quality management systems standards, Banagas developed comprehensive Quality Policy and Quality Management Plan which is designed to help Banagas to ensure that they meet the needs of customers and other stakeholders while meeting statutory and regulatory requirements related to LPG production.

How is Banagas addressing environmental concerns associated with gas production?

Banagas addresses environmental concerns associated with gas production as follows:

- Prevention or reduction of environment concerns in context to our operations are integrated with corporate strategic planning and aligned to annual business plan objectives;
- Reporting Greenhouse Gas emissions to the National Oil & Gas Authority (Noga);
- Sustainability continues to be a fundamental for our Corporate Strategy and it emphasises in particular the protection of environment by striving to achieve “no venting, no flaring”;
- Empowerment of existing HSE Policy and management systems;
- Strictly complying with ISO 14001 (Environment Management System) requirements;
- Bahrain Environment regulations and standards are completely complied with in the design of all our new facilities;
- Identification of potential environmental aspects and establishment of suitable operational controls is integrated into Manage-



Banagas ... meeting the gas needs of Bahrain

- ment of Change system, which controls all process changes;
- As part of our obligation towards protecting the surrounding environment, actions agreed under 5 years Environment Compliance Plan signed between Banagas and Bahrain’s Supreme Council for the Environment is being timely implemented;
- As part of our commitment to continually improve company’s environmental performance the following projects are being undertaken:
 - An ambitious project to retrofit existing gas starting motor powered by high pressure gas with high efficient electrical motor controlled by variable speed drive is being undertaken

since 2017 to minimise venting of fuel gas during start-ups. In 2017, two retrofits completed and the remaining retrofits planned for completion by 2022.

- A Lube Oil Mist Eliminator has been installed and successfully commissioned at Compressor Station – 6 to minimise oil vapour emissions to the atmosphere.
- Replaced all Mercury Vapour type street & CCTV light are changed to LED type in CGP-I and CGP-II, as a part of energy conservation & environmental improvements.
- Successfully organised Safety, Health, and Environment Week on the theme “Health is Wealth”.



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Tatweer optimises spending, achieves production goals

The company continues to invest in Bahrain's local workforce and is dedicated to the development of Bahraini nationals through training and knowledge transfer. It takes pride in the rise of its nationalisation rate to over 80 per cent in 2017

TATWEER Petroleum, Bahrain's upstream operator created eight years ago to improve oil and gas production of the mature Bahrain Field, managed on an average 44,200 bpd of crude and condensate production in 2017, says James Kenneth Eastlack, CEO, Tatweer Petroleum.

Total Khuff gas production averaged 1,410 million standard cubic feet per day (mmscfd), with a peak production rate of 1,780 mmscfd in August, Eastlack tells *OGN* in an exclusive interview.

Some 66 new oil wells were successfully commissioned, which contributed to production stabilisation in 2017 he says adding that the total number of wells drilled since 2010 is 949.

When Tatweer Petroleum assumed stewardship of the Bahrain Field, the kingdom's oil production was at approximately 26,000 bpd. Since then, Tatweer has managed to increase production by 60 per cent of that rate.

"This is mainly due to the dedication and efforts of our employees, using the knowledge and expertise of our previous partners, implementing new technologies, and focusing on generating innovative ideas. We hope to continue to maintain, if not increase, production despite the monumental challenges we face, which include the dip in global oil prices," he says.

As part of Tatweer's initiatives to improve oil production, a multidisciplinary team was formed in early 2016 to combine the efforts of Operations, Facilities, Subsurface, Production Engineering and Maintenance, Supply Chain and Executive Management.

As a result, the team has carried out significant surface and sub-surface improvements, including operations enhancement, identifying physical bottlenecks, review of underperforming wells, exploring new ways to identify and tackle wells issues, and continuously strive in accelerating other project works.

Tatweer continues to invest in its pilot appraisals for thermal enhanced oil recovery in readiness for when oil prices recover.

"Our spending this year will be highly optimised in order to focus on the best opportunities to maximise the economic production of oil. Since the start of the oil price downturn at the end of 2014, we have successfully managed our programmes to reduce our costs of production and we are now among the lowest of the regional producers, to an extent that eases some of the pressure we face under this low oil price environment. Choosing the best development wells as well as dramatically scrutinising and improving the margin on each dollar we invest is essential," he says.

Eastlack says the most significant challenge Tatweer is facing continues to be the low oil price. In addition to that, it has a very complex set of 16 stacked reservoirs from extra-heavy oil near the surface to very light oil deeper down in the structure. Each reservoir has its own unique characteristics and requires different recovery techniques to be applied – they also require an enormous amount of hard engineering work to keep them performing.



Eastlack ... continuing to invest

Excerpts from the interview:

What have been the significant achievements of Tatweer during 2017?

Tatweer Petroleum continues to invest in Bahrain's local workforce and is dedicated to the development of Bahraini nationals through training and knowledge transfer. The company takes pride in the rise of its nationalisation rate to over 80 per cent in 2017.

We also continue to focus on the health, safety and environment aspects of our operations. In 2017, we exceeded expectations set for the Safety Observation Cards programme, by reporting an average of 10 reports per employee, which surpassed our goal of 8 reports per employee. Additionally, Motor Vehicle Related Offences points were drastically reduced from 350 points (2016) to 74 points (2017).

What was the average crude and condensate production during

2017? What was the total Khuff gas production during the year?

Crude and condensate production averaged 44,200 bpd in 2017. Total Khuff gas production averaged 1,410 million standard cubic feet per day (mmscfd), with a peak production rate of 1,780 mmscfd in August.

How many new wells were commissioned? What is the total number of wells drilled by Tatweer so far?

Some 66 new oil wells were successfully commissioned, which contributed to production stabilisation in 2017. Total number of wells drilled since 2010: 949 wells.

After over eight years of operation how much have you been able to improve production at the Bahrain Field?

When Tatweer Petroleum assumed stewardship of the Bahrain Field, the kingdom's oil production was at approximately 26,000 bpd. Since then, Tatweer has managed to increase production by 60 per cent of that rate. This is mainly due to the dedication and efforts of our employees, using the knowledge and expertise of our previous partners, implementing new technologies, and focusing on generating innovative ideas. We hope to continue to maintain, if not increase, production despite the monumental challenges we face, which include the dip in global oil prices.

Have you achieved your output targets? If not, why? If yes, what were the factors that contributed towards the achievement?

As part of Tatweer's initiatives to improve oil production, a multidisciplinary team was formed in early 2016 to combine the efforts of Operations, Facilities, Subsurface, Production Engineering and Maintenance, Supply Chain and Executive Management. As a result, the team has carried out significant surface and sub-surface improvements, including operations enhancement, identifying physical bottlenecks, review of underperforming wells, exploring new ways to identify and tackle wells issues, and continuously strive in accelerating other project works.

Do you plan fresh capital injection to fast-track the field development?

Tatweer continues to invest in its pilot appraisals for thermal enhanced oil recovery in readiness for when oil prices recover. Our spending this year will be highly optimised in order to focus on the best opportunities to maximise the economic production of oil. Since the start of the oil price downturn at the end of 2014, we have successfully managed our programmes to reduce our costs of production and we are now among the lowest of the regional producers, to an extent that eases some of the pressure we face under this low oil price environment. Choosing the best development wells as well as dramatically scrutinising and improving the margin on each dollar we invest is essential.

What are the targets set by Tatweer for 2018?

Tatweer Petroleum plans to continue its focus on optimising the ongoing Improved Oil Recovery schemes such as steam injection and artificial lifting techniques which have shown good potential to extract more difficult oil from the Bahrain field. We see our company as a leader in the development of mature fields in the area. We need to maintain production levels, while better understanding the economic potentials of our EOR pilot appraisals.

What are the challenges that you face currently in your task of boosting output? How do you overcome them?

The most significant challenge we are facing continues to be the low oil price. In addition to that, we have a very complex set of 16 stacked reservoirs from extra-heavy oil near the surface to very light oil deeper down in the structure. Each reservoir has its own unique characteristics and requires different recovery techniques to be applied – they also require an enormous amount of hard engineering work to keep them performing. But having said that, Tatweer has one of the strongest technical teams in the industry and we are very confident that once oil prices recover our teams will be ready and waiting with our expansion plans.

What were the new construction projects undertaken during 2017?

In 2017 Tatweer Petroleum commenced a number of projects



Tatweer ... producing more oil



Tatweer ... drilling for progress

with the aim to streamline operations and increase production.

Work continues for the installation of a 500 mmscf/d Gas Dehydration Unit (GDU) as part of the NAG Long Term Field Development (LTFD) project, with expected completion in 2018.

A total of 2 cyclic steam wells were installed in 2017 as part of the West Steam Appraisal data collection programme. These facilities have provided the Subsurface department with additional thermal handling and testing capabilities as part of the Rubble thermal expansion.

An additional 47 beam pump wells were connected to the 11 KV network, bringing the total number of phased-out Beam Pump rental diesel generators, which have been converted to permanent power, to 562 as of end of 2017.

Last but not least, the control system upgrade was completed at 7 remote oil well manifolds in 2017 and the remaining 3 units will be commissioned by 2018. The project has achieved better surveillance and control from the Central Control Facility through fiber optic connectivity, thereby bringing the entire oil, water, and steam production into the high speed fibre optic network.

What new technologies have you employed in 2017 to improve production at the Bahrain Field?

The Tatweer multidisciplinary team mentioned earlier continues to study employing new technologies to further improve production in the Bahrain Field. A few of these technologies that are either being studied or were implemented and are under evaluation include:

- Autonomous inflow control device;
- Surge frac;
- Plasma pulse;
- Zero pressure surface skids;
- Alternating production of high GOR wells; and
- Dynamic underbalance perforation.

How many more professional and skilled jobs have been added in 2017 as result of Tatweer's operations?

Tatweer Petroleum's total headcount has increased during 2017.

The company accepted 69 Petroleum Engineering & Exploration (PETEX) Division employees from Bapco on July 1, 2017.

What is the Bahrainisation rate that you have achieved so far?

Tatweer Petroleum's nationalisation rate rose from 79 per cent to just over 80 per cent in 2017.

How many hours of training do you plan to impart to the local workforce in 2018?

In 2017, Tatweer delivered more than 43,000 man-hours of training and development to its employees in the form of developmental assignments and technical, business, and HSE training. In addition to this, our annual summer internship programme provided a two month work experience for 21 Bahraini students attending local and international universities. We also hosted nine students from Sheikh Nasser Vocational Technical Center for six weeks and another five students from Bahrain Bayan School for two weeks for experiential learning programmes.

Furthermore, the company launched the Individual Development Plan (IDP) programme as part of its commitment to train and develop Bahraini employees in their respective fields of responsibility. With the IDP programme, we have been able to put in place personalised development plans for all eligible Bahraini employees. These plans were implemented in 2016 and continued in 2017. Progress relative to these plans is tracked throughout the year for each Bahraini employee to achieve agreed technical and other competency targets.

How has Tatweer helped improve the economic prosperity of Bahrain? How does it align with the Kingdom's Economic Vision 2030?

Tatweer Petroleum continues to support Bahrain's economic vision 2030 by transferring technology and skills to develop Bahrain's workforce through focusing on the betterment of Bahraini nationals through extensive training programmes. A total of sev-

enteen Bahraini nationals were promoted to leadership or higher level leadership positions in 2017 and leadership training will continue in 2018 to develop and better prepare Bahraini employees for future higher-level roles.

How many local contractors have benefited from Tatweer?

Currently Tatweer runs its business through over 1,000 contracts. Excluding services that can only be provided by companies outside of Bahrain, approximately 60 per cent of all contracts and purchases were awarded to Bahraini companies.

What are Tatweer's HSE goals and how they are going to be met?

Tatweer Petroleum aims to provide a safe and injury free work place for its employees and contractors, and strives to continuously enhance its HSE programmes and initiatives to prevent and mitigate incidents involving people and the environment. We continuously strive to improve HSE programmes to ensure that operational risks are minimised, through a combination of implementing new initiatives and further enhancement of the existing HSE management systems.

Considerable efforts and resources are always focused on improving HSE practices in the Bahrain Oil Field. The HSE Management Walk-Through programme, which involves Managers and Executive Management team members in planned visits to key facilities, was continued in 2017 and included a total of 15 visits to various facilities as well as high risk activity camps for contractors.

In 2017, HSE leadership assessment and training were conducted for both Tatweer management and staff to further enhance the Company's safety culture. This initiative will continue throughout 2018. During the year, the Tatweer HSE department expanded HSE awareness and technical training programmes to ensure that staff receive the correct level of training and to improve the safety culture of the organisation. In total, 12453 training man-hours was expended to train Tatweer staff.

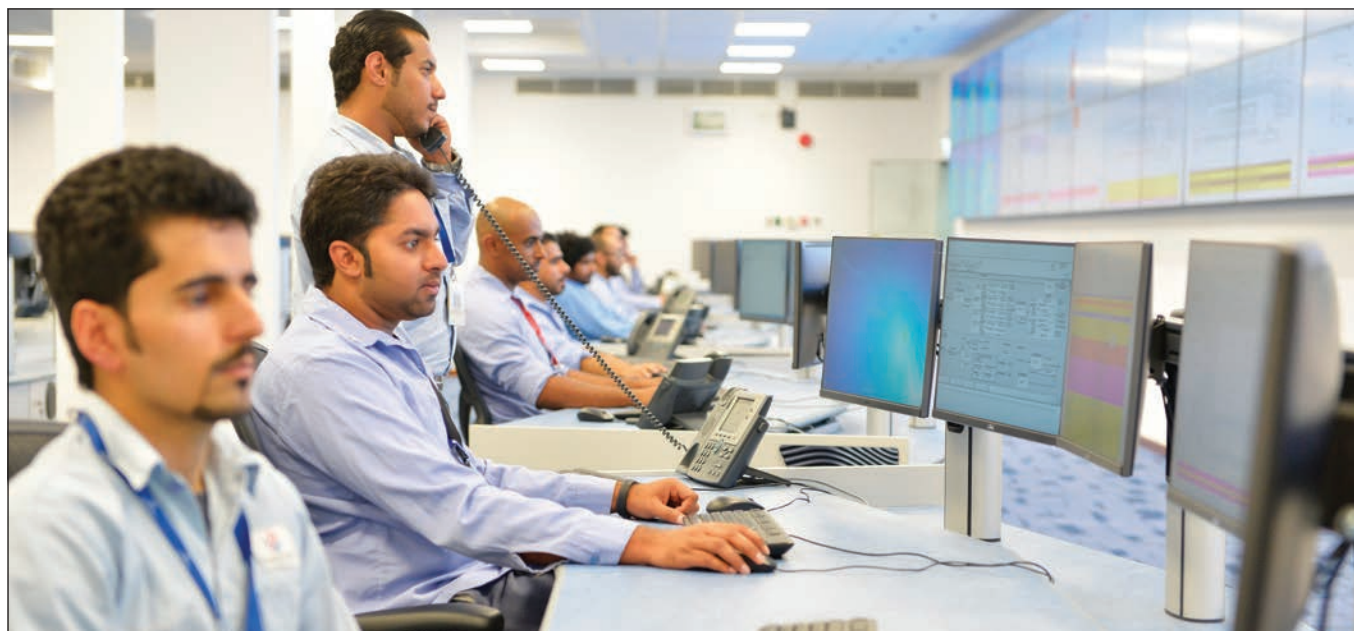
In our efforts to ensure Tatweer personnel and contractor HSE competency, approximately 240 class room training sessions were organised by the Tatweer Petroleum HSE department, namely:

- Permit to work and Job Safety Analysis;
- Lock out / Tag out;
- Hazard Recognition and Reporting;
- HSE Observation and Process Safety;
- HSE Orientation; and
- Heat Stress Management.

We also sponsored several HSE campaigns in 2017 related to hand safety and heat stress prevention. These and other programme improvements and topics were added to the Contractor HSE Forums to improve communication between Tatweer and its contractors. Other HSE Health related campaigns were also promoted including a Blood Donation drive, Breast Cancer Awareness, and Men's Health.

How many work hours have been achieved at the site? How many man-hours have been clocked without lost time accident (LTA) for contractors?

Tatweer and its contractors worked over 8 million man-hours in 2017 and our contractors had ZERO Loss Time Injury (LTI).



Tatweer ... a trained workforce



Boxshall ... safer systems

Global Remote sees solid prospects

The technology that Global Remote utilises in its industrial rope access applications, is a system that was developed by IRATA, of which the company is a member

BAHRAIN-based Global Remote, a leading global service provider involved in 'Inspection, Maintenance and Repair' (IMR), for the energy, marine and civil sectors, sees solid prospects in the region and specifically with the oil and gas titans of the Middle East.

Global Remote provides cost effective, versatile and time efficient solutions for a vast range of IMR works with access-related issues, utilising the internationally approved Industrial Rope Access Trade Association (IRATA) rope access systems. "We service a growing client base, delivering comprehensive range of services, from industrial rope access, conventional and advanced NDT inspection services, tank calibration and surveys, PWHT Services, subsea diving services, training and HR services," says Tony Nellicken the group's Bahrain-based director. "We serve different segments of the industry such as energy (onshore and offshore), marine, civil and geotechnical."

The technology that Global Remote utilises in its industrial rope access applications, is a system that was developed by the company's member association IRATA, which is based in the UK. IRATA started in the mid-80s, promoting exceptionally safe and agile systems for access to difficult structures.

"We are registered with IRATA, as we recognise it as the premier accreditation globally. The IRATA systems are particularly well renowned, and are now statistically recognised as up to four times safer than any other work-at-height systems on the market. That's a great testament to the years of hard work and dedication of IRATA members," says Global Remote's co-founder and operations director, Boyd Boxshall.

Since the group's inception in early 2007 in Hong Kong, the operation base was relocated to Chennai, India in 2009, and partnered with the co-founder and managing director, Jaison PI. The company has since seen its footprint continuing to expand across the globe, and specifically the Bahrain office in 2013, Boxshall adds. "We have expanded the brand in the Middle East over the last four years with company offices opening in Qatar, Bahrain and the UAE. We are now focusing on consolidating these offices, and expanding into the US, Canada and Saudi Arabia in 2018," Boxshall says. Global Remote is currently servicing the Americas, Asia, Middle East and Africa through its established and partner offices in Azerbaijan, Bahrain, India, Iraq, Kazakhstan, Oman, Qatar, Turkmenistan, UAE, and the US.

"We have always strived to be industry leaders and innovators, and that has kept us ahead of the game,"

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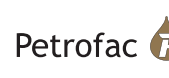


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The rope access system in operation



Nellicken



Jaison



Naresh Kumar

says Boxshall. "This includes being the first IRATA accredited Trainer and Operator members in India in 2010, and we remain the only IRATA accredited member within Bahrain," Nellicken adds. "Despite the GFC in 2008, for example, we have seen solid growth for the group, year on year of 20-30 per cent, and in nine short years, the group has grown as the region's leading specialist service provider in all the sectors we operate," says Boxshall.

"The level of growth speaks for itself, there continues to be an ever increasing demand for our specialist IMR services. Two years ago, we also made a very strong push into the civil sector and that has been going well. That was a necessary move for us, when we started seeing a downturn in oil prices, and the expected knock-on of reduced contracts in oil and gas sector," he says.

"Being a system driven organisation, we maintain international standards of operations and strictly comply with many international safety standards. All these compliances are being regularly audited by several associations and our group is accredited by external bodies such as IRATA, ABS, IADC ISO, DROPS, BSC etc.," says Nellicken.

Regarding Global Remote's clientele in energy sector, Naresh Kumar, the group's operations manager in Bahrain, says within the kingdom the company is actively engaged onshore with Bapco, Banagas, GPIC, and Alba; and onshore and offshore outside the country with clients such as RasGas, Qatargas, Qatar Petroleum, Dolphin Energy and Maersk Oil in Qatar, Petroleum Development Oman, Saudi Aramco in Saudi Arabia, and the likes of Total, Petronas and Reliance.

Directly and through Asry (Arab Shipbuilding & Repair Yard) the company has served many marine and offshore drilling companies such as Shelf Drilling, Nabors, Saipem, Arabiyah, Ensco, Rowan Drilling, Transocean, KOTC and Maersk.

The company is seeing an increase in the utilisation of combination of advanced NDT and ropes access within the oil and gas industry. "Advanced inspection modalities such as LRUT and ACFM are becoming increasingly popular with clients both on an off shore, as the possible applications of rope access is better understood". "We have also developed a specialist technique to inspect sphere tanks internally and externally utilising a combination of rope access methodologies, and believe we are the only service provider throughout the Middle East and Asia who has this capability. The possibilities for rope access applications in the oil and gas sector are yet to be fully realised," adds Boxshall.

Referring to the competition within the market Boxshall remains circumspect: "Competition in the market remains a positive challenge for us. We see many new operators, new to the industry, who have limited experience, drive down prices and of course, drive down the quality of their deliverable. This only serves to strengthen our resolve in providing our clients with industry best practice solutions, where safety and quality is not compromised."

Boxshall remains positive and expects the demands for Global Remote's services in the oil and gas and civil markets to improve. "Along with the recent upsurge of price for crudes, we can see a significant increase in infrastructure projects in Bahrain, UAE and Saudi Arabia. Additionally the civil infrastructure boom in Qatar will prove rewarding. That will all translate in time to better prospects for our brand. We are looking ahead to continued positive growth."

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Experts to focus on role of new technologies in O&G

The GEO conference and exhibition held every two years is always considered an inspirational gathering that industry professionals look forward to, to enhance the Middle East's hydrocarbon resource development

A DIVERSE collection of exploration products, services, technology and techniques will be on display at GEO 2018 taking place in Bahrain from March 5 to 8, says Ahmad Al Eidan, GEO's conference chairman.

"The 6,000-sq-m exhibition area with more than 100 exhibitors is complemented by an industry leading conference, social events, workshops, field trips and a number of excellent networking opportunities for attendees to develop long-term relationships and strategies for their operations," Eidan tells *OGN* in an interview.

All major NOCs, most of the IOCs and major operating and service provider companies will be represented at GEO 2018, he says.

"We have one of the highest number of technical submissions this year. The technical committee and the reviewers have done great job to select the final presentations. We have over 50 sessions with 204 talks and over 240 e-posters at the 2018 conference," he says.

Excerpts from the interview:

What is the theme of GEO 2018?

The Executive and Technical Committees of GEO 2018 have selected the theme "Pushing the technical limits: Shaping the Energy Landscape" which reflects the role and the importance of technologies in our industry.

What have been the tangible gains from the biannual GEO event over the years?

The GEO conference and exhibition is always considered an inspirational gathering that industry professionals look forward to, to enhance the Middle East's hydrocarbon resource development. The diversity of the audience background and experiences enable a new thought horizon and knowledge sharing that continue to lead new energy generations.

How big would this year's GEO exhibition be? How many companies will take part?

A diverse collection of exploration products, services, technology and techniques will be on display at GEO 2018. The 6,000-sqm exhibition area with more than 100 exhibitors is complemented by an industry leading conference, social events, workshops, field trips and a number of excellent networking opportunities for attendees to develop long-term relationships and strategies for their operations.



Eidan ... high-profile assignment

Who will be principal participants at GEO 2018?

All major NOCs, most of the IOCs and major operating and service provider companies will be represented at GEO 2018.

How many presentations are expected at the conference programme?

We have one of the highest number of technical submissions this year. The technical committee and the reviewers have done great job to select the final presentations. We have over 50 sessions with 204 talks and over 240 e-posters at the 2018 conference.

What are the themes of the panel sessions and highlights?

The executive committee was very careful selecting the themes and the session moderators for this year's conference. We have recognised the benefits of the panel sessions in the past confer-

ences, and therefore we have been careful to extend the topics to provide intuitive solutions. The first session is "Beyond Current Technical Limits – Overcoming Barriers for Future Energy", the second is "Unconventional Resources – Challenges and Opportunities", and the third will cover "AI and IoT in E&P – The 4th Industrial Revolution and Oil & Gas".

Are there any new additions in this year's agenda?

GEO 2018 will provide excellent opportunities for the oil and gas professionals to learn on the latest in technologies and their applications through a very well designed pre-conference short courses covering exploration, development, economics and risk analysis.

How successful has the Young Professionals & Students (YPS) feature been over the years?

The Young Professionals & Students (YPS) is a key element for GEO at every conference. The organisations in the region are committed to the future generation and the successful YPS programme, each GEO is a testimony to that. This year we have two short courses and a core workshop, all have been designed to provide a strong scientific foundations for our YPS.

How many universities will be sending students to the programme?

Over 19 universities from the region will be participating at GEO 2018. I believe we have been very active and successful to attract more universities to attend this year's conference and we are glad to see this number.

What were the key takeaways from the 'Women's Growing Role in the Energy Industry' session introduced in 2016?

GEO 2016 included a special session entitled "Women's Growing Role in the Energy Industry" which has been led by top female industry professionals. This session has reflected the role of women and the success they have achieved in industry which has been several years ago almost for men. We have listened to top executives and leaders providing stories of challenges and success and we have seen and are observing the growing role of young women in all disciplines of our industry including working in camps at the exploration and production stages as well as on drilling sites.

\$1.68bn GCC smart grid market growth by 2026

A report produced on behalf of Middle East Electricity (MEE) forecasts major opportunities for smart grid technology providers as the UAE leads regional moves to integrate renewable energy sources and projects into domestic grids

A MAJOR new report produced on behalf of Middle East Electricity (MEE), the region's leading annual international trade event for the power industry, has projected \$1.68 billion growth in the GCC's smart grid market over the next eight years.

The growth will come from increased deployment of smart grid infrastructure by GCC governments, according to the 'GCC Power Market' report produced for Middle East Electricity by Ventures Onsite.

The report forecasts major opportunities for smart grid technology providers as the UAE leads regional moves to integrate renewable energy sources and projects into domestic grids.

"The UAE's vision to deploy smart grid and meter solutions is expected to increase the renewables contribution, which is in line with the UAE's Energy Plan 2050," says the report.

The smart grid market is also expected to receive a major boost from GCC-wide plans for smart cities.

"Dubai is already being held up as a smart grid pioneer, particularly since its investment in Shams Dubai, the emirate's first smart initiative to connect solar energy to buildings as part of its Distributed Renewable Resources Generation programme," explains Anita Mathews, group director – Industrial Portfolio at Informa Exhibitions, which organises the event. "Another major market

boost will come from Saudi Arabia's plans for the Neom mega city, the first phase of which is due in 2025 and which is set to become a test case for a zero-energy mega-city."

With smart grid commitments in the Gulf driving regional energy industry interest, the scale of exhibitor commitments for Middle East Electricity, running at Dubai World Trade Centre from March 6-8, is also up.

"There's been a tangible increase in the speed of sign-up which has resulted in over 1,500 exhibitors from 66 countries and 24 dedicated country pavilions in the exhibitor profile for 2018. Middle East Electricity has long been a bellwether for the regional industry and participation this year reflects how government policy planners are prioritising energy sector innovation, specifically in terms of cost efficiency and how it is now driving industry operators and their supply networks."

Smart grids will also be in the spotlight at the Global Smart Energy Summit (GSES), which will debut alongside Middle East Electricity 2018. The Summit will hear from Dutch energy distribution veteran, Marko Kruithof, on how to optimise smart grids to reduce peak load and operating costs, and defer new power grid investment.

"As a senior manager in sustainability and renewal at Dutch energy grid operator Stedin and the current chair of the Dutch Power

Foundation, Marko is one of the global industry's most respected players," says Ryan O'Donnell, GSES's programme director. "Delegates have the opportunity to learn from the experience of a country which, thanks to its progressive policies, affinity for innovation and forward-thinking and environmentally-conscious population, has become a leader in offshore, renewable and smart energy."

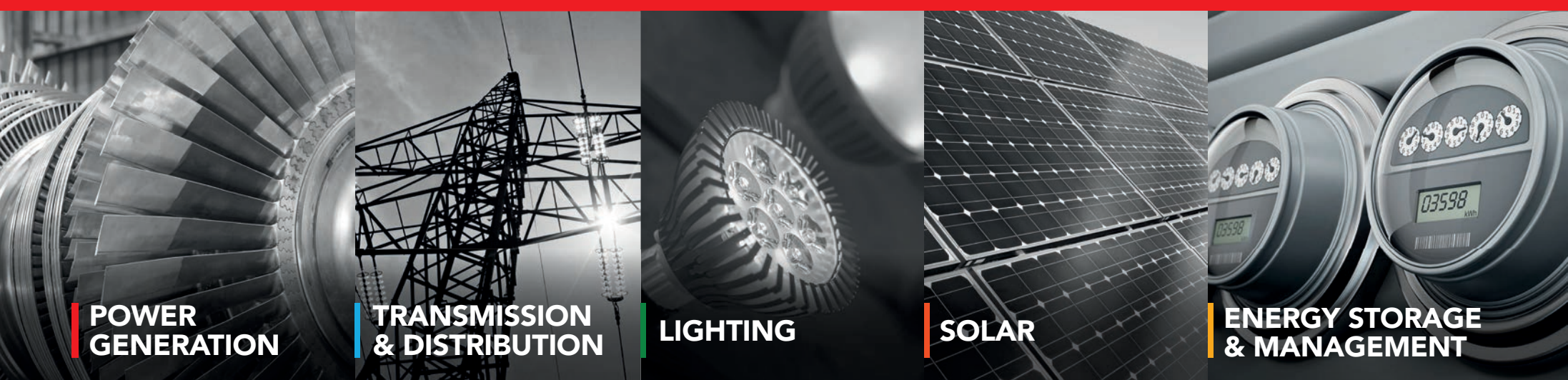
"Further sessions and speakers will debate and share insight on all sectors impacting smart grid advancement, including the proliferation of solar, in a thought-provoking agenda which will signal the way forward for the industry locally, regionally and globally."

With major power advancements on the cards throughout the region, Informa has expanded Middle East Electricity's profile to cater to shifting sector dynamics.

The 2018 show will debut a dedicated Energy Storage & Management Solutions segment alongside its four other specialised show sectors: Transmission & Distribution, Power Generation and Lighting stalwarts, as well as Solar, which becomes a dedicated sector after six years as a co-located event.

Middle East Electricity is held under the patronage of Sheikh Maktoum Bin Mohammed Bin Rashid Al Maktoum, Dubai Deputy Ruler, and is hosted by the UAE Ministry of Energy.

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SUMMIT

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CRUDE OIL PRODUCTION, SELECTED GULF PRODUCERS

(1,000 bpd)	2016	2017	2Q17	3Q17	4Q17	Nov 17	Dec 17	Jan 18	Jan/Dec
Iran, I.R.	3,515	3,811	3,793	3,833	3,822	3,820	3,832	3,829	-3.4
Iraq	4,392	4,445	4,455	4,482	4,396	4,393	4,405	4,435	30.2
Kuwait	2,853	2,708	2,709	2,707	2,704	2,704	2,700	2,707	6.8
Libya	390	817	709	932	964	969	957	978	21.0
Nigeria	1,556	1,660	1,594	1,763	1,765	1,772	1,828	1,819	-8.1
Qatar	656	607	613	603	604	608	602	596	-6.7
Saudi Arabia	10,406	9,953	9,960	9,994	9,971	9,925	9,953	9,977	23.3
UAE	2,979	2,915	2,911	2,922	2,892	2,885	2,870	2,864	-6.3
Total OPEC	32,643	32,380	32,279	32,725	32,399	32,330	32,310	32,302	-8.1

Opec and Russia plot stable alliance

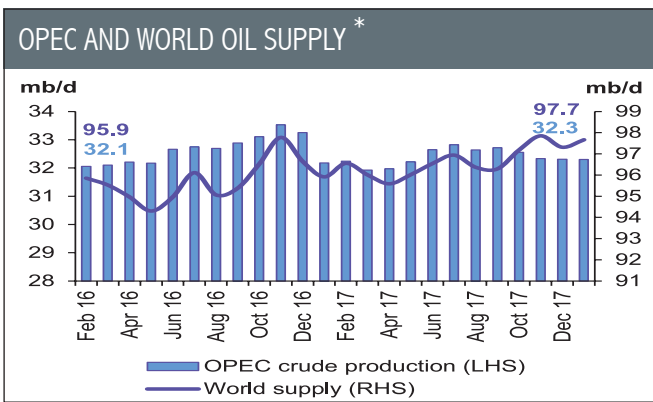
LONDON: The Opec group is to forge a permanent alliance with a Russia-led bloc of producers by the end of the year, aiming to regain control of the world crude market with a super-combination of unprecedented scale and reach.

Suhail Al-Mazroui, Opec's president, said the two groups were working on a "framework partnership" that would tie them together in perpetuity after their current deal to cap production jointly expires later this year. "We have built up enormous trust," he told the International Petroleum Week forum in London, an annual gathering of the world's oil and gas elites.

Mazroui, who doubles as Emirates energy minister, said the broad "Ropec" alliance has exceeded the agreed cuts of 1.8 million barrels a day (mbpd) with a compliance rate of 107 per cent. This spiked to 133 per cent in January as Saudi Arabia throttled back production in a bid to clear the global glut of crude, hoping to stabilise prices before the kingdom floats a share of the state oil giant Aramco.

The new super-group would once have been a radical development for the oil industry. It is an awkward and belated response to the threat of America's "short-cycle" shale frackers, who can respond with lightning speed and are preventing the normal cycle of full recovery from taking hold.

The fracking industry seized on the Ropec cuts to ramp up US output by over 250,000 bpd a month over the winter, with a further 1.3 mbpd expected this year. The International Energy Agency says exploding US production in 2018 may match the



entire growth in oil demand from China and the rest of the world, potentially causing the latest rally to short-circuit before prices durably surpass \$70.

It expects the US to leapfrog past Saudi Arabia and Russia to become the world's biggest producer this year, eyeing a record 11 mbpd.

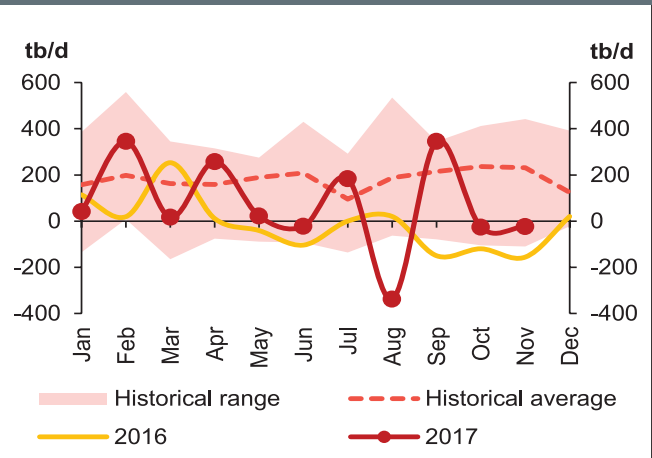
Dan Brouillette, the US deputy energy secretary, told the IP forum that the nation was on the brink of world "energy dominance" as it becomes a net exporter of fossil fuels, transforming the strategic balance of power. He predicted a "phenomenal" rise in US oil output this year and next. "I don't see it as a blip," he told *Bloomberg*.

WORLD OIL DEMAND FORECAST FOR 2018, MBPD *

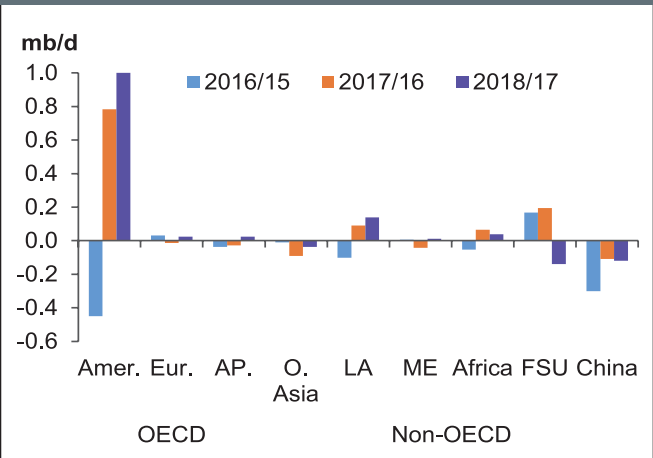
	2017	1Q18	2Q18	3Q18	4Q18	2018	Growth	Percent
Americas	24.98	24.81	25.24	25.36	25.41	25.21	0.23	0.91
Europe	14.23	13.95	14.26	14.76	14.36	14.33	0.10	0.69
Asia Pacific	8.16	8.60	7.73	7.89	8.40	8.15	0.00	-0.02
Total OECD	47.37	47.36	47.22	48.01	48.17	47.69	0.32	0.68
Other Asia	13.15	13.24	13.69	13.33	13.84	13.53	0.38	2.88
of which India	4.47	4.65	4.66	4.32	4.97	4.65	0.18	4.11
Latin America	6.52	6.37	6.60	6.92	6.56	6.61	0.10	1.46
Middle East	8.06	8.20	7.99	8.53	7.89	8.15	0.10	1.18
Africa	4.21	4.39	4.33	4.27	4.40	4.35	0.14	3.28
Total DCs	31.93	32.19	32.61	33.04	32.70	32.64	0.71	2.21
FSU	4.70	4.66	4.50	4.89	5.20	4.82	0.12	2.45
Other Europe	0.72	0.73	0.69	0.73	0.82	0.74	0.03	3.48
China	12.30	12.28	12.82	12.71	13.03	12.71	0.42	3.37
Total "Other regions"	17.72	17.68	18.01	18.33	19.05	18.27	0.56	3.13
Total world	97.01	97.23	97.85	99.38	99.92	98.60	1.59	1.64

* Change 2018/17. Totals may not add up due to independent rounding.

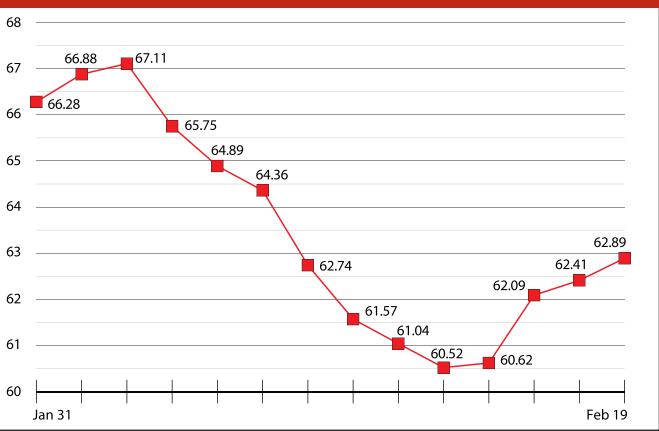
YEARLY OIL DEMAND GROWTH IN THE MIDDLE EAST *



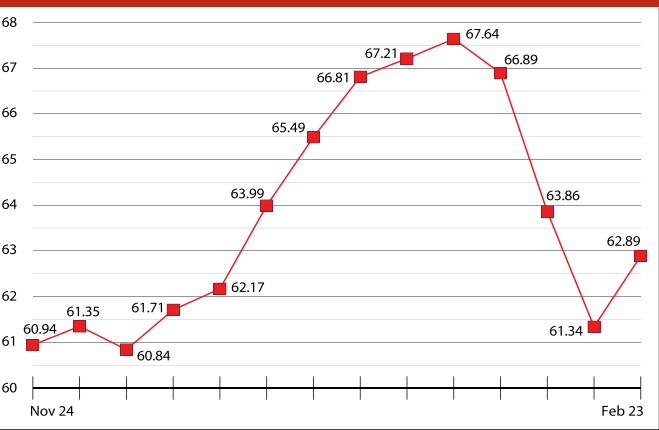
REGIONAL NON-OPEC SUPPLY GROWTH, Y-O-Y *



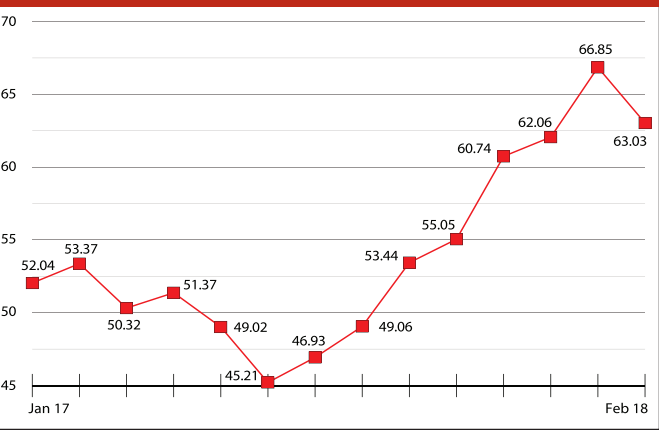
DAILY OPEC BASKET PRICE *



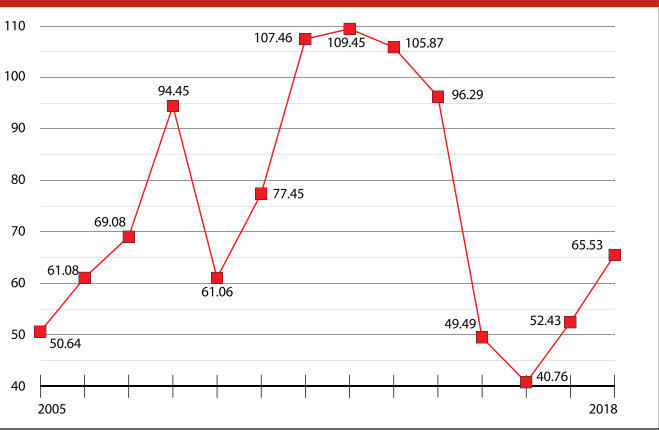
WEEKLY OPEC BASKET PRICE *



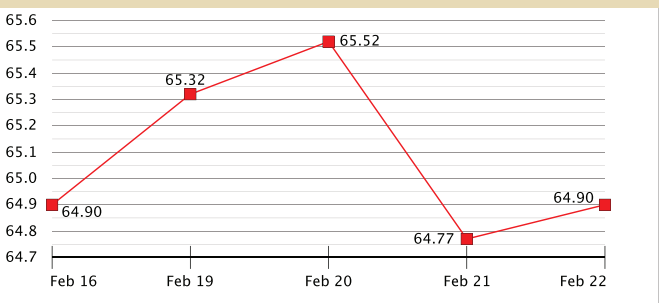
MONTHLY OPEC BASKET PRICE



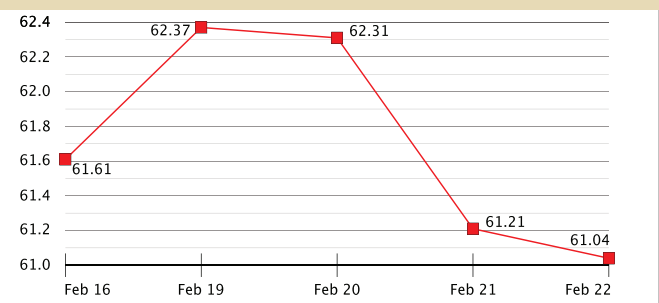
YEARLY OPEC BASKET PRICE *



IPE BRENT PRICES *



NYMEX PRICES *



OGN

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TENDERS

KUWAIT

Liner hanger, services for deep wells

Tender no: RFQ-2038693

Description: Soil investigation, slit trenching works for projects management (WK).

Tender Fee: KD500

Company: Kuwait Oil Company, Kuwait

Phone: +965 2398 9111

Website: www.kockw.com

Closing date: May 20, 2018

QATAR

Oil spill removal

Tender no: QPMC/TAC/TEN/169/2018

Description: Supply of multi functional vessel floating garbage and oil spill removal.

Company: Qatar Ports Management Company, Qatar

Tender Fee: OR500

Tender Bond: 20,000000

Phone: +974-44993422/44993415

Email: a.mabrouk@mwani.com.qa

Website: www.mwani.com.qa

Closing date: March 7, 2018

Sale, removal of power supply

Tender no: LT17MT0063

Description: Sale & removal of power supply and FSC control processor racks.

Tender Bond: QR7,000

Company: Qatar Petroleum (QP), Qatar

Phone: +974-44402000

Website: www.qp.com.qa

Closing date: March 13, 2018

EPIC for insulation of gas lift network

Tender no: GT17104000

Description: Engineering, procurement, installation, construction, pre-commissioning, commissioning of Insulation of the gas lift network headers from the FNLGCS compressor discharge up to the Gas lift.

Tender Fee: OR500

Tender Bond: 15,000000

Company: Qatar Petroleum (QP), Qatar

Phone: +974-44402000

Website: www.qp.com.qa

Closing date: April 29, 2018

SAUDI ARABIA

Replacement of electrical substations

Tender no: 2700 / SS / 604

Description: Replacement of electrical package substations with medium voltage power cables in residential complexes for desalination plants and field.

Tender Fee: SR500

Company: Saline Water Conversion Corporation, Saudi Arabia

Phone: +966-11-4630503/4631111

Closing date: April 1, 2018

Supply of natural, industrial gases

Tender no: 19/1439

Description: Supply of natural, industrial gases.

Tender Fee: SR500

Company: Northern Area Armed Forces Hospital, Saudi Arabia

Phone: +966-137871777

Email: admin@kkmch.med.sa

Website: www.kkmch.med.sa

Closing date: March 25, 2018

UAE

Supply of low voltage current transformers

Tender no: 2051800014

Description: Supply of low voltage current transformers.

Tender Fee: DH525

Company: Dubai Electricity and Water Authority, Dubai, UAE

Phone: ++971-04-3244444

Website: https://e-services.dewa.gov.ae

Closing date: March 18, 2018

Supply of earthing materials

Tender no: 2051800015

Description: Supply of earthing materials.

Tender Fee: DH525

Company: Dubai Electricity and Water Authority, Dubai, UAE

Phone: ++971-04-3244444

Website: https://e-services.dewa.gov.ae

Closing date: March 19, 2018

PEOPLE

ESS expands with key appointment

ECOSSE Subsea Systems (ESS) signalled its intent to expand in 2018 with the appointment of the company's first engineering manager.

Mark Brown has joined the subsea technology specialist from PDi where he was operations manager and has more than 16 years' experience working for engineering consultancies, oil and gas operators and subsea contractors, including technical roles at TAQA Bratani, Maersk Oil and Subsea 7.

Brown has a background in subsea engineering, installation and decommissioning operations which includes international experience and encompasses diving, ROV and deep-water activities.

ESS managing director, Mark Gillespie, said: "The natural evolution of the business has seen a change in focus from providing personnel services and consultancy to assembling an in-house team of highly skilled engineers who work across our business lines servicing both internal and external clients.

"Mark's extensive experience of providing engineering support to all aspects of the supply chain will harness that in-



Brown ... experienced

house engineering expertise and align it with our technology development, assets and projects functions, providing a much more streamlined engineering services offering to clients."

Gillespie added: "Mark's prior experience working with oil and gas operators and subsea contractors enabled

him to successfully deliver on significant design, installation and procurement contracts as part of major field development projects, and this will significantly strengthen the ESS management team and help us move into the next phase of expanding our products and service offering as well as supporting international growth."

Mark Brown added: "ESS is a positive example of a business which has bridged the gap between the traditional oil and gas sector and the fast-emerging renewables markets, while continuing to develop and expand its engineering capability. This was an attractive proposition which was difficult to refuse."

Banchory-headquartered ESS has developed an impressive portfolio of patented subsea tools.

CALENDAR OF EVENTS



GEO 2018 from March 5 to 8 at BIECC in Bahrain

MARCH

5-8

GEO 2018
Venue: BIECC, Manama, Bahrain
Contact: Fawzi Al Shehabi, PO Box 20200, Manama, Bahrain
Phone/Fax: +973 17 550033
Email: fawzi.alshehabi@ubm.com
Website: geo2018.com

19-21

The Doha International Sustainable Energy Exhibition & Conference
Venue: Doha Exhibition & Convention Centre, West Bay, Doha, Qatar
Contact: IES SRL, Via Anton Giulio Bragaglia, Rome, Italy
Phone/Fax: +39 06 30883030 / +39 06 30883040
Email: exhibition@dohaenergyexpo.com
Website: dohaenergyexpo.com

19-21

Somalia Oil, Gas & Mining Summit
Venue: Nairobi, Kenya
Contact: Ben Hillary
Phone/Fax: +44 207 111 1615
Email: BenH@irn-international.com
Website: somaliasummit.com

26-28

OGWA 2018
Venue: Oman Convention and Exhibition Centre, Muscat, Oman
Contact: Satyam Chopra, 1st Floor, Sabco Building, Wattayah Muscat, Oman
Phone/Fax: +96 8 99344198 / +96 8 24660124
Email: info@ogwaexpo.com
Website: ogwaexpo.com

27-28

SPE Workshop: Cementing Solutions That Improve Well Value
Venue: Jumeirah at Etihad Towers, PO Box 111929, Abu Dhabi, UAE
Contact: Miyadeh Al Ramathany, The Society of Petroleum Engineers (SPE)
Phone: 97 14 4575866
Email: mramathany@spe.org
Website: spe.org/go/18aab2

APRIL

2nd Cuba Oil & Gas Summit 2018

Venue: Havana, Cuba
Contact: Ben Hillary
Phone/Fax: +44 207 111 1615
Email: BenH@irn-international.com
Website: cubaoilgasummit.com

24-25

Latin America Hydrocarbons Forum 2018
Venue: Bogota, Colombia
Contact: Ben Hillary
Phone/Fax: +44 207 111 1615
Email: BenH@irn-international.com
Website: latamolandgas.com

24-25

Lebanon International Oil & Gas Summit
Venue: Hilton Beirut Habtoor Grand Hotel, Lebanon
Contact: Paul Gilbert
Phone/Fax: +44 1737 784950
Email: pagilbert@gep-events.com
Website: liog-summit.com

MAY

1-3

3rd Oil & Gas International Licensing Summit 2018
Venue: The Bentley Hotel, London, UK
Contact: Ben Hillary
Phone/Fax: +44 207 111 1615
Email: BenH@irn-international.com
Website: oilgaslicensing.com

8-9

3rd Mediterranean Oil & Gas Summit 2018
Venue: Beirut, Lebanon
Contact: Ben Hillary
Phone/Fax: +44 207 111 1615
Email: BenH@irn-international.com
Website: medoilgasummit.com

SEPTEMBER

3-5

World Heavy Oil Congress & Exhibition
Venue: Oman Convention and Exhibition Centre, Muscat, Oman
Email: whoc@dmgeventsme.com
Website: worldheavyoilcongress.com

OCTOBER

23-25

GDA Conference 2018
Venue: BIECC, , Manama, Bahrain
Phone/Fax: + 971 4427 0739 / +971 4427 0738
Email: info@mec-events.com
Website: gdaconference.org

PROJECT WATCH – SAUDI ARABIA *

PROJECT	FACILITY	BUDGET	STATUS
Advanced Petrochemical Company - Jubail - Pyoil & Pygas Plant	Industrial Production	580,000,000	Project Announced
Aramco - Berri - Two Drilling Islands Project	Dredging/ Reclamation	150,000,000	EPC ITB
Aramco - Duba - Tabuk Refined Products Pipeline	Multi Products	300,000,000	EPC ITB
Aramco - Manifa Oilfield Upgrade	Oil Field Development	500,000,000	Engineering & Procurement
Aramco - Ras Tanura Pipeline	Oil	270,000,000	Construction
Dow - Jubail - Polymers Production Facility	Polymers	100,000,000	Feasibility Study
Farabi Petrochemicals Company - Yanbu Linear Alkyl Benzene (LAB) Plant	Linear Alkyl Benzene (LAB)	450,000,000	Construction
IMC - Jubail - Methanol Plant Enhancement	Methanol	150,000,000	Construction
INOCHEM - Soda Ash and Calcium Chloride Complex	Detergents	300,000,000	Construction
King Fahd Causeway Authority - Saudi-Bahrain Causeway Expansion	Roads	285,000,000	Design
Maaden - Gold Mines Development Program	Gold	1,400,000,000	EPC ITB
Maaden - Sabic - Mosaic - Waad Al Shamaal Phosphate City (Overview)	Phosphate	9,600,000,000	Construction
Pan Asia - Jizan City for Basic & Downstream Industries	Petrochemical Plant	3,800,000,000	Feasibility Study
Petro Rabigh Refinery & Petrochemical Complex Expansion	Naptha	500,000,000	Construction
Petro Rabigh Refinery & Petrochemical Complex Expansion	Recovery	150,000,000	Engineering & Procurement
Petro Rabigh Refinery & Petrochemical Complex Expansion	Naptha	950,000,000	Construction
Petro Rabigh Refinery & Petrochemical Complex Expansion	Caustic Soda	220,000,000	Construction
RCC - Jubail - Hydrocarbon Resin Complex	Hydrocarbon Resin	500,000,000	Project Announced
Sabic (JUPC) - Jubail - EO/EG III	Ethylene Oxide	700,000,000	Engineering & Procurement
Sabic - Aramco - Yanbu - Crude Oil To Chemicals (COTC) Complex	Petrochemical Complex	20,000,000,000	Feed ITB
Sabic - Debottlenecking and Expansion of Petrokemya Butadiene Extraction Plant	Butadiene	450,000,000	Construction
Sabic - Jubail - STC Jubail Utilities Park & Pilot Plants	Industrial Production	310,000,000	EPC ITB
Sasref - Jubail - Refinery Modernization and Expansion	Refinery	95,000,000	Engineering & Procurement
Saudi Aramco - Yanbu to North Jeddah NGL Pipeline	Gas	600,000,000	Construction
Saudi Aramco - Abqaiq Main Oil Refinery Liquefied Petroleum Drain	Petroleum Oil Refinery	75,000,000	Construction
Saudi Aramco - Annual Onshore Maintain Potential Program (MPP)	Maintenance	5,000,000,000	Construction
Saudi Aramco - Arabiyah and Hasbah Gas Field Development	Gas Field	3,000,000,000	Construction
Saudi Aramco - Bapco - AB Pipeline	Oil	350,000,000	Construction
Saudi Aramco - Fadhili Gas Plant (Overview)	Gas Treatment Plant	6,600,000,000	Construction
Saudi Aramco - Fadhili Gas Plant - Downstream Packages	Gas Processing	650,000,000	Construction
Saudi Aramco - Fadhili Gas Plant - Industrial Support Facilities (FISF)	Gas Treatment Plant	100,000,000	Construction
Saudi Aramco - Fadhili Gas Plant - Main Processing Facilities (Package 1)	Gas Treatment Plant	2,500,000,000	Construction
Saudi Aramco - Fadhili Gas Plant - Offsites & Utilities (Package 3)	Gas Field	2,000,000,000	Construction
Saudi Aramco - Fadhili Gas Plant - Sulphur Recovery Unit SRU (Package 2)	Gas Treatment Plant	2,500,000,000	Construction
Saudi Aramco - Haradh Gas Increment Program (Overview)	Gas Compression	1,200,000,000	Engineering & Procurement
Saudi Aramco - Haradh Gas Increment Program - Freeflow Pipelines	Flowlines	470,000,000	Engineering & Procurement

EP: Engineering & Procurement

*Sources: DMS Projects

Offshore Maintain Potential Programme *



Aramco ... developing the offshore fields

Name of Client : Saudi Aramco - Saudi Arabian Oil Company

Budget : \$7 billion

Facility Type : Oil & Gas Field

Sector : Oil

Status : Construction

Location : Various

Feed : SNC Lavalin, Amec Foster Wheeler

PMC : EOCL – Emas Offshore Construc tion Limited, WorleyParsons, Mustang Engineering, KBR – Kellogg Brown & Root

Main Contractor :L&T – Larsen & Toubro, Dynamic Industries, McDermott International, Mustang Engineering, KBR, WorleyParsons, Wood Group, Saipem, Emas Offshore Construc tion, NPCC, LTHE – L&T Hydro carbon Engineering and General Dynamics

Project Status
February 2018: Saudi Aramco is planning to broaden its pool of LTA (long-term agreements) contractors for offshore projects.

Project Scope
The scope involves the Rehabilitation of offshore facilities and the construction of new platforms. The details are as the following:

The scope of contract for Abu Safah, Safaniya, and Berri fields under McDermott International includes:

- Infield flow lines
- Flexible laterals
- Power and control cables
- Sleds
- Three intra-field pipelines totalling 26 km, 34 km of subsea power
- Fiber optic composite cables
- A total of 4.5 km of flexible pipelay

Fourth phase of Safaniyah project includes:

- Steel jackets for 10 new wellhead platforms and nine decks
- Offshore pipelines and cables
- Demolishing existing wellhead structures and install-ing replacements

Planned work at Marjan and Zuluf involves:

- Seven decks, four of which are for Marjan
- 46km of 16-inch pipelines
- 31km of 15 kilovolt subsea cables
- Topsides fibre-optic cables

Project Finance
Saudi Aramco is the client of the scheme.

Project Schedule

Project Announced	Q2-2013
Engineering & Procurement	Q1-2015
Completion	Q1-2022

COMPANY NEWS

Wellsite unveils IQ scan tech

WELLSITE Fishing and Rental Services, LLC (“Wellsite”), a leading provider of drilling and completion rental equipment, is now utilizing the IQ Scan technology suite for streamlining asset management.

IQ Scan Technology, LLC’s innovative solution for durable asset tracking combines a 2D laser-engraved coding system with a secure cloud-based software suite to deliver a comprehensive asset manage-ment solution. The powerful package provides enterprises with crucial data to make key decisions and gain critical insights into the usage and life of their durable assets from cradle-to-grave.

The IQ Scan technology suite features IQ Scan Field, which utilizes ubiquitous mobile technology for scanning, tracking and reporting of durable assets; IQ Scan Desk, which provides the reporting features for tracking an asset; and IQ Scan Web, a web-based solution for tracking and reporting on assets in the field.

Kirby Arceneaux, chairman and CEO, Wellsite, said, “As well as pro-viding the ability to monitor wear on tubulars after each use, with new data loaded after each inspection, the IQ Scan solution enables users to know the entire history of the asset and its use in the field. The innova-tive 2D laser technology means that assets are etched with a durable Universally Traceable Asset Code (UTAC) that can withstand the rigors of the field, and information can be quickly and accurately obtained about the asset.”

Glen Clark, CEO of IQ Scan, said, “We are excited to deploy IQ Scan’s technology with Wellsite. Companies like Wellsite, who man-age large numbers of durable assets, are well positioned to benefit from our technology-driven solution. The IQ Scan technology suite improves both the speed and accuracy for tracking these assets in the field.”

Wellsite Fishing and Rental Services, LLC is a comprehensive rental equipment provider for the drilling and completion sectors of the oil and gas industry.



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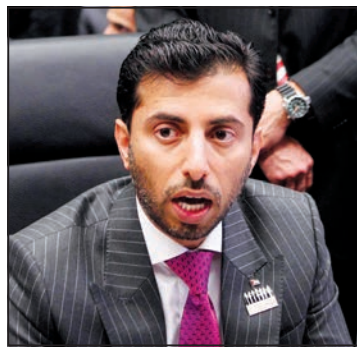
Oil market 'likely to rebalance'

The Opec deal was working fine thanks to the co-operation from non-Opec group, mainly Russia, which is a critical country to the group

LONDON: With the Opec and non-Opec alliance working to eliminate the remaining glut on the oil market amounting to 75 million barrels, the UAE energy minister said stability was slowly returning and the market was likely to rebalance this year.

The Opec deal was working fine thanks to the co-operation from non-Opec group, mainly Russia, which is a critical country to the group. The understanding between the different countries participating in this group have increased significantly from where we started last year, remarked UAE Minister of Energy Suhail Al Mazrouei while speaking to Bloomberg TV.

"We have done the optics and the inventories have been declining. We have removed from last year till today around 266 million barrels, which means that the deal is working and we also are removing



Al Mazrouei ... positive about the market

from the inventories, which means there is not lots of oil in the market," stated the minister.

"There is a correction attempt and it has been working very well thanks to the Opec and non-Opec group. The market is reaching, hopefully this year, balance and stability," he added.

On the output cut deal being extended into 2019, the Opec presi-

dent said it was premature to jump to a decision beyond what has already been done.

"We met in November last year and we have decided to roll over the deal for a full year. We are monitoring the different factors affecting the world demand. It's to ensure we have adequate measures to balance the market within this year. I think the deal has been remarkably working very well," he stated.

"The compliance level has been beyond the 100 per cent for 2017. Fourth quarter we have seen more than 100 per cent to in December we released 129 per cent," remarked the UAE minister.

When asked about the timeline for market rebalance, Al Mazrouei said: "We are expecting it to happen this year. It is very difficult to predict exactly which quarter. I think, like I said earlier, we are expecting it this year."

Adnoc signs pact with Cepsa

ABU DHABI: The Abu Dhabi National Oil Company (Adnoc) has signed an agreement with Cepsa, a Spanish integrated oil and gas company, awarding it a 20 per cent stake in Abu Dhabi's offshore Sarb and Umm Lulu concession.

The choice of Cepsa, which is wholly-owned by Abu Dhabi's Mubadala Investment Company and operates across the entire oil and gas value chain, underpins Adnoc's strategy to maximize returns from its resources, expand its downstream business, and retain value for the UAE.

The concession area is made up of two main fields under development, Umm Lulu, which is part of the former Adma offshore concession, and Sarb, as well as two smaller fields, Bin Nasher and Al Bateel. The Adma concession has been split into three new concessions to maximise commercial value, broaden Adnoc's partner base, expand technical expertise, and enable greater market access.

IN BRIEF

Iraq invites bids for Mosul

ERBIL: Iraq has invited foreign companies and investors to bid for the construction and operation of a new 100,000 barrel per day (bpd) refinery near Mosul in the northern province of Nineveh, the oil ministry said.

Bidding documents provide for two investment models — build-own-operate and build-operate-transfer, the ministry said in a statement.

Documents for the bidding process will be available until April 1 and the bidding will close on May 15, it said.

Iraqi oil minister to visit Turkey

BAGHDAD: Iraqi Oil Minister Jabar Al-Luaibi will visit Tur-

key at the end of the week at the invitation of his Turkish counterpart to discuss the resumption of oil exports through Turkey's Ceyhan port, the Iraqi oil ministry said in a statement.

Oil exports from Iraq's north have been halted since Iraqi forces took control of the Bai Hasan and Avana oilfields northwest of Kirkuk, after Kurdish Peshmerga fighters pulled out from the region.

Oil minister Luaibi's visit to Turkey will target reaching an agreement to resume shipping Iraqi crude "exclusively through Iraq's state oil marketer Somo", said oil ministry spokesman Asim Jihad.

Iraqi oil officials accuse Kurdish authorities of not re-

sponding to requests made by the oil ministry to use the Kurdish pipeline to resume exports from Kirkuk.

NOC hit by budget delays

TUNIS: Libya's National Oil Corporation (NOC) is suffering ongoing delays in receiving budget money from the government and this could reduce production, the head of the state company said.

Mustafa Sanalla made the comments after meeting the head of Al Jouf Oil Technology Company, who said the NOC subsidiary was suffering from financial problems that had delayed projects and salary payments.

"The entire sector is suffering from these problems because of delays in the finance ministry."

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