



Developing Opportunities in **IOC/NOC & Service Companies Relationship** ROUNDTABLE



**FIRST GAS FROM WEST
NILE DELTA CONTRIBUTES
TO DEA'S GROWTH**



**IMPROVING TECHNICAL EXPERTISE IN
EGYPT'S ENERGY INDUSTRY**

**EGYPTIAN COMPANIES GOING
INTERNATIONAL**

**BUILDING A SUCCESSFUL STRATEGIC
ALLIANCE BETWEEN IOCS AND NOCS**

**COLLABORATIVE BUSINESS MODELS
AND RELATIONSHIP BARRIERS**

**FLEXIBILITY VS. PROTECTION:
MODERNIZING EGYPT'S OIL&GAS
LEGAL FRAMEWORK**



ARTIFICIAL LIFT

Get more life from your wells.™

Optimizing unconventional production.

LONGER RUN LIFE

3x rod-string life

achieved using the Rotaflex® long-stroke pumping unit in an Argentine shale well

MORE RECOVERY

245% more gas

delivered with capillary-foam dewatering in a 4,000-ft Barnett shale lateral

LESS DOWNTIME

ZERO tubing pulls

needed to switch between jet pump and gas lift in hundreds of Granite Wash wells

Depth. Breadth. Experience.

This is how we help you produce more profitable wells. We offer multiple solutions for all types of unconventional production, ensuring that you don't simply get a solution—you get the right solution, customized for the unique characteristics of each well.

Our industry leading artificial-lift systems, experienced specialists, and comprehensive software packages bring more life to your assets. Together, we can slow production declines, reduce workovers and OPEX, boost profitability, and extend the life of your wells.

Contact and collaborate with us at

PO-Info@weatherford.com

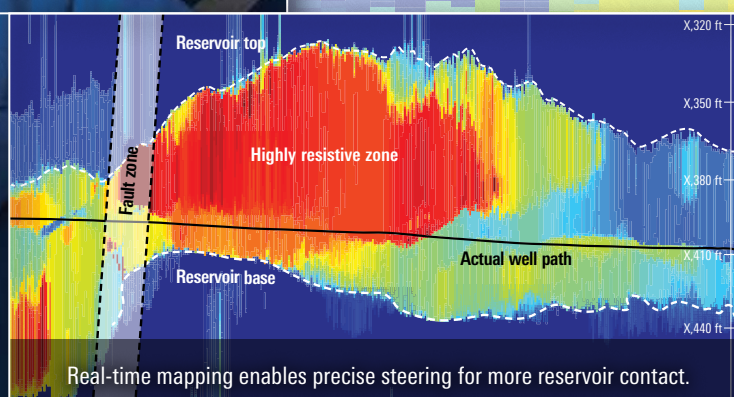


Weatherford®

Formation Evaluation | Well Construction | Completion & Stimulation | **Production**

GeoSphere

RESERVOIR MAPPING-WHILE-
DRILLING SERVICE



Define reservoir and fluid boundaries while drilling with an unprecedented depth of investigation.

GeoSphere reservoir mapping-while-drilling service reveals subsurface layers and fluid contacts with a radial depth of investigation in excess of 100 ft [30 m]. This service has been used in more than 400 wells worldwide to optimize landing, maximize reservoir exposure, and increase production potential.

Find out more at
slb.com/GeoSphere

Schlumberger

GeoSphere is a mark of Schlumberger. Copyright © 2017 Schlumberger. All rights reserved. 17-DR-270047

EDITOR'S NOTE

MANAGING EDITOR

SALMA ESSAM

✉ ssherif@egyptoil-gas.com

As the era of "easy oil" passes, the global energy market is facing exceptionally tough challenges, with increasingly rising costs and harsh working environments. The Egyptian oil and gas industry has, thus, taken upon itself a commitment to bring to table the most efficient strategies and introduce novel approaches that robustly boost Egypt's energy sector. In line with the Egyptian modernization strategy adopted by the Ministry of Petroleum, performance development becomes key to an efficient business environment, ultimately achieving a successful oil and gas market.

We, at Egypt Oil&Gas, have come to predominately realize the extreme importance of this. In essence, EOG team has proudly organized a roundtable on: Developing Opportunities in IOC/ NOC & Service Companies Relationship, offering a platform for exchanging insights, hence laying a foundation for growth. Under the patronage of H.E Minister of Petroleum Tarek El Molla, key industry leaders came together to discuss challenges, opportunities, and ways of developing performance in the oil and gas industry. Energy leaders had the opportunity to

share knowledge, reflect on their expertise, and bring in new visions in a collaborative rich mind-set environment.

In our June issue, our team prepared well-research analytical articles that shed lights on dynamics and ways to enhance performance development in the oil and gas industry. Our writers showcased how Egypt is further directing efforts to invest in the markets of its neighboring countries, and the strategies that could be applied to strengthen the relationship between operators and service providers.

In parallel, our politics section observed the policies of the newly-elected French President, Emmanuel Macron, and its implication on the energy market in France. The article showed the dissimilarity between his energy agenda and that of his then-counterpart, Marine Le pen, underpinning his strong inclination to renewable energy.

We hope that you enjoy this issue. Happy Ramadan!

inside this issue



p.20

RIYADH: FROM OIL LEADERSHIP TO NON-OIL FUTURE



p.22

FIRST GAS FROM WEST NILE DELTA CONTRIBUTES TO DEA'S GROWTH



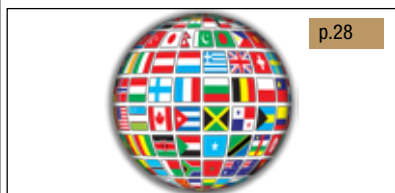
p.24

EGYPTIAN GAS - CAN BOOMING DEMAND BE MET BY RAPID SUPPLY GROWTH?



p.26

IMPROVING TECHNICAL EXPERTISE IN EGYPT'S ENERGY INDUSTRY



p.28

EGYPTIAN COMPANIES GOING INTERNATIONAL



p.30

BUILDING A SUCCESSFUL STRATEGIC ALLIANCE BETWEEN IOCS AND NOCS



p.32

COLLABORATIVE BUSINESS MODELS AND RELATIONSHIP BARRIERS



p.36

ENCOURAGING INVESTMENT IN THE PETROLEUM INDUSTRY A COMPARISON OF HOST GOVERNMENT INSTRUMENTS



EGYPT'S LEADING OIL AND GAS MONTHLY PUBLICATION

Publisher MOHAMED FOUAD

This publication was founded by **Mohamed Fouad** and **Omar Donia**.

All rights to editorial matters in the newspaper are reserved by Egypt Oil and Gas and no article may be reproduced or transmitted in whole or in part by any means without prior written permission from the publisher.



/EgyptOilandGas



/EgyptOilandGas



/Egypt-Oil-&-Gas



13D Sherif Salama Street - Takseem El Laselky - New Maadi, Cairo, Egypt



www.egyptoil-gas.com



info@egyptoil-gas.com



(+20) 2 25164776

(+20) 2 25172052

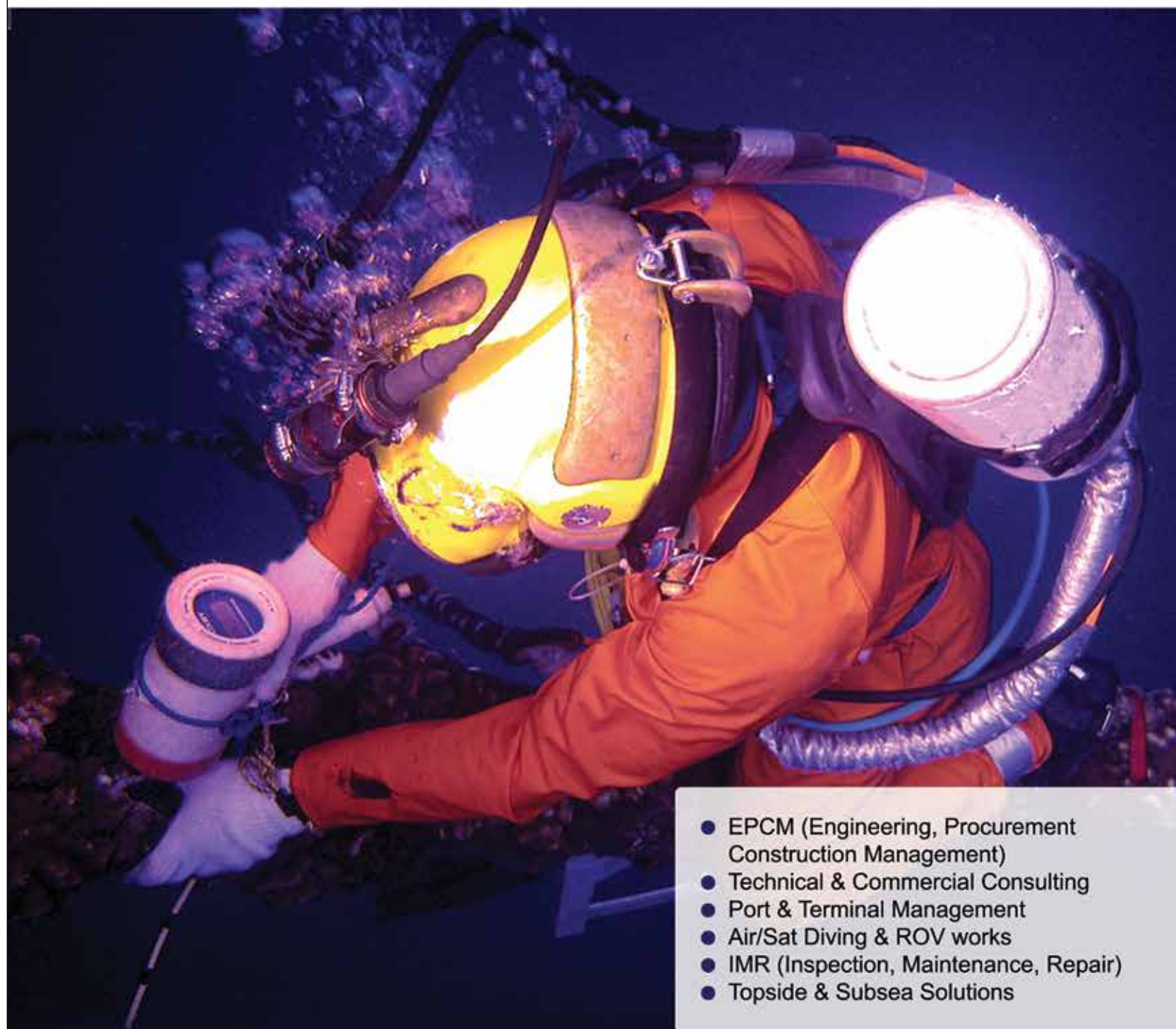
(+20) 2 27547569



(+20) 2 25172053

Editor in Chief	Ahmed Mansour
Managing Editor / Industry Analyst	Salma Essam
Senior Writers	Sarah Samir
	Mariana Somensi
Staff Writers	Mahinaz El Baz
	Nouran Ashraf
Chief Reporter	Wael El-Serag
	Amira S. Badawey
Contributors	Ahnie Litecky
	Aya Rady
Sales & Marketing Director	Ayman Rady
Art Director	Omar Ghazal
3D Visualizer	Maged Makram
Photographer	Amir William
Operations & Financial M.	Abdallah Elgohary
Marketing Executive	Shorouk Maged Lewaa
Public Relations Associate	Sarah Bishara
Administration	Taghreed Mounir
Accountant	Mahmoud Khalil
Web master	Olfat Kamel
IT Specialist	Sameh Fattouh
Production Advisor	Mohamed Tantawy
Legal Advisor	Mohamed Ibrahim
	Mahsoub Kenzi
Distribution Officers	Mohamed El-Sayed

MARIDIVE OFFSHORE PROJECTS



- EPCM (Engineering, Procurement Construction Management)
- Technical & Commercial Consulting
- Port & Terminal Management
- Air/Sat Diving & ROV works
- IMR (Inspection, Maintenance, Repair)
- Topside & Subsea Solutions

MARIDIVE ALEXANDRIA:

10, Ahmed Yehia St. Gleem , Alexandria. EGYPT. - Tel.: (+203) 5837170 - Fax. (+203) 5834668

www.maridivegroup.net

Egypt's Nedoko field (West-4) is Online and Egypt Saves from New Fields



A press release to Egypt Oil&Gas stated that Egypt's Minister of Petroleum and Mineral Resources, Tarek El Molla, received a report from Balaeim Petroleum Company (Petrobel)'s Chairman, Atef Hassan, about the results and updates on drilling Nedoko field (West-4) among the project of developing Nooros field in Nile Delta.

In addition, the report informed that Nedoko field was put online with a production capacity of 175mcf/d of gas and 1400b/d of condensates. It is worth noting that the production from Egypt's Nooros field has exceeded 1bcf/d of gas.

The report also mentioned that the well was drilled in the myosin layer at a depth of 3200m below sea surface. The drilling continued for 50 days, which is a new record. Thus the company's production rate of natural gas increased, after putting this well online, by 1612mcf/d of gas for the first time in years.

Moreover, Petrobel has succeeded in achieving a new record as it increased the production rate by 408.000 boe in April 2017 as a result of the Ministry's support and collaboration between EGAS, EGPC, BP and Italy's Eni.

Additionally, Egyptian President, Abd El Fattah El Sisi, stated in an official statement that he expects recent discovered gas fields, including West delta, East delta and the second phase of Zohr field, would save Egypt about \$3.6b yearly as they start producing.

Egypt wants to speed up gas production from newly-discovered fields, with an eye to halting imports by 2019. Once an energy exporter, it has become an importer due to domestic output failure to keep pace with rising demand in recent years, but the discovery of the 850 billion-cubic meter Zohr field in 2015 is expected to change that.

Moreover, Central Bank Governor, Tarek Amer, announced that Egypt will make a debt payment worth \$750m to international oil companies (IOCs) on the 1st of June 2017.

In related news, the Egyptian General Petroleum Corporation (EGPC)'s Head, Abed Ezz El Regal, stated during the meeting at the American Chamber of Commerce, that Egyptian arrears to international oil companies (IOCs) decreased from \$3.6b to \$3.4b by end of April 2017.

El Molla Reviewed Atoll Field Status

A press release to Egypt Oil&Gas stated that Egypt's Minister of Petroleum and Mineral Resources, Tarek El Molla, chaired the meeting of the Higher Committee responsible for following up the progress of the development work being carried out at Atoll gas field in BP's North Damietta offshore concession. This comes in light of reviewing what has been achieved in the project compared the schedule.

The meeting was held in the presence of the first Undersecretary of the Ministry for Gas Affairs, the Undersecretary of the Ministry for Agreements and Exploration, the Chairman of the Egyptian General Petroleum Corporation (EGPC), the Chairman Egyptian Natural Gas Holding Company (EGAS), the Vice President of EGAS for Production and Development, the Chairman of the Pharaonic Petroleum, which manages and executes the project, and BP Egypt's Chairman, Hesham Mekkawy.

During the meeting, BP announced that it has completed 53% of the development work carried out at the



North Damietta offshore concession's Atoll field. The development work included drilling three deep water wells at 950m below the water's surface. The field, which holds about 1.5tcf of gas reserves, is expected to begin producing a daily 300mcf of gas and eight barrels of condensates by December 2017. Atoll field's total investments are worth \$ 3.8b.

El Molla: Zohr Proceeds According to Plan

Egypt's Minister of Petroleum and Mineral Resources, Tarek El Molla, said that the development of the Zohr field in the Shorouk concession area located in the Mediterranean Sea is proceeding well according to the plan, Daily News Egypt informed.

The development plan aims to produce about 1bcf/d of gas, in the first stage, by the end of 2017. The plan then moves on to the later stages, boosting production to about 2.7bcf/d by the end of 2019.

Moreover, El Molla said that the total investments in the Zohr field will reach \$8b by the end of fiscal year 2017/2018. The minister noted that the figure is huge in relation to the short term, which reflects the size of the efforts and challenges to begin production in time. El Molla pointed out that the investments will total \$16b.

According to the field's development plan of Italy's Eni, the first stage will put out about 1bcf/d of gas before the end of 2017. This figure is then to be increased gradually, as development continues, to reach 2.7bcf/d in 2019. The total reserves of Zohr are estimated at about 30tcf.

Fuethermore, El Molla said that the currently implemented petroleum



strategy is based on a new vision to cooperate with foreign partners and share benefits, mentioning the success achieved in Zohr Field. This came during his meeting with the members of the American Chamber of Commerce in Egypt in the presence of the heads of the Petroleum sector companied and IOCs.

El Molla: Egypt's Fuel Subsidy to Exceed EGP 110b

Egypt's Minister of Petroleum and Mineral Resources, Tarek El Molla, said that the fuel subsidy increased well above EGP 110b, from an estimated EGP 35b in the budget, because of the flotation of the Egyptian pound and the high price of Brent oil hiking to \$49.43 during the first week of May 2017, although it was at \$40 per barrel in the country's budget, reported Daily News Egypt. The Minister added that the Egyptian government continues to restructure the petroleum subsidy scheme to deliver support to its beneficiaries, next to increasing spending on education, health, and services provided to citizens.

Egypt Strengthens Gas Production

BNP PARIBAS stated in a study issued on the 2nd of May that Egypt is viewed as a world-class hydrocarbon area with active drilling in four basins, including in the Mediterranean, which holds 65% of the country's total gas reserves, reported Daily News Egypt. The study added that the Exploration and Production (E&P) segment is critical for the Balance of Payments (BoP) as it typically contributes with two-thirds of incoming gross foreign direct investments (FDI) with at least four oil majors among the top 10 foreign investors in Egypt. Hydrocarbons underpin the country's trade balance and account for nearly half of total exports, mainly in the form of light crudes and naphtha.

Egypt Increases Smart Card Program Participation

E-Finance's Smart Cards Manager, Khaled Abdel Ghany, stated to Egypt Oil&Gas that 12,000 more Egyptian citizens applied for fuel smart cards throughout this week, adding that the fuel smart cards system has been used to ensure delivering subsidies to eligible beneficiaries. Abdel Ghany pointed out that the program's responsible team is ready to launch its third phase across the country upon reaching 6.5m applying eligible beneficiaries, according to the Presidency and the Cabinet's recommendations. Abdel Ghany explained that launching the second phase of the fuel smart card system helped in ending the fuel crisis in Egypt and contributed in controlling distribution, which prevented the activities of the black markets.

Egypt to Attend OPEC Oil Cuts Meeting

Egypt was invited to attend the meeting of the Organization of the Petroleum Exporting Countries (OPEC) for oil production cuts on the 25th of May, reported Reuters. OPEC, Russia and other producers agreed in 2016 to curb production by 1.8mb/d for six months starting on the 1st of January. Oil prices have since gained support, but global inventories remain high, pulling crude back towards \$50 a barrel and putting pressure on OPEC to extend or possibly add to the cuts at least until the end of 2017. Therefore, OPEC has been urging other producers to join the supply pact and Egypt, along with Turkmenistan, were due to attend.

Egypt Aims to Cut LNG Imports and Imports Petroleum Products

Egypt is holding talks with its LNG suppliers to defer contracted shipments this year. The North African Country aims to cut back on purchases in 2018, as surging domestic gas production squeezes out demand for costly foreign imports, according to Reuters.

Moreover, the Egyptian Natural Gas Holding Company (EGAS) aims to defer dozens of LNG cargoes due this year, analyst, trade and industry sources say. It is also scaling back LNG purchase plans for 2018 from 70 cargoes to as low as 30 cargoes, signaling the withdrawal of one of the fastest-growing LNG importers from the global stage.

The scale and speed of Egypt's turnaround suggests the government may yet wean itself off foreign gas but how sustainable that turns to be will depend on domestic pent-up demand.

"Natural gas demand in Egypt has been constrained from power generation to fertilizer production so gas demand could potentially rebound much more than initially anticipated," Anne-Sophie Corbeau, research fellow at the King Abdullah Petroleum Studies and Research Centre said.

"The appetite for LNG in that region is going to be challenged but will not disappear", Corbeau added.

However, An Official at the Egyptian General Petroleum Corporation (EGPC) told Egypt Oil&Gas earlier that Egypt will need



to increase the allocation for importing petroleum products from EGP 140b in 2017 to reach EGP 185b in 2018.

The source pointed out that EGPC successfully secured diesel, benzene and butane reserves enough to cover a 30-day demand, noting that the local consumption decreased by 17% compared to the recent six months.

Egypt is importing around 50% of demands from suppliers until the gap between production and consumption is filled. Egypt secures the remaining 50% from Egyptian refineries and through buying the production of IOCs working in Egypt without any financial difficulties.

Yet, the Egyptian government is still losing amounts of money because of the difference between the cost of securing petroleum products and the amounts collected from sales. The source explained that the oil and gas sector collects only EGP 60b annually.

Egyptian Oil and Gas Sector Receives Funds

Emirates NBD Egypt announced that it has participated in an EGP 1.8b syndicated loan deal in favor of the Egyptian National Gas Holding Company (EGAS) to help significantly boost gas production in Egypt. NBD Egypt's contribution amounted to EGP 220m in the five year syndicated deal. Banque du Caire is the Initial Mandated Lead Arranger. The deal was participated in by eight major banks including Emirates NBD, according to Zawaya.

The funds will be used by EGAS to initiate newly discovered gas projects across Egypt. These projects include the 'supergiant' Zohr field; the largest ever gas discovery in the Mediterranean, which could hold a potential of 30tcf of gas. The project also include North Damietta concession in the East Nile Delta.

Meanwhile, The European Bank for Reconstruction and Development (EBRD) is providing local petrochemicals producer, Carbon Holdings, with a \$11m loan. The funds will be used to improve standards



beyond the current industry level in order to meet international ISO certification standards at Egyptian Hydrocarbon Corporation (EHC). EHC is one of Carbon Holdings' operating companies.

Additionally, the company will work on upgrading its approach to energy efficiency management and reducing N2O emissions to below European Union Best Available Techniques levels at EHC, according to EBRD Press Release.

On the basis of improved environmental performance, the company will also acquire a majority stake in EHC.

DRILLING

BP

BP, a British oil and gas company, has completed drilling a new exploratory gas well in its concession area in the Nile Delta.

MOCHA-1

The well was drilled at a depth of 19,488ft utilizing the EDC-56 rig. Investments surrounding the project are estimated at \$74.447m.

QARUN

QARUN, a joint venture between EGPC and Apache, has completed drilling a new oil development well in its concession area in the Western Desert.

MISAADA-11 ST-1

The well was drilled at a depth of 8,600ft utilizing the EDC-63 rig. Investments surrounding the project are estimated at \$2.1m.

PETROBEL

PETROBEL, a joint venture company between EGPC and Italian Eni, is drilling new crude oil development wells in its concession area in the Gulf of Suez.

SIDRI-24 ST

The well was drilled at a depth of 12,599ft utilizing the ST-11 rig. Investments surrounding the project are estimated at \$7.6m.

BM-119

The well was drilled at a depth of 10,098ft utilizing the TRIDNT-16 rig. Investments surrounding the project are estimated at \$8.5m.

KHALDA

KHALDA, a joint venture between EGPC and Apache, has completed drilling new oil exploratory well in its concession area in the Western Desert.

PTAH-2X

The well was drilled at a depth of 14,500ft utilizing the EDC-11 rig. Investments surrounding the project are estimated at \$200m (check that with Wael).

NORPETCO

NORPETCO, a joint venture company between EGPC and Sahari Oil Company, has completed drilling a new crude oil development well in its concession area in the Western Desert. The production rate of NORPTCO in January 2017 was 271,850barrels of oil.

GAN-4

The well was drilled at a depth of 8,120ft utilizing the ECDC-2 rig. Investments surrounding the project are estimated at \$1.296m.

GPC

GPC, a state owned company, has completed drilling a new gas exploratory well in its concession area in the Western Desert.

GG83/3AX ST-2

The well was drilled at a depth of 8,839ft utilizing the ADMRIN-6 rig. Investments surrounding the project are estimated at \$2m.

Abu Qir

Abu Qir, a joint venture company between EGPC and Edison, has completed drilling a new exploratory gas well in its concession area in the Mediterranean.

N.AQ.P1-10XST-1

The well was drilled at a depth of 12,850ft utilizing the ALQAHR1 rig. Investments surrounding the project are estimated at \$15.793m.

HBS

HBS, an exploration company, has completed drilling a

crude oil exploratory well in its concession area in the Western Desert.

N.GAZALT1-1X

The well was drilled at a depth of 6,096ft utilizing the EDC-53 rig. Investments surrounding the project are estimated at \$1m. The well's drilling took 10 days.

El Mansura

El Mansura, a joint venture company between EGPC and Petroceltic, has completed drilling gas development wells in its concession area in the Nile Delta.

TAMAD-4 ST

The well was drilled at a depth of 6,438ft utilizing the EDC-9 rig. Investments surrounding the project are estimated at \$2.5m.

TAMAD-4 ST-1

The well was drilled at a depth of 6,440ft utilizing the EDC-9 rig. Investments surrounding the project are estimated at \$2.1m.

TransGlobe

TransGlobe, Canadian E&P Company, has completed drilling crude oil exploratory well in its concession area in the Eastern Desert.

NWG-28A

The well was drilled at a depth of 7,600ft utilizing the EDC-66 rig. Investments surrounding the project are estimated at \$1.021m.

GUPCO

GUPCO, a joint venture company between EGPC and BP, has completed drilling crude oil development well in its concession area in the Gulf of Suez.

OCT J-14

The well was drilled at a depth of 13,640ft utilizing the BENNEVIS rig. Investments surrounding the project are estimated at \$9m.

Iran Discovers New Gas Field

Iran says it has discovered a new gas field close to the giant South Pars natural gas field, which it jointly shares with Qatar, Press TV reported. The field, called Sepand, has 1.5tcf of sweet gas, of which about 792bcf could be recoverable.

Sepand is independent from South Pars, Oil Price informed, citing an unnamed official at the National Iranian Oil Company (NIOC) who spoke to local media. It is not yet clear if the newly discovered gas field is also shared with Qatar.

"One of the most important features of the new field is that it has a wide horizontal natural gas structure," the official was quoted as saying. He further added that the drilling of an exploration well would soon start.

South Pars gas field, next to which Sepand was discovered, hosts the bulk of Iran's natural gas reserves. The joint field, called the North Dome field in Qatar, is the world's biggest largest gas field with estimated reserves of 51tcm of natural gas and some 50b barrels of condensate. Experts believe that the field has more recoverable reserves than all other fields combined.

In April, Iran's President, Hassan Rouhani, announced the start of phases 17-21 at the South Pars gas field — a development stage worth \$20b. Rouhani told media that gas output from the field had reached



570mcm and that Iran had plans to overtake Qatar as gas producer.

The Persian Gulf country has so far developed 12 phases in the field — phases 1, 2&3, 4&5, 6-8, 9&10, 15&16. The remaining phases are 11, 12, 13, 14 and 22-24.

Experts believe that additional development phases in South Pars and in other fields would give Iran more room for exports in the future. Currently, Iran produces 885mcm of gas daily, almost the same as Qatar, but most of it is being consumed domestically. Oil fields need gas injections to increase output, so much of what Iran is producing from its gas deposits is being used to stimulate oil production.

Still, the country has ambitions to become a major gas exporter, beginning with 50mcm/d to neighbor Iraq, as soon as the latter arranges payments for the exports.

Oman's Natural Gas Production, Imports Dropped



Oman's natural gas production and imports edged down by 1% to 13,532mcm for the first four months of 2017, compared with 13,670mcm in the same period of 2016, Hellenic Shipping News reported.

According to Oman's National Centre for Statistics and Information (NCSI), non-associated gas and imports eased by 0.4% to 11,261mcm, while associated gas production fell by 4% to be 2,271mcm. However, the natural gas production is expected to increase substantially once BP starts commercial output from its Khazaan tight gas project, which is expected in the fourth quarter of 2017.

In related news, a top-level official at Oman's Ministry of Oil and Gas

confirmed that the state-owned Oman Oil Company (OOC) plans to divest stakes in its affiliates through Initial Public Offerings (IPOs), Times of Oman informed.

"Oman Oil Company plans to launch IPOs for at least one or two companies under it before the end of the year. It is still under study but we will have the details soon," the minister stated to Times of Oman, without naming the companies for which the IPO is planned.

According to Al Rumhy, the proceeds of the share offer will be used for funding expansion programs in the energy sector, rather than contain the budget deficit.

OPEC Loses \$76b for US Shale

The Organization of the Petroleum Exporting Countries (OPEC) lost \$76b in 2016 due to low oil prices caused by rising US oil production due to US fracking, according to a report published by the Energy Information Administration (EIA), The Daily Caller informed.

EIA's report suggested that, in 2016, OPEC earned about \$433b in net oil export revenues, which is 15% lower and \$76b less than the \$509b the cartel earned in 2015. This is the lowest earnings posted by OPEC since 2004. EIA notes that OPEC's relative losses were largely due to a decrease in the average annual crude oil prices during the year, and to falling net oil exports. In the attempt to rebalance the market, OPEC is keen to extend the output cuts established by the cartel and non-OPEC countries in November 2016.

According to the Iraqi and the Algerian Oil Ministers, the organization has



reached consensus to extend the limits of cuts until the end of 2017. However, Saudi Arabia and Russia recently announced that they favor prolonging oil-output cuts by global producers through the first quarter of 2018, setting a firmer time-frame for a likely extension of the curbs, as informed on Bloomberg.

Shell Mulls Selling Gas Fields in Tunisia

Royal Dutch Shell is seeking to sell its gas fields in Tunisia for some \$500m, sources said, as the Anglo-Dutch company pushes forward with its vast disposal program, Reuters reported. According to EP Magazine, the Tunisian assets were acquired as part of Shell's \$54b take over of BG Group in 2016 and account for about 65% of the North African country's gas production. Two offshore gas fields, Miskar, fully owned by Shell, and Hasdrubal, 50% owned by Shell, in addition to an onshore production facility, are included in the assets to be sold by the company. In 2015, the fields produced 30,000boe/d.

Iran to Raise Oil Output Capacity

Iran has plans to raise its crude oil production capacity by 3mb/d, Trade Arabia reported, citing a top official of the National Iranian Oil Company (NIOC). According to Hellenic Shipping News, the NIOC's Deputy Head for Engineering and Development, Gholam-Reza Manouchehri, said on the sidelines of a petroleum exhibition in Iran that the aim of boosting the country's output capacity by such a substantial amount would be to promote and stabilize its footing in the Organization of Petroleum Exporting Countries (OPEC) and the global market. Manouchehri further stated that the NIOC plans to sign \$80b of deals with domestic and international contractors within the next two years.

Libya's Waha Field Recovers Output to 75,000b/d

Production at Libya's eastern Waha field has gradually recovered to about 75,000b/d after stoppages due to fighting and damage to the pipeline since early March, Zawya reported, citing an engineer at the field. According to Libyan Express, the fights between militia groups affiliated with a rival government and other violence had caused a linked pipeline to become damaged, which reduced output since early March. The field's total capacity is 120,000b/d. In the past, technical difficulties and unreliable infrastructure have jeopardized Waha's operations. Electric failures in the Waha and Diffa fields compromised 60,000b/d

of production at the location, a Libyan oil official said in November.

Adnoc to Decrease Oil Sales by 10% in June

The United Arab Emirates is cutting back supplies to customers in June, in line with its plan to follow the Organization of Petroleum Exporting Countries' agreement to reduce production, Bloomberg reported. Accordingly, the state-owned Abu Dhabi National Oil Co. (Adnoc) announced that it is going to decrease sales by 10% in June, while in May it will reduce supplies by 7%, Oil and Gas People informed. The UAE, which is considered to be the fourth-biggest producer within the OPEC members, will follow its commitment to OPEC's production cuts, with maintenance scheduled on fields through May, as stated by the Energy Minister, Suhail Al Mazrouei.

Glencore, Carlyle Team Up to Buy Moroccan Refinery

Swiss trading giant Glencore and U.S. private equity investor Carlyle Group have teamed up in an attempt to buy Morocco's only oil refinery, hoping to recoup about \$600m in loans they issued to the plant before it went bankrupt, according to Reuters. The price sought by the government remains up in the air. "Estimates are ranging wildly between \$2b to \$3.5b with or without debts and overdue taxes," one of the sources close to the process said, adding that there was no deadline for completing a sale and that a decision was not close.

Qatar Announces Support to OPEC Deal Extension

Qatari Oil Minister, Mohammad al-Sada, joined a growing number of major oil producers calling for an extension of the output cut deal established by the Organization of Petroleum Exporting Countries (OPEC) and non-OPEC producers, Platts informed. Qatar announced its support to extending the agreement to the end of March 2018. After nearly three years of buildup in oil stocks, the process of re-balancing was "finally gaining momentum," Sada said in a statement late May. The minister further expressed his optimism towards the improvement of market stability, and noted that oil demand is expected to increase by Q3 and Q4.

Saudi Arabia Strengthen Ties With US



US companies signed deals worth billions of dollars with Saudi Arabia's oil and gas sector during President Donald Trump's visit to the Kingdom over the weekend, boosting bilateral business ties while the oil market continues to follow the shale-OPEC rivalry, Oil Price reported.

The \$110b worth of US-Saudi defense capability deals made up for much of the value of the bilateral agreements during President Trump's visit, but Saudi Aramco also signed an estimated \$50b worth of deals with US companies, many of which envisage investments in the digitalization of Aramco's business, offshore and onshore rig development, and oilfield services.

One of the deals signed during Trump's visit was the creation of a joint venture (JV) between Houston-based energy equipment supplier National Oilwell Varco (NOV) and Saudi Aramco, as informed on Nasdaq.

While NOV will own 70% interest in the JV, Aramco will hold the remaining 30% interest. The JV will manufacture high specification land rigs and drilling equipment, and will offer certain aftermarket services.

The deal will also create a training center for Saudi technicians to

maintain and operate the drilling technology of the JV. It will create over 1,000 jobs and lead to economic growth. The formation of the JV is expected to strengthen National Oilwell's drilling technology franchise as well as support Aramco's supply chain integration initiative.

Other major US oil and gas service companies that inked deals with Saudi Arabia include McDermott International, Inc. MDR, Schlumberger Ltd. SLB, General Electric Company, Exxon Mobil Corporation among many others.

The flurry of US deals with Aramco comes as the Saudi oil giant is preparing to launch what is expected to be the world's biggest initial public offering (IPO), in which Saudi Arabia plans to sell 5% of its national oil company, listing it on one or more international markets.

Furthermore, these agreements emphasize upon the strategic collaboration of Saudi Arabia and United States, linking Saudi Vision 2030 with America's growth objectives. The deals are likely to enhance the business synergy with US, as well as attract investors to the country.

and OMV are among the companies to attend the tender.

Aramco to Invest \$18b in Expansion in the Americas

Saudi Aramco plans to spend \$18b in the next five years to expand its operations in the Americas, focusing on its US oil-refining subsidiary Motiva Enterprises, The Edge Markets informed, citing Motiva's statement. According to Hellenic Shipping News, the company called the \$18b estimate "a general framework of opportunities" to increase refining capacity, branch into chemicals, and expand its commercial operations, marketing and branded presence. Motiva further stated that the expansion may not be solely focused on its current operations, but may also involve new sites. It declined to discuss possible expansion locations.



Morocco, Nigeria to Execute Atlantic Gas Pipeline

The Morocco-Nigeria landmark project to lay an Atlantic gas pipeline, which will carry Nigerian gas through six West African countries up to Morocco and eventually to Europe, is heading towards materialization with the signing of new agreements related to the project, reported Middle East Confidential News.

The agreements were signed in Rabat in the presence of Moroccan King, Mohammed VI, and Nigeria's Foreign Minister, Geoffrey Onyeama, on the 16th of May. Upon completion the pipeline will be a lever for more integrated West Africa, North Africa Post informed.

The pipeline venture is one of the milestone projects spearheaded by King Mohammed VI, whose vision for cooperation with Africa is underpinned by co-development, exchange of expertise, and a win-win partnership which is the ultimate goal of being the continent's integration.

The Atlantic Gas Pipeline, to stretch over 4000km, will extend the existing West African Gas Pipeline that currently transports Nigerian gas to



Ghana, up to the Mediterranean shore, going through Côte d'Ivoire, Liberia, Sierra Leone, Guinea, Guinea-Bissau, Gambia, Senegal and Mauritania.

The pipeline will have a beneficial impact on Morocco, Nigeria and West African countries. As it seeks to diversify its energy mix and reduce dependence on Algerian gas, the pipeline will give Morocco an additional source of energy.

EnerMech, Khudairi Group Launch JV in Iraq



EnerMech and Khudairi Group launched a joint venture (JV) in Iraq to target both the re-emerging oil and gas and large infrastructure sectors. The JV, with one of the country's longest established family-owned groups, is expected to generate \$20m-plus turnover within a short period, as informed on Your Oil and Gas News.

The downstream energy and infrastructure rejuvenation, along with new investment in capital projects, makes Iraq a key target market for the international engineering services specialist, which plans to roll out all of its services and to invest in new equipment in both Basra and Erbil.

According to Hydrocarbon Engineering, EnerMech's Middle East General Manager, Chris Barker, will lead the new enterprise. Barker will

report to John Guy, Regional Director for EnerMech Middle East, Asia and Caspian, and Mohammed Khudairi, Director for the Khudairi Group.

"There is a large number of opportunities in Iraq's oil and gas sector as well as in large capital projects in the infrastructure sector, and working with Khudairi Group, which has long-established relationships with the major operators, will leverage benefits for both companies," Guy stated.

Headquartered in Aberdeen, EnerMech employs more than 2500 people across the UK, Europe, the Caspian and Middle East, Asia, Australia and the Americas.

Iran Exports Free Gas to Turkey

Iran's Oil Minister, Bijan Namdar Zanganeh, said the country is currently not receiving any money from Turkey for the export of gas, because a court ruling has forced Tehran to give Ankara a partial refund following a lengthy legal dispute over gas pricing, Tasnim News Agency reported. Additionally, Turkey had requested a 62.5% discount on Iran's natural gas price, but the International Court of Arbitration approved of only 13%, Zawayia informed, citing Zanganeh's statement. Turkey had brought a case to the International Court of Arbitration against Iran in 2012, claiming that the gas price was too high.

Iran to Tender Azadegan Oil Field

The National Iranian Oil Company (NIOC) announced that it will hold an international tender for the development of its major oil field in the southwest of the country, as informed on Xinhua. NIOC's Managing Director, Ali Kardor, disclosed that the tender will be held early June and concerns the development of Iran's Azadegan oil field, Reuters reported. Invitation letters have been sent to 29 international companies to submit their proposals, Kardor said, adding that Shell, Total, CNPC, Sinopec, Lukoil, Pertamina,

SDX COMPLETES DRILLING CAMPAIGN AT SD-1X WELL IN EGYPT

SDX Energy Incorporation, announced that drilling on the SD-1X well at its South Disouq concession in the Nile Delta area of Egypt has now reached its second target depth, according to the company's Press Release.

Following the significant natural gas discovery in the upper Abu-Madi section, where the well encountered 65f of net pay section with an average porosity of 25%, drilling continued with the SD-1X well which was subsequently targeting oil from the deeper Cretaceous horizons. The well has now been drilled to a total depth of 11,068f. Hydrocarbons were present in the deeper intervals. This indicates a working petroleum system within this section.

Additionally, the well confirmed both the presence and quality of the reservoir intervals within this section. However, there was not a sufficient amount of hydrocarbons present to justify completing this interval. The well will now be completed in the Abu-Madi, after which the rig will be released. A detailed testing program will be undertaken after the rig has been moved off location. The well has provided important new information about the Cretaceous horizons in this area, which will allow SDX and its partners to further explore its potential within the large 1,275 square km South Disouq concession.

TOTAL TO DRILL AT NORTH MAHALLA CONCESSION BY MAY

France's Total Company is set to start drilling the first exploration well in North Mahalla onshore concession in the beginning of May 2017. Seismic scans of the concession indicate reserves of 3tcf to 5tcf of natural gas, Al Shourok stated.

In 2013 the Egyptian Natural Gas Holding Company (EGAS) posed a tender to explore natural gas in seven different regions, including two regions in the Nile Delta and Five in marine areas, where total acquired its North Mahalla concession.

EGAS further intends to pose more tenders to explore natural gas to raise the national production rates. It is worth noting that Egypt is currently producing 4.45bcf/d of gas, where up

to 300mcf/d are used to operate extraction equipment and the rest is pumped to the local market according to the Ministry of Petroleum and Mineral Resources' data.

According to an earlier statement by the Minister of Petroleum and Mineral Resources, Tarek El Molla, the ministry decided to indefinitely postpone posing an international tender for exploring natural gas in Egypt.



HONEYWELL PROMOTES TECHNOLOGY SYMPOSIUM IN CAIRO

France's Total Company is set to start drilling the first exploration well in North Mahalla onshore concession in the beginning of May 2017. Seismic scans of the concession indicate reserves of 3tcf to 5tcf of natural gas, Al Shourok stated.

In 2013 the Egyptian Natural Gas Holding Company (EGAS) posed a tender to explore natural gas in seven different regions, including two regions in the Nile Delta and Five in marine areas, where total acquired its North Mahalla concession.

EGAS further intends to pose more tenders to explore natural gas to raise the national production rates. It is worth noting that Egypt is currently producing 4.45bcf/d of gas, where up to 300mcf/d are used to operate extraction equipment and the rest is pumped to the local market according to the Ministry of Petroleum and Mineral Resources' data.

According to an earlier statement by the Minister of Petroleum and Mineral Resources, Tarek El Molla, the ministry decided to indefinitely postpone posing an international tender for exploring natural gas in Egypt.

ROSENEFT SIGNS COOPERATION AGREEMENT WITH ENI

Russia's Rosneft signed an agreement with Italian Eni to expand cooperation in the fields of hydrocarbon production, refining, marketing and trading, including in the Egyptian Zohr offshore project, where Eni controls 50%, Rosneft owns up to 35% and BP has up to 15%, reported Al Ahram Newspaper. The deal was signed as part of the Italian Prime Minister

Paolo Gentiloni's visit to Russia, during which he met with the Russian President, Vladimir Putin, according to Reuters. Rosneft said it had agreed with Eni to look into cooperation in oil refining in Germany. Eni has been operating in Egypt since 1954 through its subsidiary International Egyptian Oil Company (IEOC).

CHEIRON ACQUIRED 50% OF SAHARA NORTH BAHARIYA LTD

Salah Diab's Cheiron PICO acquired 50% of Sahara North Bahariya Ltd, which owns North Bahariya Concession in the Western Desert. The company paid \$83m to EFG Capital Partners, reported Al Borsa. The acquired shares were owned by EFG Capital Partners Fund III, which is a subsidiary from EFG Hermes Investment Bank.

The transaction was processed and the final contracts were signed after obtaining the approval of the Egyptian General Petroleum Corporation (EGPC). Cheiron has totally settled the transaction's payment.

The acquisition will enable Cheiron to work outside of the Gulf of Suez for the first time.

Moreover, Cheiron PICO, acquired 100% of French Engie's West El Burullus gas concession, which is located in shallow offshore Mediterranean waters.

The concession acquired owns recoverable reserves of around 200bcf of gas and 3mb of condensates. West El Burullus concession's production is planned to reach 100mcf/d in 2020.

BNP Paribas' Banking Official, Youssef Beshay, told Al Borsa that the bank invited more than 50 bidders to take part in the process, with more than 10 signing confidentiality agreements.

SHELL LUBRICANTS EGYPT TO SUPPLY OIL TO SOUTH HELWAN PLANT

A press release to Egypt Oil&Gas stated that Shell Lubricants Egypt signed an agreement to supply industrial oils and related services to South Helwan Power Plant, which is managed by the consortium of Toyota Tsusho Corporation (TTC) & Mitsubishi Hitachi Power Systems (MHPS). The deal reaffirms the leading position of Shell Lubricants Egypt as the country's largest

supplier of superior industrial oils to national mega projects. Furthermore, Shell Lubricants Egypt's Managing Director, Saher Hesham said "Shell Lubricants Egypt has an excellent longstanding relationship with TTC and MHPS as one of the most prominent power generation companies in the local market and globally".

ADES GROUP CONSIDERS EUROPEAN OFFERS

Advanced Energy Systems (ADES Group) is studying offers by European firms, including proposals from British companies and banks, to acquire shares in the company, reported Al Borsa. ADES will make a decision regarding the offers within two weeks. Some of the offers are requesting the acquisition of a part of ADES' shares, while other

offers requested the acquisition of the whole company. ADES Group is a service company providing petroleum exploration and production E&P services in MENA and Africa. The company is working in onshore and offshore drilling and provides production services in Egypt, Algeria and Saudi Arabia.

APEX WELCOMES TWO NEW LEADERS

Apex International Energy, an independent oil and gas exploration and production company focused on Egypt, announced in a press release that it has expanded its global team. The company appointed Willis Trey Gilmore as Vice President of Corporate Reservoir Engineering in Houston, and Raed Saba as Deputy General Manager and Exploration Manager in Cairo. Apex' Founder and CEO, Roger B. Plank, said, "We are pleased with the progress Apex has made in our first year, including the expansion of our global team



and the strong foothold we have established in Egypt. We remain focused on scaling our business through new asset acquisitions and capital investments to deliver long-term, profitable growth in production and reserves."

SUMED SIGNS \$300M DEAL WITH NBK

A press release to Egypt Oil&Gas stated that Minister of Petroleum and Mineral Resources, Tarek El Molla, attended the signing of a \$300m agreement, signed by Sumed Company and the National Bank of Kuwait (NBK), to finance part of a project to store petroleum products and natural gas in Ain Sukhna port.

El Molla said that Egypt is aiming to develop and establish basic petroleum infrastructure projects in order to achieve its target in becoming a strategic regional center for energy. The ministry is further processing projects that include

the development of gas production fields, boosting refining capacities, and exploiting surplus production of crude oil, petroleum products and natural gas.

The agreement was signed by Sumed Company's Chairman, Mohamed Abd El Hafez, and NBK's CEO, Yasser Ismail.

El Hafez explained that the project includes the construction of a sea berth with a length of 2.4km for the import and export of petroleum products and natural gas, three piers to receive liquefied natural gas (LNG) tankers and various petroleum products up to 160,000 tons.

DANA GAS RECEIVES \$20M ADDITIONAL PAYMENTS FROM EGYPT

Dana Gas, the Middle East's largest regional natural gas company, stated that it has received an initial payment of \$50m from the Egyptian government as partial payment of its outstanding receivables. Dana Gas announced the receipt of further \$20m from the Egyptian government, according to Dana Gas' Press Release.

Whilst the company is hopeful that further payments will be forthcoming, it will remain in cash preservation mode given the continued uncertainty around the timing of these collections.

This payment represents 18% of Dana Gas Egypt's total overdue receivables of \$283m as of the end of the first quarter of 2017. It was made as part of an industry payment



made to the petroleum sector, Trade Arabia informed.

Dana Gas, which pumps most of its gas at fields in Egypt and Iraq, is seeking to recover payments from both countries for overdue bills. The company was owed \$1b from both Egypt and the self-governed Kurdish region in northern Iraq at the end of the quarter this year, Zawaya stated.

QALAA COMPLETES 92% OF EGYPTIAN OIL REFINERY



Qalaa Holdings Company completed 92% of the work at the Egyptian Refining Company's (ERC) oil refinery, which has investments reaching \$3.6b, reported Amwal Al Ghad.

The oil refinery is the largest one in Egypt. It aims to decrease diesel import needs by 50% and to decrease Sulphur emissions by one third. The refinery also targets reducing the country's annual subsidy bill.

Qalaa's Managing Director, Karim Sadek, told Amwal Al Ghad that the company plans to complete works and inaugurate ERC's project by the end of 2017.

Qalaa Holdings Company owns 20% of ERC, whose current

shareholding includes the state-run Egyptian General Petroleum Corporation (EGPC), which owns 25%, in addition to Egyptian and Arab private investors.

The refinery will process heavy fuel into diesel for local consumption, and once at full capacity, it could supply 50% of the country's requirements.

In related news, Qalaa Holdings subsidiary ERC's CEO, Ahmed Hassanien Heikal, stated that production of Mostorod project will be postponed to the 2nd quarter of 2018 due to construction delays. Heikal added that the project's production will supply 14% of the local market's needs.

AMOC TO BUY CONDENSATES FROM DANA GAS

Alexandria Mineral Oils Company (AMOC) has reached an agreement to buy condensates produced by Dana Gas. The agreement will be signed within a week, Al Shorouk informed, citing AMOC's Chairperson, Amr Mustafa. AMOC aims to refine 1,500b/d of Dana Gas' condensates in its refineries for two months, increasing the amount of condensates to 4,000b/d thereafter. Mustafa also

mentioned that AMOC has signed a deal with the Egyptian General Petroleum Corporation (EGPC) to buy 500,000 barrels of Iraqi crude oil every two months. He did not mention the value of the two agreements. Additionally, EGPC inked a deal in April with Iraq to import 12mb of Iraqi crude oil for one year.

THREE FIRMS TO BID ON ENPPI'S SHARES

Three investment banks, CI Capital, Beltone Financial, and Arqaam Capital will compete for Engineering Company for the Petroleum and Process Industries (ENPPI)'s initial public offering (IPO). The banks plan to submit offers to the state-owned NI Capital, which is responsible for the government's IPOs program, reported Al Mal News. The Egyptian Exchange (EGX) management has received a

letter from ENPPI to agree on listing its shares on the stock market in preparation for implementing IPO plan. The Ministry of Petroleum had announced last March its intention to offer some affiliated companies including ENPPI on Egyptian Exchange. The ministry said it plans to put a 24% stake of ENPPI on the EGX.

TOTAL, CAREEM TO RAISE SAFETY AWARENESS

French Total Integrated Oil and Gas Company signed an agreement with Careem Egypt to raise awareness of road safety among its customers, reported Energy Egypt. The partnership signing took place on the sidelines of the conference held by both companies to announce the launch of the joint campaign.

According to the Central Agency for Public Mobilization and Statistics (CAPMAS) and the World Health Organization's (WHO) report on the number of fatalities resulting from car accidents in 2015, Egypt was ranked 16th in the Arab world and the 109th in the world among 180 countries, with 12.8 deaths per 100,000 people.

ENI FINISHED DRILLING FIRST PHASE OF ZOHR

Italy's Eni has completed drilling work on all eight wells in the first phase of Zohr gas field. The company is currently focusing on setting up the pipeline that will transport the gas to the refineries, according to Al Shorouk. Eni had announced, late August 2015, discovering Zohr field in Shorouk Concession in the deep water of the Mediterranean Sea. Accordingly, natural gas production from Zohr field is expected to reach its peak in 2020, to be 2.7bcf/d, according to the plan adopted by Eni. Egypt produces around 5.2bcf/d of gas, of which

around 300mcf/d are used to operate the extraction equipment in the field, while the remaining amounts are injected in the local market.



GIG WINS PETROJET'S INSURANCE POLICY TENDER

The Petroleum Projects and Technical Consultations (Petrojet) awarded an insurance tender to Arab Misr Insurance Group (GIG) to provide property insurance for the oil and gas services provider. It is the second time in a row for GIG to win Petrojet's contract. Sources with knowledge told Amwal Al Ghad that Petrojet's

policy is a one year term, with total sum insured of EGP 3.5b designated to insure the company's assets. The policy will insure the firm's assets and properties against damages from fire and burglary. It will also cover liability to employees' personal accidents as well as breakdown of equipment located nationwide and worldwide.

BP, Kosmos Discover Gas off Senegal



BP and the joint venture partner Kosmos Energy announced a major gas discovery off Senegal early May, which is considered to be a new addition to the recent successful findings in the region, Reuters reported.

As informed on Engineering News, International Oil Companies (IOCs) including BP and Total are investing in the waters of Senegal and Mauritania with the aim of copying the recent exploration success of smaller players. BP's Upstream CEO, Bernard Looney, noted, "Yakaar-1 further confirms our belief that offshore Senegal and Mauritania is a world-class hydrocarbon basin."

In 2015, Kosmos was capable of discovering a gas pool holding 15tcf of gas in the Tortue 1 exploration well, part of the Greater Tortue Complex spanning Senegal and Mauritania.

After Kosmos 2015 discovery, BP has developed plans to purchase a 30% interest in the two offshore blocks called Saint-Louis Profond, that includes the Senegalese sector of the Tortue field and Cayar Profond. BP also decided to buy a stake of close to 60% in Kosmos' Mauritania exploration blocks.

Gas from the Tortue field is expected to start flowing in 2021 and is set to be exported from a liquefied natural gas (LNG) facility. The two firms stated earlier in May that the Yakaar-1 find contained sufficient reserves to warrant another LNG project.

In related news, Total signed two agreements to explore deep and ultra-deep offshore production off Senegal's Atlantic coast, enhancing the oil developments in the West African country, Reuters reported.

According to Offshore Energy Today, the first agreement involves an exploration and production sharing contract for the Rufisque Offshore Profond block, which covers an area of 10,357 square kilometers where Total will be the operator with a 90% interest alongside Petrosen, which will hold the remaining 10%.

Total also signed a cooperation agreement with Petrosen and Senegal's Ministry of Energy and Renewable Energy Development under which Total will perform studies to assess the exploration potential of Senegal's ultra-deep offshore and become operator of an exploration block.

Total Signs Oil, Gas Exploration Deal Offshore Mauritania



Total announced that it has signed an oil and gas exploration deal offshore Mauritania. The agreement will expand Total's search scope for new fields in the deep waters off West Africa's Atlantic coast, Reuters reported. As informed on Rigzone, the deal with Mauritania's state-run oil company SMHPM will allow Total to hold a 90% operating stake in Block C7, which covers 7,300 square km, and SMHPM will hold the remaining 10%. Total Exploration and Production's Senior Vice President of Africa, Guy Maurice, stated that the agreement is part of the company's strategy to explore new deepwater basins in Africa.

Tanzania to Establish Three Mega Oil Pipelines

The Tanzanian government announced that it is going to establish three mega oil pipelines to link the seaports of Tanga and Dar es Salaam to upcountry regions and neighboring countries, partly to decrease fuel prices and boost economic growth, Tanzania Daily News reported. According to All Africa, the three oil pipeline projects include construction of a unitary crude oil pipeline from Uganda to Tanga. The other projects are the EAC Crude Oil Pipeline, which is expected to be discussed at the East African Community (EAC) Heads of States Summit in Dar es Salaam, and the White Petroleum Pipeline from Tanzania to Zambia.



Tullow Oil Announces Emekuya-1 Oil Discovery in Kenya



Tullow Oil has discovered oil in a well in Northern Kenya; the company reported that the Emekuya-1 well in Block 13T, has encountered around 75 meters of net oil pay in two zones, Reuters reported.

According to Oil News Kenya, the Emekuya-1 well is located 2.5 km north of Etom-2 and had the objective of drilling a fault block on the flank of the Greater Etom structure.

The well was drilled by the PR Marriott Rig-46 to a total measured depth of 1,356 meters and penetrated reservoir quality Miocene sandstones which correlate to those seen in the successful Etom-2 well.

Downhole pressure measurements and fluid samples suggest that the main oil reservoir is at the same static pressure gradient as the Etom-2 well which demonstrates that a major part

of the Greater Etom structure is oil-filled. The reservoir sands encountered also appear to be extensive which further de-risks the northern play area and bodes well for future exploration in the region.

The rig will be moved to drill an up-dip appraisal well on the Etom structure.

Tullow Oil operates blocks 13T and 10BB with 50% equity and is partnered by Africa Oil and Maersk Oil & Gas A/S both with 25%.

Africa Oil's CEO, Keith Hill, stated "We are very pleased to continue our 100% success rate in the current program as we continue to build resources to enhance our ongoing development program. The four additional wells planned as well as the water flood pilot project will further allow us to better define the size and scope of the development."

Eni Starts OCTP Production Offshore Ghana



Eni has started production from the integrated oil & gas development project in the Offshore Cape Three Points (OCTP) block, off Ghana's western coast, Offshore Energy Today reported.

According to Subsea World News, Eni announced that the project started in just two and a half years; three months ahead of schedule.

The OCTP integrated oil & gas development is made up of the Sankofa Main, Sankofa East and Gye-Nyame fields, which are located about 60 kilometers off Ghana's Western Region coast.

The fields hold about 770mb of oil in place, of which 500mb and 270mb are non-associated gas. The project includes the development of gas fields from which the production will be utilized entirely by Ghana's domestic market.

Production will be done through the 'John Agyekum Kufuor' floating, production storage and offloading unit (FPSO), which will produce up to 85,000b/d through 18 underwater wells.

A 63-kilometer submarine pipeline will transport gas to Sanzule's onshore

receiving facilities (ORF), from where it will be processed and transmitted to Ghana's national grid, supplying approximately 180mcf/d.

"The launch of OCTP will provide gas to Ghana for over 15 years and the resulting electricity will give a real boost to the country's development. All of this has only been possible thanks to the unwavering commitment of Ghanaian authorities and of our partners." Eni CEO Claudio Descalzi said.

Eni is the operator of the OCTP block with a 44.44% stake, while Vitol holds 35.56% and Ghana National Petroleum Corporation (GNPC) owns 20



MARIDIVE & OIL SERVICES

ENDLESS SEA, ENDLESS GROWTH



www.maridivegroup.net

Maridive Cairo: 37, Cornish El Nile, El Maadi. Cairo. EGYPT. - Tel.: (+202) 23585204 - Fax. (+202) 23581160.

Maridive Alexandria: 10, Ahmed Yehia St. Gleem, Alexandria. EGYPT. - Tel.: (+203) 5837170 - Fax. (+203) 5834668

Developing Opportunities in IOC/NOC & Service Companies Relationship ROUNDTABLE

By : Salma Essam, Sarah Samir , Mariana Somensi, Nouran Ashraf



ORGANIZED BY
EGYPT OIL & GAS
NEWSPAPER

TECHNICALLY PREPARED BY
EGYPT OIL AND GAS
TECHNICAL COMMITTEE

SUPPORTED BY



PLATINUM SPONSORS

GOLD SPONSORS



SILVER SPONSOR

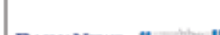
DELEGATE BAG & NAME TAG SPONSOR

COFFEE BREAK SPONSOR

Research Partner
OXFORD BUSINESS GROUP

Official Media Partner
المصري اليوم

Media Partners



With the unprecedented growth the Egyptian oil and gas industry had eyed, a wide range of opportunities are still ahead, with huge potential to move the country forward on the chessboard of the energy industry. Egypt's petroleum leaders have shown commitment to provide long-term and effective solutions by timely engagement in debates and discussions over challenges and risks in today's energy-reliant world. On Thursday May 17th, Sky Executive Resort hosted top energy leaders, CEOs of energy and service companies in a discussion over recommendations and solutions for performance development in the Egyptian oil and gas industry. Under the patronage of H.E Minister of Petroleum and Mineral Resources, Tarek El Molla, and organized by Egypt Oil&Gas, the roundtable event on 'Developing Opportunities in IOCs, NOCs, and Service companies Relationship' kicked off, offering fruitful insights on topics of primary concern, namely: Offshore: Mediterranean/Nile Delta & Gulf of Suez, Onshore: Western & Eastern Desert, unconventional, and Industry Collaboration & Relationship Barriers.

In his inaugural speech, Egypt Oil&Gas Managing Director, Eng. Mohamed Fouad extended his welcome to Minister El Molla and further honored his unyielding support to the mission and vision of Egypt oil&gas before displaying a video on the activities and the role played by the technical committee. Country Manager and Director of TransGlobe Egypt, Eng. Brian Twaddle, who moderate the discussion, praised the efforts done by the committee noting that they, the committee, give some of their time because they "believe in Egypt". "We believe passionately in the future of the sector in Egypt. And we believe that the modernization program can be transformational for the sector," Twaddle stated.

Collaboration among Industry Stakeholders

The framework of the debate aimed at providing novel and valuable visions to performance development of the oil and gas industry.

In his opening speech, H.E Minister Tarek El Molla encouraged the attendees to exchange knowledge and introduce new visions that can help unlock Egypt's potential. "We are working together in the same business activities. We have all the same intentions towards having the same task." H.E Minister, Tarek El Molla, stated addressing the IOCs, NOCs, and service companies' representatives. He added: "Part of our success is to share [insights] and to contribute together."

As a matter of fact, the work scope of operators and service companies is rising, with small companies striding huge steps forward. In his presentation, Professor at the American University in Cairo, Dr.

Ahmed El Banbi, showcased the production data since 1980 until 2016 in Egypt, highlighting the role each segment plays. In fact, the small companies such as the role NOCs are doing is increasing, taking a big position in Egypt's energy production capacities. In 2000, major oil companies produced 62% of Egypt's total production. "Now, we have 39% of production from majors (major companies)," El Banbi said, with the rest of production carried out by small companies. The presentation showed the contribution of small companies in the production activities taking place in the deserts. El Banbi drew the strong link between the discussion and the increase of the work capacities of the small companies, noting: "when we have smaller companies and when we have lots of companies working in the basins of Egypt, we should call for more collaboration between the operators, the service companies, and the national oil companies."

Technology and Cost Optimization in Offshore Activities

The roundtable discussed the current growth potential of the offshore projects, tackling cost optimization and technological debates.

"This is the high investment, high technology sector of the market," said Oil Field Services Account Director Schlumberger, Eng. Ismail El Khouly, taking the discussion towards presenting the importance of technology; its planning, design and execution, for offshore drilling operations.

The challenging conditions of deepwaters require "close integration and collaboration between the IOCs, NOCs, and the service providers to ensure that the plans will be achieved in a right way," affirmed Geologist Mostafa El Bahr. Operators, therefore, withhold expectations and demands from their partnering service provider that would bring in efficiencies through technological solutions.

In heavy expensive industries, top-notch applications of solutions that are substantially manifested in technology are required. Managing Director at Total E&P Egypt, Jean-pascal Clemencon, emphasized: "We need to be able to work with the best technology available," adding: "If you can save [a] couple of days of rig by using better equipment, even they were more expensive in the first place, it can make a big difference."

Technology comes hand in-hand with safety measures. In fact, the area of safety is a top priority to major international operators. "We are clear with this priority when we work with any contractor or any service provider," Vice President North Africa, British Petroleum, Eng. Hesham Mekkawi affirmed.

Cost optimization for offshore drilling operations

is an important element to consider in today's oil prices. From this, efficient partnerships paves way to more investments and profit for parties involved. In this sense, Mekkawi said: "A long term partnership between us [IOCs, NOCs, service companies] is good for the business, industry and the government."

Equally important; is the capacity of onshore fields and the amount of production taking place on their platforms. It is, therefore, irrational to entirely rely on a specific drilling type because both onshore and offshore have certain advantages over the other.

The second session of the first panel discussed onshore drilling operations, focusing mostly on the Egyptian Western Desert. Apex Energy's President and COO, Thomas Maher, started the discussion by pointing out that "service companies working in Egypt on onshore have untapped value in both technology and expertise that they offer the onshore operators." He stated that "Independently, [the smaller operators] are not much, but together resource in production for the country".

Western Desert and Rich Mysteries

E&P activities in Egypt's Western Desert have long provided mass production of oil and gas resources, however, there's still vast unlocked potential to be discovered. In essence, Apache's Vice President and General Manager, David Chi, said: "Western Desert has been carrying Egypt's production for many years. We believe there are still lots of opportunities. One of the good things about Western Desert, it is kind of like a premium basin." Baker Hughes' Country Director and General Manager Egypt, Sameh Hussien, explained that The Western Desert and the onshore concessions do not just own mature fields as "there are green fields there. The point I want to tackle is how we can get more from the existing."

Additionally, EPR Group's President and CEO, M. K. Dabbus, agreed that the desert have a lot of oil and gas wealth explaining: "We always keep on finding additional reserves through these very detailed studies and through applications of improved recovery techniques."

Together Towards a Productive Industry

Accordingly, small operators can access onshore fields and enhance production through the cooperation with service companies. TransGlobe's Country Manager and Director, Brian Twaddle, gave an example of his company as the company had an "uneconomic [play that is not producing] even a \$100 oil. [Yet], working with the service companies [enabled TransGlobe to] start a lot of fracture stimulation projects and that grew the company's [production] up to around 12000b/d." Twaddle highlighted that the company "could not have

"We need to have all this [expertise] together for one reason, which is Egypt's future and the growth of our economy and the GDP"



TAREK EL MOLLA Egyptian Minister of Petroleum & Mineral Resources

"We believe passionately in the future of the sector in Egypt. And we believe that the modernization program can be transformational for the sector."

Brian Twaddle
TransGlobe's Country Manager and Director.



"A long term partnership between us [IOCs, NOCs, and service companies] is good for the business, industry and the government."

Hesham Mekkawi
British Petroleum Vice President North Africa



done that without the relationship with the service company, and that was done very much through conventional contracting," adding that "we can do better with more creative contracts and risk sharing models."

Moreover, the roundtable discussed potential future strategies to boost the exploration in the Egyptian onshore fields. Shell's Development Manager, Layla El Hares, suggested having a joint "database that all [companies] can subscribe to and recycle [their] material, so for example a compressor that [a company] might not need any more or would like to pass on" to be accessible, shared or recycled through this database.

Meanwhile, PICO International's CEO, David Thomas, added that "every company in the room [should] have the optimal technology in operations in all of its wells and across all of the facilities." Thomas further proposed that IOCs and NOCs should invite "the service companies into very broad conversations around their assets, because many times individuals in the producing companies will know what they need, but they won't know what is available to solve their problem." Thomas continued that the conversations should revolve "around

technology to be demand driven rather than supply driven," adding that E & P companies should "open the invitations to the service companies and have very broad open dialogues to expose the types of problems they have and invite the solutions. I think it has to do with having open discussions."

Easy Access to Information

According to industry leaders, IOCs, NOCs and service companies should have easy access to data. Baker Hughes' Director Sales & Marketing, Mahmoud Shawkat, stated an example: "Recently, there was a client in land operations, few months ago, who drilled a well and produced 10mcf/d standard. Today, [this client] is only producing 0.5mcf/d. The information was not as much available at the time, but he realized later that the information should be available so I can find solutions," adding "the same day we were given the information and during the discussion we found out that three mistakes occurred during drilling and compilation. Now we almost have the solution to intervene and bring back the production from 0.5mcf/d 10m standard cubic feet per day" Shawkat pointed out "We need the information, once the information is available at our hand, the solutions will come quicker than you expect."

In this regards, Rockhopper's Country Manager Egypt, Samir Abdel Moaty, said: "Several IOCs like Shell and Apache are working with technology providers to improve the data quality in the Western Desert. In the Western Desert, we are looking forward now either to very small leads and prospects or to very deep [ones], which need better imaging to reduce the risk. This means adding more reserves during the exploration and appraisal time. And that is what we'll be using later on in the development of the field, which hopefully will increase the production in all areas."

Therefore, paving the way for service companies to have access to information and building a joint dialogue with them will empower the smaller operators, as well as the giant companies, in order to develop their exploration which will eventually enhance production.

Perfect Path to the Unconventional

AUC Professor, Dr. Ahmed El Banpi and Shell Technical and Development Manager, Ms. Leila El Haris opened the session, stressing the significance of the discussion of the future of the unconventional oil and gas in Egypt with the introduction of the unconventional opportunities from the Apollonia gas field Upper Bahariya oil field, in the Western Desert and oil shale in Eastern Desert.

The roundtable members discussed the areas of collaboration between IOCs, NOCs and service companies when it comes to the introduction of the unconventional, the environmental implications of such new techniques, the economic considerations, the lessons learned that can be applied in Egypt, and finally the academic role in preparing the younger generation of oil and gas engineers.

In order to develop the future of oil and gas in Egypt Dr. El Banpi pointed out to the roundtable members that historically, Egypt used to produce



"We need to encourage both service companies and partners to optimize costs so we can improve and continue working on the unconventional"

Mohamed Moanes
Petroleum Ministry First Undersecretary for Gas Affairs



"We have some processes in the NOCs that we are working on to improve and shorten the [tendering] process itself, but the service providers also need to respond to us on time in terms of the clarifications they request."

Magdy Galal
EGAS' Vice-Chairman for Operations / EGPC's Vice-Chairman for Exploration



"The role of medium and small size companies, in the future development and exploitation of brown fields, will be increasing and should be encouraged through various incentives in the future"

M. K. Dabbus
IPR Group's President and CEO



"The idea is we need to truly work as partners and combine resources to understand what drives each kind of reservoir."

David Chi
Apache's Vice President and General Manager



and export a good amount of oil from Gulf of Suez but then Gulf of Suez suffered from decline in production like any mature basin. Later, the Western Desert increased its contribution to Egypt's oil production and the Nile Delta; the two resources are expected to suffer from decrease in production over time as well. "Every few years we have to find 'an elephant' or a new basin to introduce it into production, I personally believe that the new elephant is the unconventional oil" he noted.

Focusing on the importance of learning from the successful case studies and applying it in Egypt Leila El Haris said "The development of the unconventional resources is quite challenging and there have been very little success worldwide except for North America". She explained that the reason for that is there are key ingredients to be followed in order for the unconventional methods to succeed; that includes having the right geology, tools, service providers, competency and skills, and also the right contract agreements. Baker Hughes Director of Sales & Marketing Egypt Libya and South Sudan, Mahmoud Shawkat stated that in the US the unconventional business wasn't proven to be economically successful until over 800 unconventional wells were drilled. He explained that the situation in Egypt is different with only three unconventional opportunities, "First we have to drill more wells and study the economics before we can say we have an economical play, we can't do this now with only two unconventional wells drilled and explored but we have to continue the trial" Mr. Shawkat concluded. The attendees shared examples from different countries where the infrastructure was similar to Egypt and they were able to gain some success due to the extensive research on exploration and production techniques.

Concession Agreements and Unconventional Resources

The roundtable members discussed the areas of collaboration between IOCs, NOCs, and service companies where they can all work together to convert the unconventional oil and gas resources in Egypt to reserves where they highlighted the significance of sharing of the data and knowledge. Dr. El Banpi suggested that the competitor companies working in the western desert should work together and share the generated data and knowledge from the Apollonia gas field and Upper Bahariya oil field, "Maybe we can carve out Apollonia and Upper Bahariya from the concession agreement and form a giant joint venture between all operators in the western desert in order to focus on testing and developing these resources" he said. Halliburton Egypt & Libya Area Manager, Osama Abdel Halim explained that in order to succeed, operators and service companies should work together to get the data and knowledge that the unconventional business must possess including the subsurface insight, customized chemistry, and the surface efficiency. From his side, EGPC Vice Chairman, Adel Fahmy said that EGPC can aid the collaboration of sharing the knowledge between the companies with respect to the regulatory rules and he confirmed that EGPC is open to providing any company with the information it requests and that EGPC will support all companies in need of understanding the geology of the region.

Highlighting the environmental impact of the unconventional oil gas, SDX Country Manager, Ahmed Moaz said "the idea of fracking sand, like what we did in the western desert, can be entertained. However shale fracking is a very sensitive topic; I think that it will take a long time before a country such as Egypt can embark on this kind of project." On the other hand, Shell Egypt



Deputy Chairman, Moataz Darwish said that shell has globally built on experiences in the US and developed global principles when it comes to water protection, air quality, safety, land use, and dealing with the local communities to make sure that the operation doesn't negatively affect the environment. Stressing on the importance of the financial considerations when it comes to the future of the unconventional oil and gas in Egypt, Halliburton Egypt & Libya Area Manager, Osama Abdel Halim said "for the unconventional methods to work you have to study the economics of the unconventional,

"Drilling is the key to maintain our production and increase it in all the mature fields."

Osama Abdel Halim
Halliburton Egypt & Libya Area Manager



"One of the companies was able to double production by technology, fit to purpose technology." He continued "What enabled that to happen is the acceptance of the customer, either IOC or NOC, of implementing that [technology], and taking and understanding the risk."

Sameh Hussien
Baker Hughes' Country Director and General Manager Egypt



"We need to be able to work with the best technology available"

Jean-Pascal Cléménçon
Total E&P Managing Director



"I think it is an opportunity for smaller operators to forge alliances and partnerships with the service companies in order to tap into that technology and expertise capabilities that the service companies have."

Thomas Maher
Apex Energy's President and COO



if you can't drive the unconventional economics from the cost down you won't be able to survive". He explained that that unconventional survived in North America due to the continuous improvements in regards to reducing the cost per BOE. EGAS Chairman, Osama El Bakly said that "when it comes to Apollonia we have to consider the economic aspect due to the shallow depths of the western desert, the challenge is how to develop an economic model in the current technology"

The attendees discussed the success of Apollonia field and how it should be taken as an example of success to encourage more investments, Petroleum Ministry First Undersecretary for Gas Affairs, Mohamed Moanes said that Shell, Apache, and EGPC are all collaborating in the Apollonia gas field, "we can all learn from Apollonia field as a successful example of collaboration in the unconventional exploration and we should move to the second phase to drill more wells."

Schlumberger Marketing Manager, Ismail El Kholy said "The project was executed in collaboration with Khalda with long engagement that took over a year before the launch of the project, where a team of experts from the service providers worked together to involve the global expertise on every level which eventually generated outstanding results. I think the learning curve of this unconventional application was cut down dramatically because of the way it was executed."

Since the future of the unconventional oil and gas also depends on the new generation of Engineers that will work on the new technology, it is essential to prepare them for such new play in Egypt, Dr. El Banpi said that now we have specific courses offered for oil and gas students that focuses on the unconventional oil and gas education in Egypt and he added that the new academic direction is heading towards collaborative work, "nowadays students are evaluated for their collaborative effort and skills not just their knowledge" he noted.

Everyone Wins

In collaborative business models, it is important to assure that the interests of all the companies involved are fulfilled. "IOCs, NOCs and service providers should have only one pathway to make their plans come successful, which is: everyone wins," said Baker Hughes' Director Sales and Marketing NAF, Mahmoud Shawkat. According to him, if the petroleum firms stick to individual targets, they "would not be progressing in the right direction."

Tendering Delays

On the contracting side, there are elements of tender processes and proper evaluation that impose a roadblock to the joint schemes. "I think the most important point about tendering process here is the very lengthy process it takes to the joint ventures to award any of these tenders," SDX Energy's Country Manager and Director, Ahmed Farid Moaz, explained. "When you want to do a project and you have to wait six months until you finalize your tender processing, it kills the project. There is no way of doing business," he added.

The Committee pointed out that one of the reasons of tendering delays is the amount of contradicting terms and conditions in the contracts, which drives the companies to ask for clarifications.

In this matter, Shawkat noted that discussions with EGPC had already been held to allow the industry to get some aggregates of tender terms and conditions to agree on previous issues in any tender. As he explained, the goal would be to have global terms, which would avoid cycles of discussions and clarifications on the tendering process and, therefore, save time. "This is a roadblock that had an initiative in the past, but the thought has stopped somewhere. We really need to reactivate this direction," he advised.

Rockhopper Exploration's Country Manager, Samir Abdel Moaty, added, "We need this sort of procedures and systems to try to eliminate or at least



H.E. Eng. Tarek El Molla honors EOG Technical Committee for their efforts in supporting the industry

"I do not think people expected the downturn to last that long, and I do not think that anybody has a magic solution for it."

Hussein Fouad el Gazzawy
Schlumberger's VP and General Manager



"We can have a kind of database that we all [IOCs and NOCs] can subscribe to and recycle our material. We can share and collaborate better, especially players in the same area."

Layla El Hares
Shell's Development Manager



“When we used to do integrated services, there were very serious cost savings.”

Tawfik Diab
PICO International Petroleum
Board Member



“In Europe the regulator would serve as the benchmarking entity, so all the good case studies that we are hearing are collated in a central place, like EGPC for instance, where the numbers can sort of serve everyone in the area.”

Moataz Darwish
Deputy Country Chairman at
Shell



reduce the amount of time spent on clarifications.” EGAS’ Vice-Chairman for Operations and EGPC’s Vice-Chairman for Exploration, Magdy Galal, agreed that the NOCs have the responsibility of sending out clear tenders. However, he noted that, sometimes, providers request for clarifications and, afterwards, take a long time to respond again.

“After we receive the clarifications from the providers, one or two weeks later, another service provider asks for more clarifications, and this extends the process. We have some processes in the NOCs that we are working on to improve and shorten the [tendering] process itself, but the service providers also need to respond to us on time in terms of the clarifications they request,” he complemented.

EGAS’ Vice-Chairman for Production, Mohamed Abdel Azim, highlighted the importance of the tendering procedures already ongoing. “We have rules. These rules are a guide to help us go through the tender processing in the proper way and control it, but this is not the cause of the delay or the barrier for this point,” he defended. According to him, the problem is rather due to the culture of the people and the long discussions for clarifications between both sides.

The Ministry’s First Undersecretary for Gas Affair, Mohamed Moenez, disagreed on the government’s responsibility on the tender delays. As he explained, there are indeed adaptations that can be done; however, the companies involved can also engage on a series of actions to speed up the process. “I believe that the way of tendering things is already approved for everybody. What we have as a procedure, I believe it is good. How to reduce the time of tender is between the people from inside the company.”

Moenez mentioned that one measure that the companies could take to accelerate the tendering process is encouraging employees to reach shorter deadlines by giving them bonus. “It does not

depend on EGPC only, it depends on everybody,” he stressed.

“We hope to see some improvements in the contracting processes through the Modernization Program,” Moaty concluded.

Workforce Retention

The downturn in oil prices led the petroleum industry to reduce its workforces. According to Mahmoud Shawkat, the reduction might have been easier for IOCs and service providers; however, it imposed great difficulty to the joint ventures. “At a certain point of time, we lost some talents in the Middle East area or in the globe, because our system did lack a retention base pay,” he added.

“With this scenario, we did not lose only unskilled people. We lost a lot of skilled people as well. I do not think people expected the downturn to last that long, and I do not think that anybody has a magic solution for it,” Schulumberger’s VP and General Manager, Hussein Fouad el Gazzawy, said.

The Committee debated on whether a tie between career progression and pay could improve workforce retention in the industry. The Ministry’s Undersecretary for Technical Office, Osama Mobarez, suggested that retention is not just up to the tie between career and pay, but also depends on

performance management. “One of the things that we are trying to do in the Modernization Program is to align either the pay or the career progression with the performance management,” he explained.

“We have very good technically talented people, but in the past few years a lot of the top managers have retired, which led to a gap between top management and the young people. So one of the challenges is the managerial skills,” he added.

Furthermore, workforce retention in the oil and gas sector requires the introduction of performance contracts and accountabilities within the entities as well as the people and the employees, as defended by Mobarez. “Is not just pay, it is a package,” he stated.

As the day came into conclusion, all the attendees did agree one thing; Egypt has a huge potential to evolve when it comes to the oil and gas industry, but there should be collaboration between the IOCs, NOCs, and Service Companies to achieve the optimum performance. With the support and facilitations that the government can provide for the corporates, Egypt will surely do accomplish the goals of self-sufficiency, being an exporter and a hub for the region, and above all, a country with modernized oil and gas industry.



“Every few years we have to find “an elephant” or a new basin to introduce it into production, I personally believe that the new elephant is the unconventional oil”

Ahmed El Banpi
Professor at the American
University in Cairo



“I would like the conversations around technology to be demand driven rather than supply driven.”

David Thomas
PICO International’s CEO



RIYADH: FROM OIL LEADERSHIP TO NON-OIL FUTURE

By Sarah Samir



The Kingdom of Saudi Arabia (KSA) has greatly changed its views of the oil and gas industry over the past decade. The way the Saudi dynasty perceives the importance of its oil wealth affects the oil and gas law and the kingdom's economy. Over the years, economic and political internal and external variations have triggered different reforms. In the middle of low crude prices, Riyadh, as every country in the Organization of the Petroleum Exporting Countries (OPEC) has been developing a new strategy to keep its economy stable.

Accordingly, Saudi Prince, Mohammad Bin Salman Al Saud, the Second Deputy Prime Minister and Minister of Defense, who was given control over the Arabian American Oil Company (Aramco) by a royal decree, has supported this particular strategy regarding the country's main industry. This comes as the kingdom attempts to free its economy from oil and gas.

Vision 2030

With the decrease in petroleum prices due to the excessive oil and gas production across the globe, OPEC decided to reduce the oil output. This has been an impetus to develop an alternative strategy for the leading sector of the kingdom with a desire to shift to a non-oil future, seeking alternative sources of energy.

In line with Prince Mohammad Bin Salman Al Saud's support to a future kingdom that is not depending on the oil and gas industry, he has promoted the Vision 2030 that plans to turn Saudi Arabia to non-oil

based economy.

The Vision 2030 proposes transferring KSA's economy into non-oil based one. The Saudi Prince described the vision as a collection of economic and social regulations that aim to free the kingdom from dependence on oil exports, Reuters wrote in the article Analyst View: Saudi Arabia's Vision 2030 Reform Plan. Vision 2030 also has a part relating to renewable energy as it targets the production of "9.5 GW of renewable energy."

One of the programs of the Vision 2030 is the National Transformation Program (NTP).

Saudi National Transformation Plan (NTP)

In order to achieve the Vision 2030, KSA launched the National Transformation Program (NTP) which is a "methodology and roadmap for economic and developmental action in the Kingdom of Saudi Arabia" in order to give KSA a "leading position in all fields" and not just in the oil and gas related fields, according to the Saudi government's document National Transformation Program (NTP) 2020.

Thus, the Council of Economic and Development Affairs formed an "effective and integrated governance model" in order to transfer the Vision to "implementation programs" that aim to "accomplish its goals and directions" through applying the NTP program, the document further states.

NTP translates the "Vision's commitment" according to the government's document through a number of objectives. These objectives include: a) "identifying the strategic objectives and targets of participating entities;" b) "translating strategic objectives into

initiatives for the participating entities;" and c) "promoting joint action toward the achievement of common national goals." In these articles NTP is identifying "national priorities" in the vision and their "public benefits." NTP, thus, specifies advantageous and disadvantageous objects that affect reaching the visions' goals.

The NTP program is divided into five phases; phase I is regarding "Identifying the Challenges" while phase II is related to "Developing Initiatives." Then, phase III of the program will be addressing the development and "implementation plans for the initiatives". Phase IV will deal with the ways of "promoting transparency in the publication of Targets and Outcomes." Phase V of the NTP program will be handling "Auditing, Continually Improving, Launching New Initiatives, and Adding New Participating Entities," according to book National Transformation Program (NTP) 2020. Thus, the program will be moving from the level of recognition to application and evaluation.

This new perception brings the question of how did Riyadh come to seek a non-oil future?

Saudi Shifting Oil Perceptions

As Riyadh's perceptions of the oil and gas industry have been changing throughout the history, the country has approached a milestone, in which a new strategy is set to pave the way for a non-oil scenario. Saudi Arabia was not paying this attention to its natural oil and gas treasure when the kingdom was first established. Once, the Saudi Arabian Kingdom had its first King, Abd al Aziz ibn Abdar Rahman Al Saud, his majesty "granted the first oil concession

in 1923 to the British group called the Eastern and General Syndicate," according to Helen Chapin Metz's research.

With the discovery of oil in the gulf area, investing groups were formed seeking to have concessions in the region. By time, the Arabian American Oil Company (Aramco) was investing in Saudi Arabia and the Saudi Arabian Royalty started to appreciate its black gold.

Saudi Arabia's interest in oil and gas increased with time until "the Saudi Arabian Legislative Process including the drafting and enactment of concessions is approved or amended by Royal Decrees after first being reviewed by the Kingdom's Council of Ministries and the Shura Council," as mentioned in Dr. Abdullah F. Ansary's book A Brief Overview of Saudi Arabian Legal System that was published in 2015 as the Royal Family keeps explorations and discoveries under surveillance.

Furthermore, as oil revenues represent huge part of the kingdom's economy, article no.15 of the Saudi Arabian Basic Law of Governance states: "No concession is to be granted and no public resources of the country are to be exploited except pursuant to a law." This article of the Saudi law shows that the kingdom is likely aware of its petroleum wealth and working to preserve it.

Public-Private Partnerships

By and by the royal family started to adapt new schemes. Accordingly, Deputy Crown Prince, Mohammed Bin Salman, began supporting private sector. The Saudi Arabian government contributed in deciding projects suitable for Public – Private Partnerships (PPP). Norton Rose Fulbright Law Firm published in the article PPPs in Saudi Arabia Bright Opportunities or Challenges Ahead that joint projects "between the public domain and the private sector in the energy and infrastructure fields are not new to Saudi Arabia." However, the

kingdom has announced that "it will look to public private partnership (PPP) as a means to satisfy its immediate energy and infrastructure requirements," according to Norton Rose Fulbright's article PPPs in Saudi Arabia – bright opportunities or challenges ahead?

PPPs enable the Saudi Arabian government to "access to private sector finance while maintaining control of project cost, quality and standards." However, the Saudi government needs to update its policies to further make the best use of PPPs. Norton Rose Fulbright Law Firm's article confirmed that as it stated that in order to have a PPP project, the kingdom needs to review the "legislative and regulatory framework as well as" the creditworthiness of the procuring authority."

PPPs originally aim for defining a certain "timeframe." Assistant Director General Saudi e-Government Program (Yesser), Ahmad Alkhairy's book Public Private Partnership Model in Saudi Arabia published in 2012 stated that PPPs would help the Saudi government to "achieve the best outcome of PPP, which is driven by increased need of efficiency and quality of E-Government services delivered," and to "save" costs and provide an "access to advanced technologies and resources." It further aim for reducing "risks." PPPs procurement is also meant to enable the Saudi Arabian government to face challenges like "globalization, consumer expectations, limited resources, limited skills, and technology innovations," according to the book.

Alkhairy further added that applying the "E-Government" system along with adapting the PPP system will lead to "government innovation."

The Saudi Arabian government should ensure the existence of strong "national communication," according to Alkhairy's book Public Private Partnership Model in Saudi Arabia, in order to confirm that "local authority officials are aware of

the potential benefits of PPP and of the main issues involved in implementing them." To have PPPs in the Kingdom, especially in the energy sectors, ensures that public companies will support the government and receive aid from the government as well through having access to several things that will improve the industry.

Saudi Arabia; Towards Non-Oil Power

In addition to seeking to replace oil and gas as a source of wealth, Saudi Dynasty wants to transfer the main sources of power to non-oil sources. Saudi Arabia is "the world's sixth-largest consumer of oil," according to Jeffrey Ball's article Why the Saudis Are Going Solar.

Ball explained that the Royal family is "concern[ed] about global warming" and thus they are keen to see "the end of the fossil-fuel era." Prince Turki bin Saud bin Mohammad Al Saud was quoted in Ball's article saying: "We have a clear interest in solar energy. And it will soon be expanding exponentially in the kingdom."

The kingdom is eager to depend on new renewable energy to cover Saudi Arabian's power demands. Dr. Moritz Borgmann mentioned in his article Saudi Arabia's Amazing New Renewables Target: 9.5GW by 2023 that "Deputy Crown Prince Mohammed bin Salman, announced the first cornerstones on April 25, 2016 for the deployment of renewable energy in the country."

Therefore, if Saudi Arabia adapted Vision 2030, it will flourish its economy and free it from being contingent on oil and gas. The Saudi Arabian Royal family seeks to have the kingdom in a leading position in generating new and renewable energy as it is now in producing petroleum and natural gas. Not only Saudi Arabia, but in the middle of oil prices decrease, many oil producing countries are expected to seek other energy sources and to have a replacement for oil and gas in its economy.

Committed Services to the Cabling Industry.



Pre-Molded Cables Accessories



Head Office
Plot 27, 1st District, 5th Settlement, New Cairo 11835, Egypt
Tel.: (+202) 27599750/1 - Fax: (+202) 27599752

Factory
PC#36A, south (A'1) Industrial Region, 10th of Ramadan City
Tel.: (+2015) 411141 - Fax: (+2015) 411142

19159

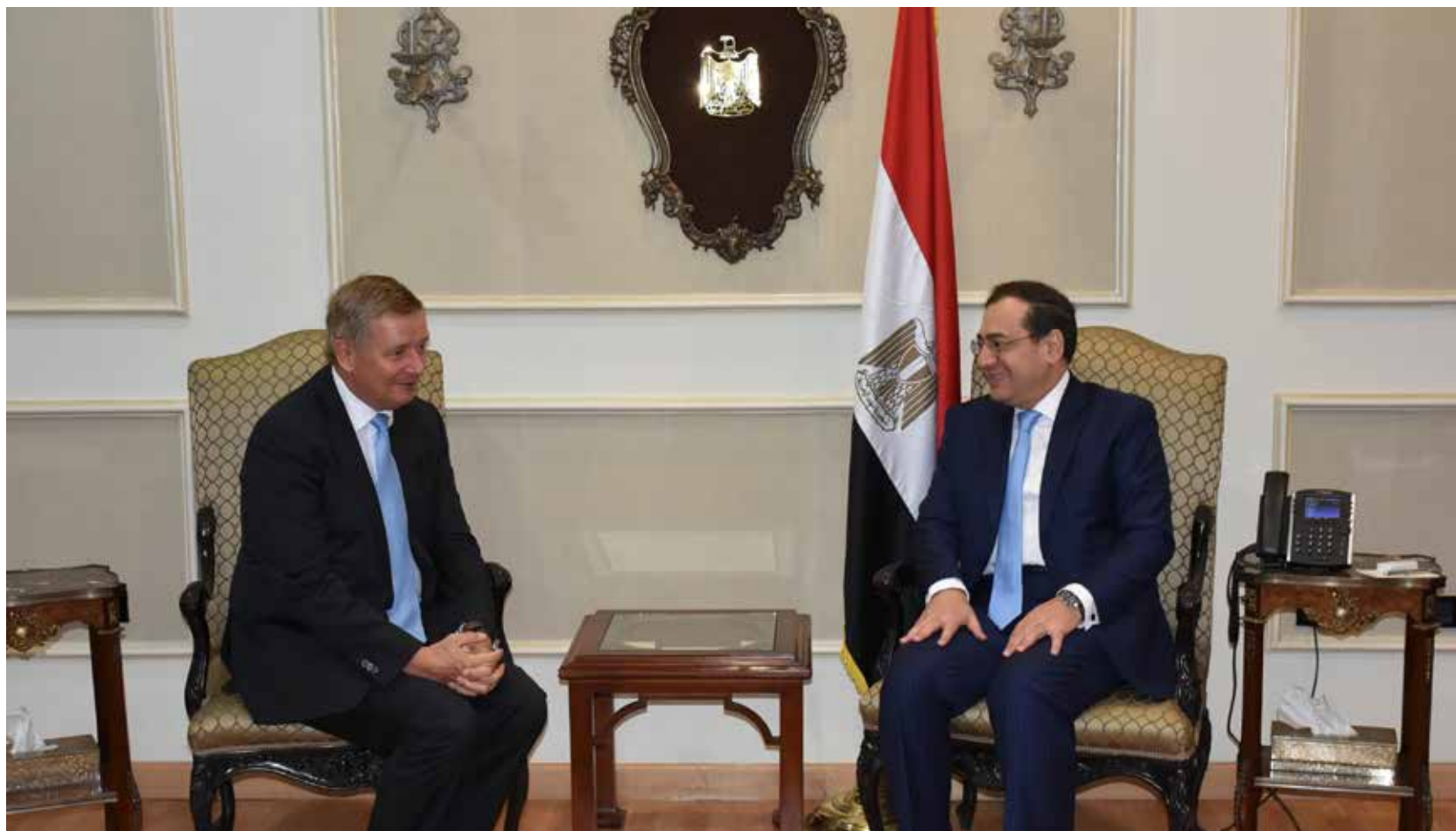
www.elsewedy.com

ELSEWEDY
S E D C O

by ELSEWEDY ELECTRIC

FIRST GAS FROM WEST NILE DELTA CONTRIBUTES TO DEA'S GROWTH

- Production from the West Nile Delta (WND) project commenced
- First gas ahead of schedule and production above plan



Production from the offshore WND gas fields commenced on 24 March 2017 from the first two fields, Taurus and Libra. Nine wells have now been commissioned and the fields are currently producing at a flow rate of more than 700 million cubic feet of gas per day.

"West Nile Delta is the largest new gas project that has been brought into production in Egypt in the last years. Its gas will contribute materially to the energy balance in the country. It is also one of the largest investment projects within DEA's portfolio and we are pleased that the first gas milestone has been reached," says Thomas Rappuhn, Chief Executive Officer of DEA Deutsche Erdoel AG.

"DEA was already involved in this project in its exploration phase and I would like to thank the team for the successful and professional implementation of the first part of the project," Thomas Rappuhn adds.

"DEA is proud of being an active partner in this project. All members of the project team, within BP as the operator and DEA, have done an excellent job in order to achieve the production launch," says Thomas Radwitz, General Manager of DEA Egypt. "We are pleased to be able to start up production from this complex project just a bit more than two years since the final agreements for development

were signed. Due to efficient project management, the team was able to deliver below budget and ahead of the original start-up schedule," underlines Thomas Radwitz.

Background WND project

DEA has a 17.25% working interest in North Alexandria and West Mediterranean Deep Water concessions with BP being the operator and owner of the remaining share.

The West Nile Delta fields are located approximately 65 to 85 kilometres off the coast of Alexandria - Egypt. The gas and condensate fields are being developed in several phases. During the first phase, five major fields are under development: Taurus, Libra, Giza, Fayoum and Raven. Additional discoveries are planned to be developed at a later stage.

The Giza, Taurus, Libra and Fayoum fields hold gas resources within the Pliocene formations, while the Raven field holds gas resources in the deeper Miocene formations.

In March 2015, the project partners DEA and BP signed the final project agreements, including the life-of-field gas and condensate delivery agreement with Egypt General Petroleum Company (EGPC), upon which the project execution started.

The two fields Taurus and Libra have been developed subsea, with a total of nine wells and an offshore

tie-back of 42 kilometre length to existing offshore infrastructure.

The other three fields, Giza, Fayoum and Raven, are planned to be brought into production in 2019. Giza, Fayoum and Raven will be tied-back to the shore over long distance and deep-water. The existing Rosetta plant will be modified for Giza and Fayoum and integrated into a new adjacent onshore processing plant for Raven.

Background information

DEA Deutsche Erdoel AG is an international operator in the field of exploration and production of crude oil and natural gas based in Hamburg. Its focus is on safe, sustainable and environmentally conscious exploitation of oil and gas. DEA has 118 years of experience working along the whole upstream value chain as operator or project partner. With a staff force of 1,350 employees, DEA has shares in production facilities and concessions in, among others, Germany, Norway, Denmark, Egypt and Algeria.

In Egypt, DEA has been active since 1974. During the last three decades, the company has produced over 650 million barrels of crude as an operator in the Gulf of Suez. In 2013, DEA started production from the own operated Disouq gas development project in the onshore Nile Delta.



Growing with Partnership

DEA is proud to be an active partner in the West Nile Delta project. This world-class project is one of the largest offshore gas developments in Egypt. The huge volumes of gas from this project will provide a substantial boost to domestic energy supplies. Together with our joint venture partner BP, we are currently producing at a flow rate of more than 700 million cubic feet of gas per day. A great partnership accomplished another milestone.

Growing with **Energy**



EGYPTIAN GAS - CAN BOOMING DEMAND BE MET BY RAPID SUPPLY GROWTH?

By Ryan Pereira Principal Commercial Manager, Global Gas and LNG And Rand Al-Obaidy North Africa BD Manager & Senior Petroleum Engineer



After a decade of regulatory and energy policy changes, Egypt is now back on track as the largest and fastest growing natural gas market in Africa and, in parallel, is enjoying a re-invigorated upstream gas sector based on the giant Zohr discovery, go ahead for West Nile Delta (WND) and a range of other gas developments tied back to spare gas process plant capacity. However, future competitiveness and efficient functioning of the Egyptian gas market, both domestically and within the increasingly integrated global gas and LNG markets, relies on an aligning of several stars. In this article, our teams have assessed the upcoming challenges, opportunities and outlook for the Egyptian gas market.

Egypt and Regional Eastern Mediterranean Gas Market Overview – Signs of The Times

After a period of turmoil since 2012, Moodys upgraded their assessment of the Egyptian economy from negative to B3 stable in April 2015 and reaffirmed this in late 2016. The November 2016 announcement of a \$12Bn IMF loan, the floating of the Egyptian pound, and the strategy to eliminate energy subsidies and to create a fully functioning wholesale gas market are also promising foundations for growth and stability within the natural gas sector. Foreign currency reserves as reported by the Central Bank of Egypt had almost doubled from \$12.8 Bn in March 2016 to \$25.1 Bn in March 2017.

Despite the current global oversupply of gas and the number of large regional gas resources that depend on a large demand market, the Egyptian natural gas market is still attracting considerable interest from major players, a recent example is BP's (10%) and Rosneft's (30%) acquisitions of stakes in Zohr.

The World Bank is investigating the feasibility of creating a regional Mediterranean energy hub centred on Egypt. Supported by domestic gas market reform and unbundling in Egypt and the impact of potential LNG exports from existing plants, this will significantly alter the market structure and pricing of gas in the region. These changes will also challenge government institutions that may be unaccustomed to the operations of a competitive marketplace.

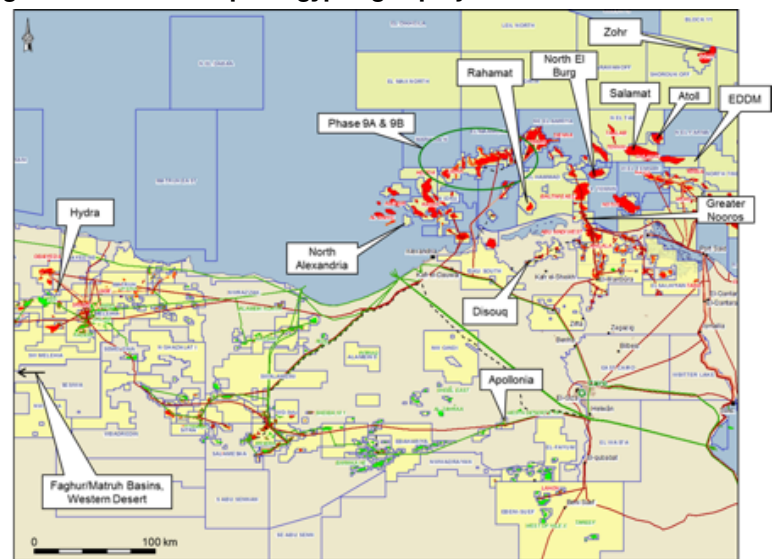
While the outlook for Egyptian gas demand growth largely driven by increasing power requirements appears very strong, the track record of curtailments, contractual disputes and subsidy mismanagement over the last decade will affect the attitude of lenders and other stakeholders.

Egypt Gas Supply from Domestic Production – Recent Declines to be Arrested and New Peaks Reached

Egypt has a long history of gas production growth; however, data from EGAS illustrates that gas production peaked at 6.1 Bcfd in 2009. After this time, production then declined by around 30% to reach 4.3 Bcfd in 2015.

GCA has modelled production declines of existing fields and the potential to bring on new fields from 2017-2035. Our view is that the recent Egyptian production decline will be arrested in the near-term by development of gas resources near to existing infrastructure, supplemented by further developments including BP's WND and ENI's Zohr (Figure 1).

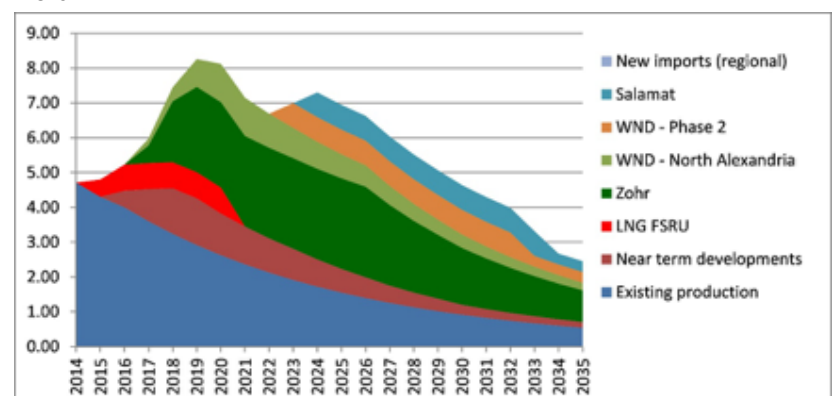
Figure 1: Location map of Egypt's gas projects



Source: Wood Mackenzie PetroView

GCA's mid-case supply scenario (Figure 2) suggests a peak supply of around 8 Bcfd in 2019/2020, and an ability to maintain gas availability at greater than 6.0 Bcfd until 2024. Adding in known but as yet unsanctioned gas developments could extend such rates until at least 2027 even without importing gas from neighboring East Mediterranean gas discoveries outside of Egypt.

Figure 2: GCA's gas supply forecast for Egypt (mid-case scenario) in Bcfd



Planned exploration investments over the 2017-2021 period amount to several billions of dollars, both within Egyptian waters and in adjacent territorial waters, with the potential to completely eliminate decline in regional supplies up to 2035 or beyond.

Egypt Gas Demand – Robust Growth Will Continue and Potentially Exceed Production Supply Growth

Egypt is the largest natural gas market in Africa and it is no surprise that it remains of interest to suppliers looking for a market. Alongside our supply side analysis, GCA has completed a detailed gas demand side analysis. The major factors that underpin the demand projections in GCA's analysis, which provide structural support for continued growth in gas demand, are described here.

Power demand growth was over 5% p.a. until 2012, and only then stalled because of the shortage of gas. Over the next 10 years, Egypt's population (currently c. 92 million people) is set to grow by over 12 million and GDP by about 4% per annum. Population and economic growth, both key drivers of electricity consumption, are combining to create strong increased demand. Hydro power is arguably exhausted and, although there is a push for renewable generation, over the next 5-7 years, the only viable option for large-scale power is gas, hence gas demand growth therefore is both very substantial and sustainable.

As a developing economy, the projections of growth in the gas-fired power generation sector in particular, correlate well with other nations that have followed a similar path of economic development. For example, in the US the measure of installed capacity per capita is around 3.5GW per million of population, in the UK it's 1.34, in Turkey it's 0.8, while in Egypt today it's 0.3. Even based on the long-term planning goals of the power authority, with an expectation to reach around 80-96 GW, dependent on energy efficiency by 2035, we are still looking at a figure less than the UK, and not much more than Turkey today.

Poor fiscal incentives have been stifling growth within the Egyptian industrial and electric power segments. For natural gas demand from power and industrial sectors to continue to grow, a stable energy policy, appropriate economic reward for investors, and additional confidence in the Egyptian market will need to be underpinned with steady investment and a more stable outlook generally for the country.

Gasification of cities remains a key policy, and one that has stood firm amidst many other policy setbacks. Over the last decade, in spite of considerable disruption, the Egyptian Government has prioritized development of the gas transmission system and the connection of large numbers of new customers; we expect this to continue, as it is a main pillar of the Government's goal to eradicate fuel subsidies (especially related to LPG, diesel and fuel oil). Despite the extension of the Egyptian gas distribution system (currently around 4 million connections) and plans to target 6 million connections assisted by World Bank funding, residential gas demand is relatively small.

For the chemical and industrial sectors, GCA's view is that the growth potential is less certain. Media reports indicate a history of gas supply restrictions to gas consuming industries due to insufficient supplies and in the medium term there may be confidence issues in supply, even with Egypt's two LNG FSRUs in operation. One positive is that cement manufacturers have been granted direct access to gas supplies from the FSRUs by paying a blend of the regulated rate and the international price, a kind of fore-runner to market deregulation. Probably the most positive aspect of all round industrial and chemical demand is the proposed unbundling of the Egyptian gas transmission system. This should provide a big incentive for companies to negotiate their own supplies, creating a much more robust basis for growth.

In summary, significant gas demand growth is likely to be driven by growth in gas-fired power generation, growing industrial and chemical sector demand and an increased requirement for gas for LNG exports (at least in the medium term) from re-starting of liquefaction plants. GCA's mid-case demand scenario shows gas demand in excess of 7 Bcfd by 2020 (8.7 Bcfd by 2025), and therefore likely outstripping our modelled mid-case supply scenario from sanctioned projects by 2021.

LNG Exports – Egypt Advantaged Even in Oversupplied Market

At the back end of 2016, Shell exported LNG cargoes from Idku (reportedly linked to debt finance repayments) and has plans to continue these exports into 2017. At the same time EGAS is expected to import at least 60 LNG cargoes in 2017. Ironically, winter seasonal LNG exports could resume in earnest at a time when Egypt continues to be committed to FSRU time charters for LNG imports of around 60-72 cargoes in 2017 and for the vessels out to at least 2020. It is notable that EGAS are currently adopting a relatively short term strategy for LNG purchases, opting to keep 2018 relatively uncovered, perhaps suggesting that the start-up of Zohr, WND and expansion of other nearfield developments may be sufficient to meet 2018 annual gas demand.

GCA's analysis supports the possibility of LNG exports resuming, particularly in the pre-2020 timeframe, and possibly longer in an upside case. Based on pre-2020 forecast gas costs delivered to the plant, LNG exports from Damietta and/or Idku could compete in some European and Middle Eastern markets in the medium term. However, Egypt's ability to produce competitive LNG will put pressure on the economic rent available for liquefaction, driven primarily by US natural gas prices that may create a price ceiling on LNG markets of around \$7.50 / MMBtu.

Egypt's LNG export potential could extend after this period, in an upside scenario. In light of the exploration interest emerging after the discovery of Zohr, it is possible that new, as yet unidentified, relatively low-cost gas developments in the Mediterranean may sustain LNG exports well beyond 2020. By the mid-2020's, growth of renewable power options in Egypt may also assist East Mediterranean gas being made available for export via existing Idku and Damietta LNG plants.

Longer term; if the upstream sector in Egypt and the wider region is able to capitalise on cost efficiencies and better use of regional gas infrastructure, LNG exports from Egypt may become more attractive, especially if this is done on a positive marginal cashflow measure rather than being based on new capital.

Domestic Gas Development Potential – Technically and Economically Competitive?

Given the increasing interconnectivity of global gas markets, and emerging low cost LNG supplies from the US making their way into global markets, now, more than ever before, the customer is in the driving seat. Market demand for gas and LNG is becoming the differentiator for individual developments, and only those assets that can appropriately meet the price and timing dictated by the market will be successfully developed.

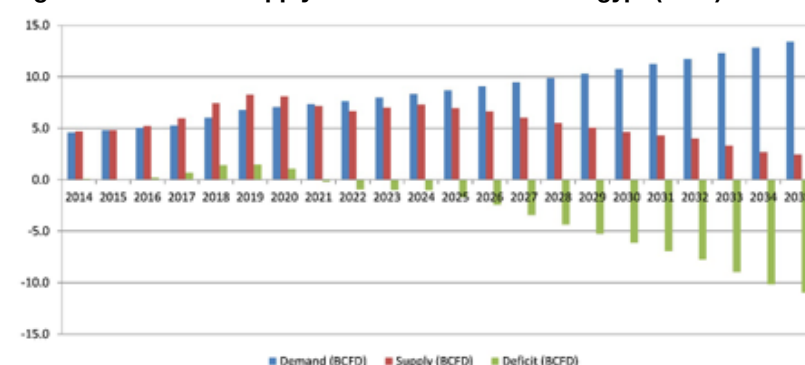
GCA has carefully studied a large number of Egyptian gas development options. Based on our experience, the Egyptian petroleum license terms allocate project profit gas to EGAS: this gas is essentially free to EGAS. Costs and contractor returns are recovered from the remaining gas. GCA has observed that EGAS profit share is between 65% (onshore) and ~50% (deepwater) and we have represented these fiscal terms in our analysis to model the weighted average cost of gas (WACOG) to consider the merit order of Egyptian gas reserves and resources. We have identified a WACOG that falls broadly in the range US\$1.50-\$3.00/MMBtu for the majority of Egyptian gas developments. Zohr and WND Taurus-Libra are estimated at being more cost competitive at below US\$1.50/MMBtu.

Individual companies operating in Egypt have wide ranging WACOGs depending on the assets and locations, and it is clear to us that no matter how much gas may have been identified in recent or upcoming license rounds and exploratory or appraisal drilling, it is essential that individual producers understand the position of their assets within this merit order to determine their competitiveness and whether investment is likely to be successful or lead to stranded gas and large sunk costs.

What Does The Future Hold In Store – Will Supply Or Demand Dictate?

In the absence of new, low cost gas in Egypt, an increasing supply / demand gap could emerge. GCA has developed scenarios to identify when gas surpluses and deficits for Egypt emerge in the next 20-year time period. The outlook for Egypt can broadly be divided into two timeframes, characterized by the period from the present day to the early 2020s, and the period thereafter (Figure 3).

Figure 3: Mid Case Supply / Demand forecast for Egypt (Bcfd)



In the short to medium term, LNG imports are being sought on a fast-track basis to try and address the chronic shortage of natural gas that has arisen as a result of reduced development caused by perceived political and commercial risks. Risks have reduced and therefore upstream investment is being delivered at an exceptionally rapid rate.

Longer term, as the chronic supply shortage is alleviated, based on our supply / demand analysis, GCA anticipates that Egypt will be able to secure substantial, cost effective domestic and regional gas supplies from Zohr and other developments, largely via pipeline connections within the Eastern Mediterranean.

Whether gas supply matches or exceeds demand, depends on a range of factors outlined in this feature that are under the influence of international development agencies, the Egyptian Government and regulators, as well as gas market participants not only in Egypt and the wider Mediterranean, but in the increasingly integrated global market.

Given our experience in Egypt and the current momentum in the gas market, provided the right support is provided from Government, regulatory and gas energy policy, we are optimistic that the destiny of Egypt's gas market will be a happy marriage of cost effective supply meeting local and potentially export demand.

In the past 10 years, GCA's teams have completed over 90 projects relating to Egypt's oil and gas industry, and are currently engaged in around 8-10 projects every year. In addition to our leading edge expertise in Egypt, GCA's Global Gas and LNG group is working on mandates to assist clients strategically, technically and commercially. For further information, please contact the authors using the details below.



IMPROVING TECHNICAL EXPERTISE IN EGYPT'S ENERGY INDUSTRY

By Salma Essam

Several energy industries have been guilty of overlooking opportunities for operational optimization when the tide is high and the oil prices are dwindling. But Egypt's oil and gas sector should be on the cutting edge in its application of technical expertise, at least on the production side. As part of the balancing equation, IOCs, NOCs, and service companies need to collaborate on a novel technical approach for performance development in Egypt's industry.

People are the True Asset

It is crucial for organizational development and success of any workplace to adopt an efficient training scheme for its workers. In heavy industries,

such as that of the oil and gas, performance development for the overall sector substantially relies on strengthening the capacities of its people. It goes without doubt that training presents a prime opportunity to unlock people's potential and expand the knowledge base of all employees. Training programs provide its trainees with the tools, know-how, and expertise needed for better outcomes. As many employers are extremely concerned with the huge budget allocated to training programs, the issue is different for IOCs, NOCs, and service companies. In fact, the intensity of oil and gas activities is time-consuming, which means that employees are subject to miss out on work time while attending training sessions. Nevertheless,

“Performing analysis can guarantee remarkable performance development in the IOCs and local companies”

giant IOCs and local energy companies have realized the essentiality of providing training manuals to its workers, and despite the potential drawbacks, “training and development provides both the company as a whole and the individual employees with benefits that make the cost and time a worthwhile investment,” explained an article titled ‘The Importance of Training & Development in the Workplace’.

“Performance development is largely bound to offering proper training needed to enhance the skills of the employees, hence reflect on their work”

It is true that recruitment processes are strictly based on technical and soft skills of the potential candidates, which means that hired personnel should have a specific level of professionalism. But performance development is largely bound to offering proper training needed to enhance the skills of the employees, hence reflect on their work. Indeed, most employees have some weaknesses in their workplace skills. Training for oil and gas personnel strengthens technical and communication skills. It further brings all employees to a higher level so they all have similar skills and knowledge. This helps reduce any weak links within the company's workers who frequently rely on others to complete basic work tasks. In addition, providing the necessary training creates an overall

“We plan to design an efficient people development agenda to make the best use of the existing human capital and expertise. It aims to put up an efficient and comprehensive talent management system that will be formed by and for the people in the industry through training and exchange programs that will set benchmark practices for talent management.”

Said Mohamed Mounes at the People Development Roundtable held in December 2016.



knowledgeable staff with employees who can take over for one another as needed, work on teams or work independently without constant help and supervision from others.

Given the extreme importance of performance development in the oil and gas industry, it becomes clear that training is a cardinal element in any workplace. On its side, the Egyptian government has proved it is aware of this issue and has previously endorsed a new strategy to enhance people's capacity. Undersecretary for Production at the Ministry of Petroleum, Mohamed Mounes, said at the People Development Roundtable held in December 2016: “we plan to design an efficient people development agenda to make the best use of the existing human capital and expertise. It aims to put up an efficient and comprehensive talent management system that will be formed by and for the people in the industry through training and exchange programs that will set benchmark practices for talent management.”

People development may be regarded as the most essential part of the equation but other elements should be considered as well.

Production Optimization: Analytics and Software

Performing analysis can guarantee remarkable performance development in the IOCs and local companies. Analysis ensures managing, tracking, reporting, and analyzing well-level profitability, which in turn, impacts the ability to optimize operational performance. Although this method requires huge costs, it captures estimated production loss and downtime. This will help the oil and gas companies to bring in timely reporting manners and visibility to identify the root causes of downtime. With that, oil companies will be able to determine and prioritize the highly impacted wells that should receive immediate attention to minimize any loss. This will both boost and accelerate production levels.

Carrying out analysis on production and well profitability makes it easier for oil and gas companies to monitor production performance indicators which point out to low producing wells. However, this process is expansive and all-consuming, thus carried out once or twice a year.

Tailored analytics solutions automate the manual work and allow for daily reviews, helping decision-making process to be more accessible. Depending on the organization's size, these solutions are to improve performance by an average of 1-2%.

On the other hand, software used for well delivery management plays a key role in process efficiency and well drilling acceleration. This software automates, integrates, and streamlines numerous pre-drilling tasks and departments including resource development, geology, and production, to allow the management of activities on one platform. Oil & Gas Finance Journal article – Optimizing Operational Efficiency, published in 2015, explained that “this software can reduce the lead-time associated with planning and drilling by an average of 5%, allowing companies to begin production and reach targets for their numerous wells several days early.”

From this, it can be inferred that the impact on the rig scheduling and utilization is positive. Oil & Gas Finance Journal article said that the use of this software “each day can save between \$30,000/rig to \$100,000/rig” and that will further generate millions of dollars in annual saving for the oil and gas companies.

In today's pricing environment and the forecast offered by energy expert, the days of \$120 per oil barrel seem a distant memory. The revenues of the oil companies, NOCs and IOCs altogether, have slumped, in effect. That said, the Egyptian government along with foreign operators need to focus on doing more with less. Performance development of the oil and gas organizations is inevitable and thus energy companies operating in Egypt should consider accelerating the transformation of the organizations to be data and analytics-driven in order to cope with the changing business landscape. In addition, companies should consider improvement of technology solutions that can enhance production capacity and providing tailored training for the workers. If these strategies are applied correctly, they will help drive better decisions, cost reduction and increased productivity.



EGYPTIAN COMPANIES GOING INTERNATIONAL

By Sarah Samir

Egypt's state oil companies are starting to sign agreements to develop oil fields in other neighboring countries, which indicate that the country has plans to expand their territory out of Egypt and into foreign lands. In Late 2016, the Egyptian General Petroleum Corporation (EGPC) bought 15% of Kuwait Energy's Siba gas field, located southeast of Basra Governorate in Iraq, as much as the attempt was considered to be a new of a kind, Iraqi officials were enthusiastic about it to the extent that they were further considering awarding EGPC 21 other projects. As for EGPC; it's establishing its presence in other countries through NOCs, service companies, and also through their shares in Egyptian joint ventures, to expand their territory to reach the optimum production levels. EGPC's CEO, Abed Ezz El Regal, was recently reported by Egypt Oil&Gas to meet with Libya's National Oil Corporation (NOC) to discuss possible cooperation as a part of Egypt's plan to have a noticeable and fruitful presence in Libya through Petroleum Projects & the Technical Consultations Company (PETROJET).

For Government, or privately owned companies, to have operating projects overseas, that makes them IOCs, and as usual, in any country in the world, IOCs tend to face dilemmas and issues that are extremely hard to be avoided, but when conquered, the reward is always tremendous.

Development Journey

Egyptian oil and gas sector witnessed the expansion of several oil and gas companies; among these companies were PICO Cherion Exploration and Production Company. Cherion had first started working in Egyptian mature fields region, and then it expanded its work globally. In 2012, Cherion Petroleum was awarded a services contract to process work in the area of Altamira located in Northern Mexico and later in 2013, the company won a 5 concessions royalty contract in Romania.

PICO Cherion's CEO, David Thomas, explained to Egypt Oil&Gas "The technical, commercial and operational skills the company has developed over the years managing Egyptian oil and gas

fields enable it to work well in different international environments, including Mexico and Romania where we have various joint ventures. The oil industry is a global business and we all utilise the same types of technologies and approaches. I would say, though, that the heart of the company remains in Egypt where we have the majority of our people, assets, production, reserves and, perhaps most importantly, relationships."

Mr Thomas pointed out that investors seek out PICO Cherion as a partner since "they understand that the company has been operating successfully in Egypt for a great many years, in both the service and upstream sectors, and recognize that it has a very capable management team. I think some new investors are also becoming interested in the company following recent portfolio additions in the Western Desert and Mediterranean Sea."

EGPC executes projects in the MENA region through its 97% shares in the Engineering for the Petroleum & Process Industries (Enppi). In 1980,

Enppi developed its performance and started working as an EPC Contractor by building the Assuit Grass Root Refinery. After 10 years of the refinery building, Enppi became an international company as it created branches in Syria, UAE, USA and Italy. In 2016, the company contracted 3 projects abroad.

Any NOC can develop its performance to become an IOC in another country. Attorney at Law, Petroleum Agreements Department at EGPC, Moustafa El Shazly, stated to Egypt Oil&Gas that “Nothing prevents NOCs from becoming IOCs, as long as it has the required technical capabilities, financial resources and good management.” Therefore, in order for the NOC to be global it has to work on the technical, financial and managerial aspects.

El Shazly pointed out an example of a successful NOC that turned into an IOC adding “In Brazil, the oil and gas industry experienced liberalization in the market as the country stopped the monopoly of Brazilian national oil firm Petrobras on the market. This resulted into competitiveness between oil and gas companies, including Petrobras, through the concession system applicable in the country. The liberalization happened as the government allowed the privatization of Petrobras’ stocks, with keeping the voting rights only for national authorities.”

Accordingly, development in the market is a key factor for the state owned NOCs to work in other countries. Egypt is believed to be going the way of having NOCs working abroad due to the Ministry of Petroleum’s recently adopted Modernization Program. Minister of Petroleum, Tarek El Molla, previously stated in an interview with Egypt oil and gas that the Modernization program aims to transfer “Egypt’s oil and gas sector into an attractive, competitive, and business oriented industry.”

Furthermore, El Molla indicated during his meeting with the American Chamber of Commerce’s, that programs are ongoing to upgrade the skills of the personnel in the industry as part of many plans set to restructure the Ministry.

Moreover, The North African country is on its way to liberalize the gas market as the Egyptian government submitted, late 2016, a new draft law to the parliament that will open natural gas sector to private investors. The new gas law will allow private sector to directly import gas and pump it to the Egyptian market. This way, Egypt is heading to a the path that will empower its NOCs, including EGPC, to be sought by other countries to process oil and gas concessions.

Challenges of Being an IOC

Investing in a different county, any NOC has to face several challenges. The NOC has to adapt to the new regulations of the wealth-owning country. When an NOC farms-in any project abroad, it does not act as a regulatory, but it acts independently as a contractor. El Shazly explained to Egypt Oil&Gas that when EGP farmed-in projects like Siba field and Block 9 in Basra Province in Iraq, “it started acting as a contractor or an IOC.”

El Shazly pointed out that the main challenges facing any NOC when it is working beyond the mother country’s boundaries are the challenges of the same challenges facing a company farming-in a project as the company has “to bear all liabilities of the previous contractor in order to enjoy all the benefits of the project.” Therefore, EGPC has to prepare “due diligence” before acquiring any shares in any project, to assess the feasibility of the project.

According to Saudi Armco’s Consultant, Saud M.

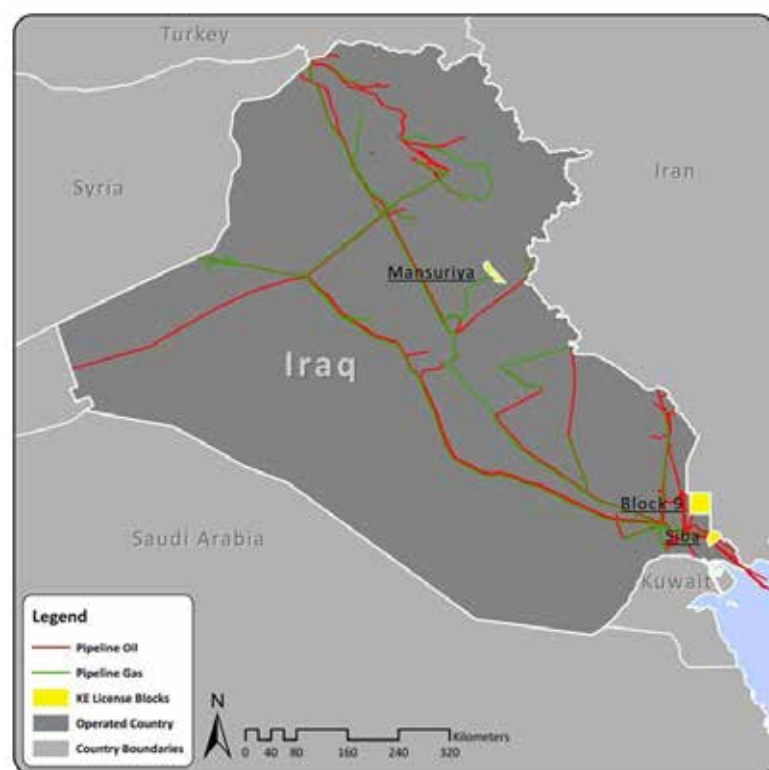
Al-Fattah’s, Paper, entitled The Role of National and International Oil Companies in the Petroleum Industry, “The primary concerns for the IOCs’ business models are market access, risk aversion, coordination, and more cost-effective staff utilization. “ In some of the wealth owning countries an IOC can be subjected to high customs, high taxes and high royalties. In other countries the IOC may encounter high employment costs. Additionally, when the NOC works abroad it has to deal with changing investment criteria; higher technology investments; governance and organization structure issues; the need for operational excellence and technical delivery; and the pressure to improve management capabilities, employee capacity and workforce diversity,” according to Bain & Company Managing Consulting Firm’s insight article, entitled National Oil Companies: Beyond Boundaries, beyond Borders.

Working as an IOC, the NOC could encounter security issues and changes related to political events. The International Energy Agency (IEA)’s book, entitled Update on Overseas Investments by China’s National Oil Companies, stated that “Chinese NOCs were acting independently from the Chinese government. However, all the political events since the beginning of 2011, such as the “Arab Spring” uprisings that swept through North Africa and the Middle East, the sanctions imposed on Iran, and the fighting that erupted since the independence of South Sudan, as well as security concerns in countries like Nigeria, have seriously threatened the NOCs’ activities.” Therefore, when an Egyptian NOC is considering acting independently in another country, the NOC should study the political circumstances and expectations of this country.

Accordingly, as EGPC is starting to farm-in projects in neighboring countries, it is measuring the risk and taking very calculated steps. According to El Shazly, Egypt chose working in Iraq as “it has high potential, its resources are easy to access, and it has low risk.” Furthermore, IEA’s book, entitled Update on Overseas Investments by China’s National Oil Companies, explained that “Chinese NOCs, like other oil companies, consider Iraq a key strategic country in which to gain a foothold because of the lack of other investable quality assets globally.” Hence, the Iraqi oil and gas sector was considered a good start for EGPC in going international. El Shazly also explained that exploring in the two Iraqi fields does not require “high facilities.” El Shazly further commented on the low shares percentage Egypt is acquiring in these fields saying “In my opinion, this maybe because it is a new experience, therefore, Egypt has to be cautious.”

Advantages of Becoming an IOC

There are a number of motives for NOC to target working in other countries. Some NOCs seek profit, some seek experience, and others seek production. El Shazly told Egypt Oil&Gas that the motives for any NOC to act as an independent



contractor abroad are “outsourcing, increasing production, raising the assets of the NOC as it becomes international.” El Shazly explained that by being an IOC, “the NOC is expanding the scoop of area of competence as it allows technology transfer from [other] IOCs to the NOC.” Accordingly, by working in land across the Egyptian border, NOCs can help Egypt to cover local market’s demands of petroleum products through “outsourcing”.

El Shazly pointed out that when “EGPC signs any deal, it is authorized to work with other partners,” including the other contracted IOCs and the wealth owning country’s NOC. Thus, EGPC gains “experience” that would be beneficial when it works in the Egyptian concessions.

According to Bain & Company Managing Consulting Firm’s insight article, entitled National Oil Companies: Beyond Boundaries, beyond Borders, “IOCs controlled four key advantages for global success in upstream oil and gas: access to capital; access to technology; breadth of capabilities and partnerships; and effective local engagement.” When the NOC expands its business to work beyond the national borders, it acquires “several criteria, [including] leveling the playing field to a large extent.” Therefore, “the access to debt and equity capital” for the internationally expanding NOCs would be “similar to that of IOCs.”

To sum it all, being international is a feasible vision, especially in the light of the Egyptian Modernization Program and the Ministry of Petroleum’s plans that aim to liberalize and restructure the country’s oil and gas sector. Yet, the NOCs should study the feasibility of any project it is farming-in and should assess the wealth owning country’s political status and its current circumstances before taking steps to expand in anyway. By becoming international, Egyptian NOCs will be able to the cover local market’s demands and will succeed in bringing the latest most useful technologies to the Egyptian oil and gas fields.

Building a Successful Strategic Alliance between IOCs and NOCs

By Nouran Ashraf

National oil companies (NOCs) are organizations that are whether fully or in the majority owned by their home countries. NOCs operate in favor of their home countries' interest as they provide their governments with pay revenues, taxes, and royalties. They also create job opportunities and they contribute to social responsibility projects. NOCs are, accordingly, affected by the political and social environment of their home countries. State-owned oil companies are currently holding the acquisition of the vast majority of the world's hydrocarbon resources.

Meanwhile, International Oil Companies (IOCs) are considered to be some of the largest and most significant economic organizations worldwide, due to their long years of experience in the oil and gas field, and their involvement in the upstream, midstream, and downstream operations of the oil and gas industry. Whether on their own or together, they hold large amounts of capital that they have been collecting over the years. They are the biggest operators in the oil and gas industry due to their high competence, technological advancement, and their ability to handle big risk projects and generate greater profit through their marketing distribution channels and their powerful brands that are now considered to be global trademarks.

"IOCs bring access to risk capital, technical expertise in areas like geochemistry, diverse asset portfolios, an ability to build relationships with customers worldwide through their refining and marketing activities and strong brands that transcend national boundaries" stated BP Former Chief Executive Officer, Tony Hayward, in the book titled- "The Changing Relationship Between IOCs and NOCs by David Ledesma."

In the 1770s, IOCs were in control of the oil and gas market globally; as they used to own around 90% of the reserves and they were responsible for 75% of the overall oil production. However, the oil and gas market drastically changed over the last decades. Currently, the IOCs hold less than 20% of global reserves and their production has been decreasing since the 1990s. On the other hand, NOCs are

responsible for 75% of the global oil production and they hold 90% of proven oil reserves, according to data obtained by the World Bank in 2010. In the last decade, the importance of the NOCs, in comparison to the IOCs, has risen due to their domination over global reserves.

The current situation brings challenges to both IOCs and NOCs. On one hand, IOCs struggle to acquire new oil and natural gas reserves in their attempt to withstand the commercial competition and to maximize their profit, whereas NOCs still lack the wider knowledge and experience that the IOCs possess and they still need more access to commercial markets, higher capital, and advanced technology practices.

Forming a partnership between IOCs and NOCs can overcome such challenges in a way that each party would be able to complete the demand of the other; to share their joint resources and to maximize their profits.

One of the forms of partnership is forming a strategic alliance between IOCs and NOCs, in which the two entities will share a codependent relationship in which NOCs will allow IOCs to use their gas and oil reserves and investment opportunities while IOCs will enable NOCs to benefit from their financial resources, technological advancement, project management capabilities, and their developed talent leverage. Strategic alliances are usually pursued to allow NOCs or IOCs to invade a new market, product or strategy that they don't have the skills to manage on their own and to reduce the risks involved.

"In fast-moving markets alliances are becoming a norm as the level of conflict is minimized by partners recognizing that they are the only vehicle for minimizing risk associated with market and technology uncertainty," quoted from Newman and Chaharbaghi's, Strategic Alliances in Fast-moving Markets, copyright 1996 Elsevier Science Ltd.

The strategic alliance will enable NOCs of host governments to fulfill production and recovery goals while extracting the expected value from their hydrocarbon resources. Meanwhile, IOCs will

receive a fair share of the rewards they deserve for their technical and financial contribution.

In a strategic alliance, governments, NOCs, IOCs and other stakeholders should work together to boost their cooperation and to understand the interdependent nature of the industry and its importance to the global economy.

Last February, at the International Petroleum Week hosted in London by the Energy Institute, Qatar's Minister of Energy & Industry, Mohamed bin Saleh al-Sada told Bloomberg, when asked about the relationship between IOCs and NOCs in the middle-east: "NOCs have become more international. The gap between the two is narrowing and we are learning from and cooperating with each other. The partnership between the two is always there and there is competition around who will add more value to any new enterprise. Be it NOC or IOC you will always find that the strength of one can be merged into the strength of the other in a complementary way. I think that the cooperation between NOCs and IOCs will continue and IOCs will continue to add value but the choice is going to be wider in terms of who adds more value to specific projects."

Elements of Building a Successful Strategic Alliance

There are many successful NOC-IOC strategic alliances that have strengthened and added value to the parties involved in it across the globe. We have witnessed the establishment of strategic alliances

"IOCs hold less than 20% of global reserves and their production has been decreasing since the 1990s"

forming in the MENA region, Africa, Asia, North and South America, and Europe, in which a fruitful positive outcome resulted from the cooperation within many segments of the oil and gas industry like E&P, transport, and retail. From monitoring and evaluating the past and present successful NOC-IOC strategic alliances, we can conclude that the following key elements should be considered in the process of building and maintaining a successful strategic alliance between the IOCs and NOCs.

Establishing a Long-Term and Sustainable Relationship

Strategic alliances are initially formed to gain mutual benefit between IOCs and NOCs and fulfill the gaps that each party can't fulfill on its own. It is very important to ensure the longevity and sustainability of such alliances in order to maximize the profitability from such partnership for years to come. The relationship between IOCs and NOCs should depend on mutual respect, trust, and benefit.

Gaining trust and respect can be initially achieved through respecting the terms and the agreements of the contracts. To make sure that the mutual benefit from the alliance is gained, the two parties should understand that once the strategic alliance is formed they should operate not as two entities but as one and each party should work in favor of satisfying the business needs of the other.

It is essential to build relationships that will be strengthened and evolved over time and would be able to withstand the changing economic, social and technological circumstances. Before forming the alliance, the IOCs should study the home countries of the NOCs in which they would operate in regards to the political, economic, social conditions, and the nature of the workforce, to enable the two parties to coordinate on how they would address the challenges and take advantage of the upsides.

IOCs and NOCs engaged in a strategic alliance should understand that they have become equal partners who share risks and profits accordingly. A change in the economic or political environment can bring new challenges that may result in a conflict between the two parties, understanding how to address the conflict with respect and flexibility through dialogue, re-negotiations or mediation will strengthen the relationship between IOCs and NOCs.

From their side, the NOCs should make sure that they coordinate with their local government in finding the best way they can aid and facilitate the IOCs investment in the home country, in a way that will enable them to achieve their goals from entering the strategic alliances with minimum barriers and to enable the two organizations to maximize their profit from the investment.

Maximizing Profit

The main purpose of forming a strategic alliance is to maximize the profit of the IOCs and NOCs involved, which can be initially achieved through the mutual share of access to reserves from the NOCs side and the share of knowledge and experience from the IOCs side. Boosting the revenues of the two parties can be gained through other methods as well, like exploring new areas with the use of the shared capabilities of the two organizations in which the strategic alliance can look beyond the borders of one particular oil-producing country and form ventures in third countries where they can operate jointly, strengthening the concept of being equal partners who share the same risks and rewards. Also, expanding to new areas of business within the same sector can create a better chance for increasing revenues. For example, the strategic alliance can start working on new kinds of energy like nuclear and renewable energy through the

usage of the joint forces of the partnership that may facilitate what would have been a much difficult area to invest in before the establishment of the alliance.

Investing in Human Capital Development

One of the biggest assets of any organization is the people working in it. Investing in human capital development once a strategic alliance is formed is a focal point when it comes to building a new successful entity. Understanding the workforce nature of the home country of the NOC and working on how to develop, train and educate the people of the organization is the most significant sustainable development that can affect the present and the future of the strategic alliance.

Since NOCs mainly enter the strategic alliance to gain from the knowledge and experience of the IOCs, the two parties should work together in developing training opportunities and education programs for the personnel to encourage them to move forward and reinforce the share of knowledge and experience.

IOCs and NOCs should cooperate on forming an industry- focused education and training initiatives, since developing a new talented generation of geological, geophysical, and engineering calibers is a must for energy companies seeking to extract oil and gas from challenging locations.

Investing in Research and Development

Investing in Research and Development (R&D) is the gate to the future growth of the strategic alliance. Establishing a strong cooperative R&D programs will aid in promoting innovation and creating new and improved technologies that will work in favor of the strategic alliance and will help the new entity in adapting to the changing and evolving climate that surrounds the oil and gas industry. Investment in R&D becomes easier once an alliance is formed since the high cost of such programs will be divided.

In the last years, companies who invested in R&D have gained economic rewards from the technology-driven strategies and the innovations they were able to form and execute. Plenty of IOCs and NOCs have increased their funding of their R&D programs over the past years. Specifically, oil-field service companies have expanded their investment in innovation.

Brazil is considered a successful example of R&D focus. Since the late 1990s, it has been investing billions of dollars in funding and supporting R&D programs in the oil-producing country. According to The Brazilian National Agency of Petroleum, The agency expects that within the next decade, more than \$10 billion will be provided to support the expansion of the oil and the gas industry in the country, with the aim of reaching \$2 billion per year in 2017.

The Brazilian oil and gas company, Petrobras have been increasing its investment in R&D by 23% annually since the year 2003.

In 2014, GE Opened a Global R&D Center in Brazil to collaborate with Petrobras and BG Group to develop advanced technologies for the oil and gas sector within the country.

GE Chairman and CEO, Jeff Immelt, commented at the time: "Over the past decade, we have doubled down on our R&D investment and expanded our global network of Research Centers to address customer's growing needs for breakthrough technology that we develop with them. We see significant growth opportunities in Latin America and having the best technology and solutions will ensure we maintain GE's competitive edge."

Focusing on Social Responsibility

The collaborating parties of the strategic alliance must understand the importance of respecting the community they will be operating in. Paying respect to the community can be achieved through respecting the local culture, the environment and the community's expectations and goals. Engaging in social responsibility programs that will aid the community can build rapport between the organization and the local community.

The strategic alliances between NOCs and IOCs should also focus on developing their energy products in a way that would enhance the living conditions of the people living in such communities.

One of the social responsibility projects that resulted from the strategic alliance between ExxonMobil and Qatar petroleum is the "Qatar University ExxonMobil Teachers Academy." The academy which was formed in collaboration with Qatar University and Exxon Mobil is an initiative aiming at enhancing the math and science education for elementary school children and boosting development, advancement, and innovation of their education system. ExxonMobil developed this program to supply teachers with the necessary tools and strategies to create enthusiasm about math and science and to help them in educating and developing the next generation of scientists, engineers, and innovators.

Prioritizing the Safety and Environment Considerations

Environmental protection and operational safety should be considered as an essential priority of the working agenda of the strategic alliance. Following the global best practices of the safety and environmental protection standards can impact the building of the successful long-term partnership that is capable of meeting the expectations of the local communities of the hosting countries.

Due to their longer history as experienced oil and gas operators, the IOCs usually have larger exposure to safety and environmental protection regulations and cultures in different parts of the world, but they should not underestimate the NOC's knowledge of the local cultural, environmental and reservoir conditions. They should always cooperate to find the best practices and solutions for recovering the most oil and gas from specific reservoirs, in particular countries in the safest and best manner that won't harm the local environments and communities.

IOCs and NOCs should make sure that they are responsibly producing and consuming energy in order to satisfy their customer's energy needs in a sustainable fashion that can be achieved through maintaining and strengthening the reliability and security of the energy supplies.

In conclusion, NOCs and IOCs engaged in a strategic alliance depend on each other to gain mutual benefit and complete the gap that each entity can't fulfill on its own. Such collaboration between the IOCs and the NOCs can bring benefit to both sides, where IOCs can deliver their expertise, technological practices and their marketing channels to gain access to the resources owned by the NOCs, while NOCs can take advantage of the capabilities that the IOCs can offer while providing them with broader access to their home countries' valuable resources and create new investment opportunities for them. Maintaining and enhancing such alliances can be achieved through building a strong, long-term and sustainable relationship where the two entities act as one, maximizing the profit of the newly formed alliance, investing in human capital development and R&D to gain better results on the long-term, engaging in social responsibility projects, and finally prioritizing the safety and environmental considerations in respect of the communities in which they operate in.

COLLABORATIVE BUSINESS MODELS AND RELATIONSHIP BARRIERS

By Mariana Somensi



Collaboration has become a key asset to successful oil and gas business. Considering the complexity of the sector and its high competitiveness, the petroleum industry has come to realize that all the parts involved in the oil and gas exploration and production must be connected in order to build a reliable and efficient chain.

Accordingly, integrative and dynamic business models are no longer only differentiators, but also a requirement to promote cost-saving activities and launch innovative schemes. For that, international oil companies (IOCs), national oil companies (NOCs), and service companies must be ready to provide quick responses to the new challenges imposed by industry collaboration and overcome its relationship barriers.

Collaborative Business Models

The combination of high risks and intensive capital investments in the oil and gas sector characterizes projects development in the industry as very sensitive. According to David Rabley and Muqsit Ashraf's analysis, titled *Ushering in Collaboration and Integration to the Accenture Strategy*, the linear model applied by petroleum companies in the past decade to promote short-term cost-savings has not proven to be effective in a market that is in constant change.

"This model does not allow for the significantly improved returns achievable through collaboration to tackle the systemic challenges of complexity and inefficiency faced by the industry," Rabley and Ashraf noted.

As suggested in their analysis, performance can

be improved by the creation of a Joint Efficiency Team (JET), which connects the operator with its service company. "The JET can carry out a holistic assessment of efficiency from planning through execution, put in place the required enablers, and use a structured combination of lean methodologies to shrink the critical path, adopting best practices from within and outside, as well as implementing a mechanism to synchronize operator service company interaction and decision making," they added.

The JET scheme showed successful results to an American operator and its service company that worked with Accenture Strategy. The application of the new business model resulted in the establishment of a performance pacesetter, which broke activities into their component parts and measured the best approaches for each one of them.

"When aggregated, the pacesetter proved that a 200%-plus overall improvement was possible – a far greater prize than envisioned by either party at the start of the program," Rabley and Muqsit explained.

The collaboration between operator and the service provider enabled both companies to achieve a 40% improvement in frack stage, and a 25% reduction in the time and cost to drill and complete a well. As the analysis pointed out, subsequent benefits were also noticed.

"The JET was able to improve safety in the field by ensuring that effective safety meetings and dialogues were built into the critical operations path at the right points, and by tracking safety

outcomes alongside performance outcomes to ensure they improved in tandem," Rabley and Muqsit added.

Furthermore, the JET also enabled considerable improvements in structural changes, such as collaboratively planning work, optimizing job design, and transforming operating and maintenance practices.

In his report – *How to Maximize Supplies Recovery in the UK Continental Shelf (UKCS)*, published in 2013, Sir Ian Wood underpinned the importance of enhanced integration in the United Kingdom's offshore oil and gas recovery and its regulations. He argued that integrated practices can, in effect, bring in and boost economic benefits.

According to Wood's final report published in 2014, the lack of collaboration is a significant driver of increased costs, caused delays, and poorer recovery. Accordingly, the UKCS' new Regulator would have to remove dispute barriers

"The JET scheme showed successful results to an American operator and its service company that worked with Accenture Strategy."

in order to be effective, and play “a vital role in facilitating, coordinating, mediating, promoting and catalyzing collaboration.”

One of Woods recommendations was the creation of an independent regulatory body entitled to supervise licensing process and maximize economic recovery of UK’s reserves in the short, medium and long-terms.

The Role of Technology

Although the establishment of a business model is independent from technology, both are closely related, and technology plays an important role to ensure efficiency in the oil and gas activities.

Charles Baden-Fuller and Stefan Haeffliger explained in their paper “Business Models and Technological Innovation”, published through the Cass Business School of the City University London, how technology development can facilitate new business models. “The most obvious historical example is the way the invention and development of steam power facilitated the mass production business model,” they noted.

“The enormous scope of benefits from collaborative moves in the petroleum industry is evident; however, some challenges must be overcome to prevent it from failure.”

Baden-Fuller and Haeffliger observed that the choice of a certain business scheme influences how technology is monetized. Additionally, they noticed that the project frames also determine the way in which technology is developed, which means that modeling the link between technology development and firm performance is highly required when a business model is taken into account.

“The business model may have to change in order to appropriate features of a technology that create customer value, and elements of the model may change in order to allow technology to be developed that fits customer needs or that emerges from the customer directly,” they wrote.

Considering the mutual influence between technology and business models, the collaborative work among IOCs, NOCs, and service companies are even more important to assure that all parties acknowledge the technical innovations being implements on each one’s side and, subsequently, build a scheme that perfectly matches the strategies being implemented by each company.

Collaboration between Industry and Academia

When the integration strategy to improve the petroleum sector is under discussion, it is also inevitable to put the collaboration between the industry and universities into consideration. Unarguably, the joint activities of oil and gas companies and the academic field provide the sector with high caliber executives and competent professionals. As stated by Oil&Gas

Skills’ Marketing Manager, Osama El-Saadawy, during EOG’s People Development Roundtable in December 2016, “the government needs to communicate with external bodies, one of them being universities, in order to solidify manpower planning.”

At the same occasion, Schulumberger’s Vice-President and General Manager, Hussein Fouad el-Ghazzawy, noted that “there is a lot of engagement of private companies, joint ventures (JVs), and service providers to cooperate with universities in setting selection criteria for the industry’s employees.”

The University Professor and Management Consultant, Michael Jünger, stated in an interview to Tefen Management Consulting that “the main benefit for companies from this cooperation [industry and universities] is the access to the latest research results and innovative new methodologies. It is a mutual approach: the companies offer business insights and the students contribute proven methodology and expertise. It is a win-win situation for both parties.”

According to Jünger, the interests and business models of both parties differ. While universities focus on educating people, the industry’s main concern is overcoming the market challenges and promoting a profitable environment.

Still, “companies which do not have a close relationship to the academic community are expected to advance slower. They miss out on early access to the latest research results and methodologies and then need more time to put these methods into practice,” he added.

Hence, integrating the academic field to the industry schemes adds up to the construction of more efficient, innovative, and profitable business models.

Barriers of Joint Activities

The enormous scope of benefits from collaborative moves in the petroleum industry is evident; however, some challenges must be overcome to prevent it from failure. According to Lloyd’s Register, “in many cases, industry partners are likely to operate in the same competitive sandbox, which creates significant commercial risk that may not offset the benefits of working together.”

Furthermore, during EOG’s “Challenge Opportunities of IOC/NOC & Service Companies Relationship Roundtable”, held on May 18, prominent experts of the petroleum industry pointed out that the barriers imposed by NOCs at contracting and the cycling discussions over public tenders impose a problem when it comes to developing a collaborative scheme.

Baker Hughes’ Director Sales and Marketing NAF, Mahmoud Shawkat, stated at the occasion, “If we do not spend time discussing tenders, the operators can act on the project quickly.”

Nevertheless, the strong impact of governmental entities on the tenders’ pace is not consensual. According to the Egyptian Ministry of Petroleum’s First Undersecretary for Gas Affairs, Mohamed Moenes, who also spoke at the Roundtable, simplifying contracts’ data is not an exclusive role of state-owned companies.

“Adding clear information to tenders does not depend on the Egyptian General Petroleum Corporation (EGPC) only, but on everybody. How to reduce the time in the discussions is up to the companies involved, it does not require EGPC to modify its tenders,” he explained, mentioning

Egypt’s NOC.

Additionally, in order to enable collaboration in business models, the companies should look at a joint data base to enable a clear view of the project’s development to all the parties involved, as suggested at the IDEA Group Publishing’s publication “Supply Chain Management: Issues in the New Era of Collaboration and Competition”.

As stated at the article, the companies must be keen to sustain “an effective dialogue with all interested parties at the industry R&D institutes

“A world of resource abundance is leading to sustained lower oil prices and a focus on cost, efficiency, and speed”

STATED BY MCKINSEY & COMPANY

and authorities to enhance communication to clarify industrial standpoints in relation to major challenges and critical issues.”

Game-Changing Trend

Although enhancing transparency and sharing business strategies with other companies in the market may seem quite a challenge in a high-competitive atmosphere, the status of the petroleum industry has turned centralized business models into an obsolete maneuver.

In other words, depending on a conventional working structure amid an era of a supply glut and low oil prices, withholds an inability to function in today’s market certainties. As a point of fact, “a world of resource abundance is leading to sustained lower oil prices and a focus on cost, efficiency, and speed,” stated McKinsey & Company’s article – The Oil & Gas Organization of the Future.

With this at hand, developing innovative strategies and modernized schemes are required to sustain profitability in a today’s energy market.

As a matter of consideration, the demanding nature of the energy industry for competent workers further prompts oil and gas leaders to revisit the existing work schemes and introduce novel approaches, to be able to attract the rising generations. Affirmatively, McKinsey & Company said that “oil and gas companies may need more profound changes to meet demands for meaningful work and social responsibility to attract the next generation of top engineering and leadership talent.”

In principle, it is time for the oil and gas sector to embrace the new era and abandon its traditional business making. Betting the cards on collaboration is the “fountain of youth” that the industry needs to revitalize its projects and bring additional strength to avoid time and economic losses in a sector whose technology is in constant evolution and business conditions in continued change.



FLEXIBILITY VS. PROTECTION: MODERNIZING EGYPT'S OIL&GAS LEGAL FRAMEWORK

By Mahinaz El Baz

Egypt has been facing an economic decline in the last couple of years, and in an attempt to help and revive the economy, the government decided to float the Egyptian currency, that took matters from bad to worse. The Economic fluctuation had a tremendous negative effect on many industries and sectors in the country; among them was the rise in consumption of petroleum products. With that in mind, modernizing Egypt's petroleum sector was a must to be able to decrease the gap between oil and gas production and consumption. The first of many steps to upgrade and modernize the petroleum sector is revising laws and regulations.

Legal and Regulatory Framework

Under the Egyptian Constitution of 2014, all oil and gas resources are controlled by the state. Article 32 of the Egyptian Constitution stipulates that "All oil and gas resources are within the control of the state. Granting the right of exploitation of natural resources or public utility concessions shall be by virtue of a law for a period not exceeding 30 years" as stated

in chapter eight in The Oil&Gas Law Review, written by Reham Eissa & Ahmed Haggag and published on November 2014.

Accordingly, only the state can award rights for exploration and exploitation of oil and gas resources for International Oil Companies (IOCs). In addition, concessions must be granted to the IOCs by virtue of a law issued specifically for the mentioned concession. The specific concession law will govern all aspects related to the concession, while making a few references to other applicable Egyptian laws, such as the Environmental Law, which will apply to certain aspects in question. "Concession agreements, hence, have the force and privileges of a law promulgated in Egypt", according to Donia El-Mazghouny & Girgis Abd El-Shahid, Oil Regulations Article published on July 2016. Hence, the petroleum sector in Egypt is mainly regulated by two laws: the Public Utilities Concession Law No. 129/1947 and the Fuel Materials Law No. 66/1953

"In addition to monitoring the market; the gas regulator's role is to set tariff methodologies for regulating activities, issuing licenses, and resolving disputes"

**SAID ENG. AMIRA EL-MAZNI,
EGAS, VICE CHAIRMAN**

Moreover, the Egyptian Ministry of Petroleum and Mineral Resources is the governmental authority responsible for the regulation and development of the oil and gas industry in Egypt. The Ministry acts through the General Petroleum Corporation (EGPC), which regulates the petroleum industry in Egypt and the Egyptian Natural Gas Holding Company (EGAS), which is a private entity owned by EGPC and responsible for regulating the gas industry in Egypt.

New Gas Law

The Egyptian government has adopted a new gas law that supports the regulatory framework of the gas market in Egypt and allows third-party, including the private sector to enter the downstream gas networks under transparent codes and in consideration of fair tariffs in order to liberalize the sector gradually. The law has been approved by the Cabinet of Ministers in October 2015, it has been reviewed by the State Council and waiting for its ratification by the Parliament.

"The Parliament had a meeting recently with Oil&Gas private sector contractors to discuss the new gas law and there are no updates about the approval timing" according to Reham Eissa, Associate, Sharkawy & Sarhan Law Firm.

Moreover, the new gas law is considering setting up an independent gas regulator that will monitor the functions of the market in this new setting. "In

"Egypt's commitment towards the reform of the Egyptian gas market took a few steps towards the development of a new regulatory framework to promote creation of a liberalized gas market, which is characterized by competition in the downstream gas segment"

SAID ENG. EL-MAZNI.

addition to monitoring the market; the gas regulator's role is to set tariff methodologies for regulating activities, issuing licenses, and resolving disputes," said Eng. Amira El-Mazni, EGAS, Vice Chairman for Gas Regulatory Affairs, in a high-profile on July 19th, 2016. Therefore, a Gas Regulator is to be an independent entity that will abide by the principles of transparency and neutrality, while having legal powers and authority to perform its role satisfactorily.

Furthermore, Egypt's Minister of Petroleum and Mineral Resources, Tarek El Molla, described in many occasions the new gas law as a real breakthrough in enhancing the industry's regulatory framework, the major feature of which is the gradual liberalization of the country's gas market; as the state always confirms that a lot of work should be applied to further modernize the existing legal framework to boost international investments.

The new gas law is a serious step in the government's effort to liberalize the Egyptian economy, following the economic reform program adopted by the government, which has been approved by the IMF. The government says their reform program will lead to a liberalized free market, by achieving a flexible foreign currency exchange rate, cutting fuel subsidies, and the privatization of the public sector.

In addition, Anastassios Gentzoglanis, a Professor of Economics at the Université de Sherbrooke, said that liberalizing the Egyptian gas market will be the first step towards transforming the sector's efficiency and competitiveness. Adding that the independency of the new gas regulator is essential, as well as assuring the investors that there won't be a risk of policy reversal, which in turn will provide incentives for further investments within the gas sector, according to Daily News Egypt.

"Egypt's commitment towards the reform of the Egyptian gas market took a few steps towards the development of a new regulatory framework to promote creation of a liberalized gas market, which is characterized by competition in the downstream gas segment," said Eng. El-Mazni. She further explained that "reasons for regulating the gas market are to encourage investments and infrastructure, facilitate additional gas supply, and diversify sources by introducing new suppliers that are eager to compete fairly for the benefit of the consumers, who eventually become free to choose their own [gas] supplier."

"The new gas law is expected to attract more investments to the Oil&Gas industry. Yet we cannot expect if the new gas law will conflict with the Egyptian objective of reaching self-sufficiency or not till the transitional period passes", added Reham.

Public Private Partnership

Public Private Partnership (PPP) in Oil&Gas industry is a deal between the government and the independent private sector including IOCs, pursuant to which the delivery of a public service is transferred from the public sector to the private sector. PPP recognize that there are some activities that the public sector does best and other activities where the private sector has more to offer. Only by allowing each sector to focus upon what it does best, can the government provide the quality services that the public want and expect. Hence, PPP encourages the IOC's to participate in development projects, increase productivity, improve the quality of services, and facilitating the transfer of knowledge and experience from IOCs to NOCs. PPP indeed has many pros such as; higher cost efficiency arising from private ownership of infrastructure asset, bundling & life-cycle planning, and sharing of risks and rewards, but there are cons as well. Cost savings may reduce service quality and there might be higher transactions costs along with capital freed for other expenditures and institutional and administrative capacity requirements.

Budget deficits and the increasing pressure to develop oil and gas infrastructure makes Egypt an attractive investment opportunity for the private sector and IOCs. Egypt has a well-established PPP legal framework, which applies to all projects in all sectors, as well as older legislation dealing with the grant of concessions in the oil and gas industry. It's worth noting that, Egypt's PPP Central Unit is responsible for implementing its PPP projects and currently has around \$39billion worth of projects in its pipeline.

Generally, law No. 67/2010 regulates PPP in Infrastructure Projects, Services and Public Utilities are the basis of the PPP legal framework. This PPP Law is a comprehensive and reasonably workable legal framework for PPPs, but the same cannot be said for the granting of concessions in general; these can still be taken under numerous pieces

of older legislation. The PPP Law only applies to projects procured on a PPP basis with a minimum investment value of EGP 100 million. There are no legal restrictions on the sectors eligible for PPP: projects can be concluded in commercial sectors, such as energy, and oil & gas. If any of the criteria for dealing with a project under the PPP Law are not met, the relevant sector-specific law applies. The law may overlap with other procurement or sector-specific laws, such as the Tenders and Bids Law of 1998, and several public authorities other than the ones it identifies may request oversight on projects or procure under different regimes. The legislative framework for PPPs therefore remains to be streamlined.

PPP in oil and gas downstream, particularly in marketing, had been specifically encouraged by state regulation since 1990, with a 1997 law extending this approach to gas distribution. While many experienced local companies support, the petroleum sector equipment, engineering skills, and ancillary services distribution to household was almost entirely delegated to seven private companies under long-term franchises. As a result, the private sector took a leading role in building the national low pressure network of pipelines delivering gas to households and many industries. Private participation in gas distribution has been reinforcing as the building of national grid as district levels takes shape. However, it will be some time before the private sector expands its contribution to mining GDP.

As a successful model of oil and gas PPP; The Egyptian General Petroleum Corporation (EGPC), Cairo Oil Refining Company (CORC) and Petroleum Pipelines Company (PPC) have agreed to sell to ERC atmospheric residue to be used as feedstock for the project, purchase all the high value petroleum products from the ERC project, and provide all the necessary storage and transportation capacity for all products. This PPP will enable ERC to deliver products which will decrease Egypt's dependency on petroleum imports.

However to date, there is no legislation covering liquidation and decommissioning activities in Egypt. In practice, farm-out agreements usually set out the parties' agreement relating to the abandonment of activities or decommissioning. Typically, all assets under the concession revert to EGPC or Ganope and all liabilities and obligations, whether financial or contractual remain those of the contractor, including any assignees.

Foreign Direct Investments attraction and private sector development in Egypt are very important elements of economic development and generating strong and sustained growth, employment creation, and poverty reduction. In this spirit, the government of Egypt took serious steps to liberalize the petroleum sector and significantly improve the business climate for the IOCs in recent years. One of these steps is the new gas law, which supports the regulatory framework of the gas market in Egypt and allows the private sector to contribute in the gas industry, which will surely reflect on the performance of the NOCs and enhance their capability to compete in international markets. The Egyptian Parliament did not approve the law yet, which creates an urgent need to push the issue and get an approval as soon as possible to be able to maximize the benefits from the new era of producing natural gas from Zohr field and other newly discovered fields.



ENCOURAGING INVESTMENT IN THE PETROLEUM INDUSTRY

A Comparison of Host Government Instruments

By Patricia Tiller, Partner, Andrews Kurth Kenyon

The petroleum industry utilizes a range of host government instruments to grant rights for exploration and production of oil and gas resources. The form of host government instrument is one of the key factors in determining an exploration and production contractor's (Contractor's) potential return on investment and in turn the Contractor's incentive to explore and extract petroleum resources.

In order to encourage large-scale foreign investment, the host country must provide a clear legal, regulatory and fiscal regime. This article provides a comparison of the merits of different host government instruments in terms of encouraging exploration and development.

Concession or License

Concessions are a popular form of host government instrument in countries with a well-developed legal system, wherein the license

or concession agreement can focus on the commercial terms without the burden of devising contractual provisions to fill in gaps in the legal system of the host country.

A concession or license grants the Contractor exclusive rights to explore, develop, sell and export petroleum extracted from a specified area for a fixed period of time.

Contractor bears all financial risks of exploration and development and receives its return (recovery of costs and profit) through sale of all petroleum to which it takes title. Government does not share in the petroleum produced. Instead, Government revenue is collected through a combination of royalty payments based on gross revenue and/or a tax based on net income, both of which are based on the quantity of production and the price at which the production is sold.

"While the allocation of cost oil and profit oil vary between (and within) countries, the basic premise of a PSA remains that Contractor bears all the financial risk involved in exploration and the majority of the financial risk in development"

Under a concession, a Contractor will deploy exploration and extraction methods that maximize its profits. The host government must therefore make strategic decisions about the royalty rate -- whether a flat rate or an incremental rate tied to the level of production. For the host government, increasing the royalty rate increases the government's share of the revenue. At the same time, increasing the royalty rate decreases the revenue to Contractor and therefore decreases the probability that the government gets its revenue (i.e. Contractor is less likely to invest in exploration and extraction methods if its profits do not justify such investment).

“Generally, the potential gains from the probability effect (increasing exploration and deploying more efficient technologies) are greater than the gains from the cost effect (reducing costs at the expense of stagnant production levels)”

A potential issue with the general form of a concession which may hinder Contractor's incentive to explore and develop resources is that taxes and royalties can be inefficient because

“The position of the Contractor as a mere service provider with no equity in the resulting petroleum is itself a disincentive to innovation and optimal effort towards success of the operation.”

they tax production without any regard to profit. When the project is marginal or not competitively profitable, the royalty or tax may discourage further investment. Some jurisdictions, a notable example is Norway, have developed sophisticated fiscal systems that adapt to the stage of development and shelter the Contractor's profits from petroleum taxes. However, such an arrangement requires a robust and experienced petroleum tax system, which may be difficult to implement in developing nations.

Production Sharing Agreement

Production Sharing Agreements (PSAs) were first implemented in Indonesia and today more than half of the countries with petroleum potential grant rights to explore and produce petroleum under the framework of a PSA. The Egyptian model

form host government instrument, though called a concession, is a form of PSA .

Under PSAs, the Contractor commits to undertake and finance, at its own risk, the exploration and extraction activities. In return, the Contractor recovers its costs by appropriating a share, not exceeding a certain percentage, of the production. Such share in production is known as “cost oil” (or cost gas). If the cost of exploration and development exceeds the cost oil threshold, then unrecovered costs are carried forward to the following years. The remaining production is called “profit oil” (or profit gas) and is shared with the government according to a percentages agreed in the contract. The government and the Contractor each take title to their share of profit oil/gas and sell their respective shares independently (subject to domestic supply requirements).

While the allocation of cost oil and profit oil vary between (and within) countries, the basic premise of a PSA remains that Contractor bears all the financial risk involved in exploration and the majority of the financial risk in development. Government's risk in development operations is limited to its percentage participation through the national oil company.

In order to promote exploration, Contractor's rely on a large share of the production to be allocated to cost recovery (typically 30 – 50%). However, there are several cost factors that potentially hinder the effectiveness of an exploration and development program. Firstly, cost recovery entitlements must be balanced against a Contractor's ability to overvalue its costs. Secondly, enhanced recovery methods using new technology are often more costly than traditional methods. Host governments will often resist the deployment of new technology as the associated cost is seen as a direct loss of government revenue (i.e. even though the PSA contains a cost oil threshold, the Contractor is encouraged to explore and produce below the threshold so that the government can share in (or take all) of the cost oil that is not needed for cost recovery (known as “excess cost oil”). Somewhat paradoxically, host governments often fail to see the value in extracting resources at a faster rate and may seek to curtail production (indirectly through using older technology or overtly by failing to approve work programs and budgets) in order to prolong the life of a field.

Overall, the model form of a PSA encourages a Contractor to increase its exploration effort to increase the probability that it receives a revenue (known as the “probability effect”). If excess cost oil is shared, a Contractor may also decrease the exploration effort and the exploration costs to increase the gain for itself (known as the “cost effect”). Generally, the potential gains from the probability effect (increasing exploration and deploying more efficient technologies) are greater than the gains from the cost effect (reducing costs at the expense of stagnant production levels). As such, an increase in the profit oil left to the Contractor increases the exploration effort. However, Contractor will only be able to benefit from the potential gains of the probability effect if it is not constrained by government approvals and policies regarding production levels.

Generally, the structure of a PSA may provide Contractor more incentive to explore and develop at higher rates of production than the structure of a concession.

Service Contract

Under a service contract, the Contractor agrees to explore for and develop petroleum resources in return for a fixed fee. The host government retains ownership of the resources, before and after extraction. Although some service contracts allow for payment in kind (i.e. Contractor is entitled to lift a share of oil or gas rather than receiving payment in cash), Contractor generally does not obtain title to production under this form of host government instrument. Government revenue is through tax on Contractor's service fee and direct revenue from the sale of production.

Under a traditional service contract, the Contractor is given little or no control over its operations. This is one of the key issues under a service contract. A Contractor, with pre-qualified/pre-determined technical ability and experience, is awarded rights under a service contract (based in part on its ability to invest and in part on such technical ability and experience). However, the Contractor is often given minimal autonomy to direct the exploration and development program, eroding a fundamental benefit of employing the Contractor.

There are service contracts which allow Contractor a greater degree of control over operations (the Iraqi technical service contracts are an example) but Contractor's return on investment is generally more static under a service contract than other host government instruments. The position of the Contractor as a mere service provider with no equity in the resulting petroleum is itself a disincentive to innovation and optimal effort towards success of the operation.

A host government needs to strike a balance between encouraging investment in its petroleum industry and generating revenues from exploitation of its resources (whether through tax receipts, a share in the production, or both). The majority of countries in the Middle East and North Africa generate a substantial portion of their annual revenue from petroleum resources , making revenue raising a fundamental objective for governments in the region.

It is clear that there is no ‘one size fits all’ approach to both maximize revenues for the host government and encourage the foreign investment needed to explore for and extract resources. Enhanced recovery of petroleum resources, particularly in challenging environments such as deep water blocks or sour gas fields are a costly business. Prior knowledge of the characteristics of a field will help determine the form and content of a host government instrument to maximize the return to both government and Contractor. However, such information on field characteristics is not always available prior to an award for exploration.

Continued dialog between government and Contractor and a willingness of host governments to respond to the changing needs of the industry are the keys to a successful host government instrument.

- Egypt has traditionally awarded petroleum contracts under a hybrid system and also utilizes service contracts in certain areas.
- “Production Sharing Contracts Versus Concession Contracts”, Julie Ing, 20 May 2014.
- Ibid.
- data.worldbank.org

EMMANUEL MACRON: A BOOST FOR CLEAN ENERGY PLANS?

By Salma Essam

The recent French presidential elections had spurred controversial reactions and divergent responses upon the announcement of Emmanuel Macron's victory. From the center to the extreme far-right, the position of both pro-EU leader and his then-opponent Marine Le Pen on the political landscape is far from having any commonalities. Their stances on the European Union, refugee policies, and labor laws have been subject to nation-wide intense debates, with every party looking up to its benefits. On their part, environmentalists are backing Macron for his promising energy policies that propel France's efforts away from reliance on nuclear energy and diesel in favor of renewable energy. In all respects, the environment-friendly energy policy of Macron has been showcased in his presidential debates thus rests appealing to Go Green advocates.

Towards a Preserved Ecology

Macron's inclination to effectively enforce clean energy policies has earned him the support of clean energy advocates against Front National leader Le Pen. Macron's presidential campaign platform was explicit on its stance on Energy development, particularly with respect to climate change issues.

According to his election manifesto, "the youngest French President is expected to push the country towards clean energy by increasing renewable capacity, adopting energy efficiency measures, shutting down coal-based power plants, cutting down the country's nuclear capacity, ban oil and gas exploration in French territorial waters and tax carbon emissions," according to The Economic Times.

In fact, the former economy minister banker is a strong advocate for environmentalism or so his statements reveal. As pollution associated with energy development is globally on the rise, Tableau Public explained that there are only four powered coal stations in France, which Macron wants to shut down. "We'll close coal powered stations in five years," French president said, signaling to the fact that all coal powered stations will be halted a year earlier than the current deadline of 2023.

Not only does his strategy throw to less harmful ecological emissions, Macron adopts an efficient approach to energy scientific researches and offering novel solutions. The newly sworn leader aims to focus research, development, and operator investment on energy storage and smart grids, unlike his then-counterpart who did not provide insights on France's energy storage.

Macron's stance on fracking stands to be firm and lucid. Macron said that he will ban all shale gas exploration. As controversial as it may indicate, this position does not de facto differ from the commonplace French government. In 2011, particularly during the term of Nicolas Sarkozy, the French republic banned fracking activities for shale gas and cancelled exploration licenses for major companies including Schuepbach and Total SA, the country's biggest oil company, shutting down scientific debates on hydraulic fracturing. This means that Macron did not offer a novel vision for the shale gas fracking, however, his energy scheme comply with the international environmental standards Paris presides.

Similarly, Macron's agenda highly complies with the former government's strategies on exploiting renewable energy against the lack of non-



renewable resources. The president vowed that his government will meet the objectives set by France's 2015 Energy Transition Law, which primarily aims at increasing their share of renewables to 32% of final energy consumption by 2030. Macron stated that he will finance the development of renewable energy in attempts to double wind and solar PV capacity by 2022. In order to achieve this target, the young former banker believes that encouraging private investment is essential to help allocate an amount of 30 million Euros. Macron's France is even more determined to rapidly decrease its reliance on diminishing non-renewable energy resources, and thus aspires to shorten and simplify the procedures for deploying renewables. He added that he would put out a five-year calendar for tenders to develop 26,000 MW of renewable energy projects at the beginning of his presidency.

Nuclear Energy and Electricity

Macron, who was the minister of economy under Francois Hollande's government, takes a rebutting position towards nuclear energy. His rhetoric gives signs of endorsing a gradual move away from nuclear energy. In line with the energy transition law targets, Macron pledged to reduce the share of nuclear energy to 50% of electricity production by 2025 down from 75%. Tableau Public, in addition, stated that Macron said "he will take strategic decision on the extension of nuclear power beyond the next 40 years once the Nuclear safety Authority (ASN) has delivered its conclusion, which is expected in 2018." Unlike Marine Le Pen who props its operations, Macron said he will confirm the shutdown of the controversial Fessenheim nuclear plant, located in North Eastern France, as ongoing concerns are being raised about the seismic safety of the plant.

Meanwhile, the French government under Macron is said to work towards supporting and promoting the reliance on electric vehicles and cut down on diesel-operated vehicles by increasing the number of charging stations and "lowering lowering state support for diesel by raising its tax rate to be in line with gasoline prices in five years," The Economic Times wrote.

A more progressive plan Macron's agenda uncovers is the lower-carbon approach for the transportation system in France. Macron's government is to create a 1000 Euro payout to pre-2001 vehicle owners to buy greener new or second hand cars.

"The youngest French President is expected to push the country towards clean energy by increasing renewable capacity, adopting energy efficiency measures, shutting down coal-based power plants"

"Emmanuel Macron had managed to win over the support of environmentalists and torch bearer of clean energy with his adherence to the transition law"

In addition, the French president vows to speed up the rollout of Electric Vehicle (EV) charging points, and previously said, in an early version of his environment manifesto, that he wanted to end sales of combustion engine vehicles by 2040.

Intriguingly, Emmanuel Macron had managed to win over the support of environmentalists and torch bearer of clean energy with his adherence to the transition law. However, the French government may need to revisit these policies ahead of a decreasing energy production and a world increasingly reliant on oil and gas. Geologists argue that the Paris deepwater holds more shale oil than anywhere in Europe. This may drive France to reconsider offshore developments in the future if the government falls short of domestic energy supply. After a few years, if not before, France should be able to decide if Macron's energy policy would prove efficient or not.

The background of the page is a photograph of an offshore oil rig. A large crane with a red and white striped boom is lifting a rectangular metal component from the water. The rig itself is a complex of steel structures, including a tall central column and various platforms. The sea is a deep blue, and the sky is clear. The image is framed by red diagonal shapes in the top-left and bottom-right corners.**subsea 7**

A WORLD-LEADING SEABED-TO-SURFACE PARTNER

Within the greater scope of the BP West Nile Delta, the Taurus-Libra Brown Field project, awarded by Burullus to Subsea 7, was the delivery of an integrated platform deck extension. The cost-effective solution proposed by Subsea 7 was delivered in a safe manner and ahead of schedule. Our early engagement with our clients, the strong partnerships with local contractors and the great track record of decades in the global offshore energy industry are key criteria for Subsea 7 to be your offshore engineering and construction partner of choice.

www.subsea7.com

GAS PRICES IN THE AGREEMENTS AND DEBTS DUE TO FOREIGNERS ARE THE MAIN OBSTACLES TO EXTRACT GAS FROM DEEP WATER

The Ministry of Petroleum and Mineral Resources and the Egyptian General Petroleum Corporation (EGPC) face many obstacles that halt progress in signing new contracts for gas explorations in the Red and Mediterranean seas' deep waters, but the most important of them all is the need to adjust the price of natural gas while the other is repaying the outstanding debts that Egypt owes to IOCs.

This issue sprung from International Oil Companies (IOCs) refusal to the prices proposed by the Egyptian General Petroleum Corporation (EGPC), which changes the minimum price of buying a share in a gas concession to \$2.65 per million British thermal units and \$25 per barrel of Brent or more regardless to its price internationally. The second major obstacle is the Egyptian government inability to pay its debts which by the end of April 2017 became \$3.6 billion.

Sherief Ismail's government should try to resolve these problems with the IOCs by initiating the government to make use of Tarek El Molla, the current Minister of Petroleum, is exerting an extraordinary effort to convince IOCs to inject huge investments during the upcoming years in the Egyptian oil sector. He is also trying to end the gap between natural gas production and its consumption rates.

EGPC has to intensify and speed up the process of signing gas agreements in the concession area in the Mediterranean seas with creditors to which the government owe money to since the 25th January, 2011, revolution in order to avoid losing foreign investments.

The government should take into consideration that most of the companies operating in Egypt started searching for other gas markets outside Egypt because of the high costs, taxes, and royalties paid for each one barrel or 1mtu of production due to the production sharing policy that makes IOCs take all the risk of the searching process alone. The production sharing policy further states that when a commercial discovery is established, a part of the profit is kept away to recover the researching and developing processes' cost. The rest of the production share is divided between the government and the foreign partner according to the agreed sharing segments and the signed agreements.

The suspension of oil agreements for three years after the 25th of January revolution was the reason for delaying extraction in the gas concessions in the Mediterranean sea. As a result, Egypt became a gas importer instead of gas exporter and that is due to shortage of the national gas reserves which were estimated by 12 trillion cubic feet. However, Egypt must adhere to the production sharing system, especially in any agreement in the Red Sea, the Mediterranean Sea or the Gulf of Suez, because it allows Egypt to obtain the IOCs' share of oil and natural gas, if it is within 7 billion cubic meters or more IOCs are compensated for the searching and developing cost and the government purchases the discovered gas, but if the gas discovered is less than 7 billion cubic meters, the gas is transferred to the EGPC for free as agreed in the signed agreements.

By Ibrahim Zahran
International Petroleum Expert

ENHANCE OIL RECOVERY AS A PART OF THE MODERNIZATION OF THE OIL SECTOR

Oil and gas is playing a very important role to solve Egypt economic problems, Oil is considered the most important source of energy especially in the last 60 years. It represents 80% of the used energy compared to the other energy sources as wind, waterfall, coal and nuclear energy. The gap between the oil production and the consumption is increasing every day due to:

- Increase of population.
- Importance of oil and gas for petrochemicals industry.
- The high risk associated with finding new concessions.
- Most oilfields of Egypt are mature fields with gradually decreasing production of oil and gas.

EGPC must play a leading role to maximize the energy production and reserves with the co-operation of the foreign oil companies. Egypt have more than 62% of its oil reserves to produce by conventional and Enhanced Oil Recovery (EOR), only 7% of this amount can be produced by conventional production leaving more than 55% residual. In the last few years, EOR processes have gained interest from the research and development phases to the oilfield EOR implementation. Historically, EOR is the mistake with positive consequences. Concerns about future oil supply are leading to increased interest in (EOR) methods around the world. The importance of EOR increased as the increasing worldwide oil demand, the maturation of oilfields worldwide compared to the decrease of new discoveries.

Why industry needs EOR?

- Simply is to maximize recovery after primary and secondary recovery from mature fields, which is currently 30-50 %.
- Risk of applying EOR is considered reduced in view of better understanding, advances in EOR studies and successful pilot tests and field tests.
- Declining production trends and lake of big discoveries leads to start applying EOR.

EGPC have more than 40 joint venture oil companies working in Egypt

having more than 2.5 Billion Barrels of heavy oil. Four companies has the biggest numbers of reserves, which are Gupco, GPC and Petrobel. EOR/IOR had been initiated since long time ago and the data for the biggest fields and reservoirs that can have a good potential from EOR/IOR technology. As a part of the oil sector modernization, the EOR team collected a huge database. The average expected recovery factor from that amount of heavy oil is about 10% (Recovery Factor of Thermal EOR = 40% and Recovery Factor of Chemical & Miscible EOR =15% as average worldwide EOR projects). The EOR team cooperated with some joint venture companies to screen the data to get the best EOR/IOR method for each reservoir in each field. Four mega EOR projects is planned and in different phases in different companies in addition to two steam flooding projects are running and there were some trial projects and now on hold because of the low oil prices . A screening process is running to identify the best EOR method for each reservoir. There is a preliminary results identified and grouped by area as follows:

Future Plans

- Collect and analysis data for remaining companies.
- Ranking the reservoirs according its recovery factor (more depleted).
- Select the most depleted reservoirs to complete the EOR analysis as (production forecast profile, economic analysis, run available data on simulation software, Etc.).
- Invite the companies that producing from these reservoirs to discuss the feasibility of apply EOR Methods.
- Selecting a candidate field (100 % owned by EGPC) to start the lab analysis then applying a pilot.

By Hassan Salem
Reservoir Studies General Manager, EGPC



GATEWAY TO EGYPT'S NEW OIL & GAS OPPORTUNITIES

12 - 14 February 2018
New Cairo Exhibition Centre

SUPPORTED BY



YOUR LAST CHANCE TO SPEAK AT NORTH AFRICA'S LARGEST OIL & GAS TECHNICAL CONFERENCE

ABSTRACT SUBMISSIONS DEADLINE: THURSDAY 29 JUNE 2017 | WWW.EGYPS.COM/CFP

11 TECHNICAL CATEGORIES

- E&P Geoscience (GEO)
- Oil, Gas and Unconventional Field Developments (OGUFD)
- Drilling and Completions (DC)
- Gas Processing Technology and Operations (GPTO)
- Offshore Technology and Operations (OTO)
- Project Management, Engineering Technology and Implementation (PMETI)
- Operational Excellence, Maintenance and HSE (OEMH)
- Downstream: Refining, Petrochemicals and Fertilizers Technology and Operations (DRPFTO)
- Power Generation Technology and Operations (PGTO)
- Marketing and Distribution of Refined Products (MDRP)
- Connected Performance Technology and Services (CPTS) **NEW**

WHY SUBMIT ABSTRACTS?

- **Share your experiences** of successful project management from areas including: execution, engineering, procurement, construction and management in a low price environment
- **Present your technical knowledge and skills** across E&P, drilling and completions, offshore, power generation and downstream plants which have resulted in improved operating performance for your clients
- **Showcase best practices and operational excellence** that you have been involved in during the downturn which resulted in positive return on investment for the business
- **Introduce your research findings** that have the potential to launch new technologies that will revolutionise the industry

3

SIMPLE STEPS TO SUBMIT

- 1 **Visit** www.egyps.com/cfp and complete the 5 minute online submission form before **Thursday 29 June 2017**
- 2 **Choose** your technical category, topic and abstract title
- 3 **Submit** a clear 200-300 word abstract description

INTERESTED TO EXHIBIT AT EGYPS 2018? Email: egyps.sales@dmgeventsme.com

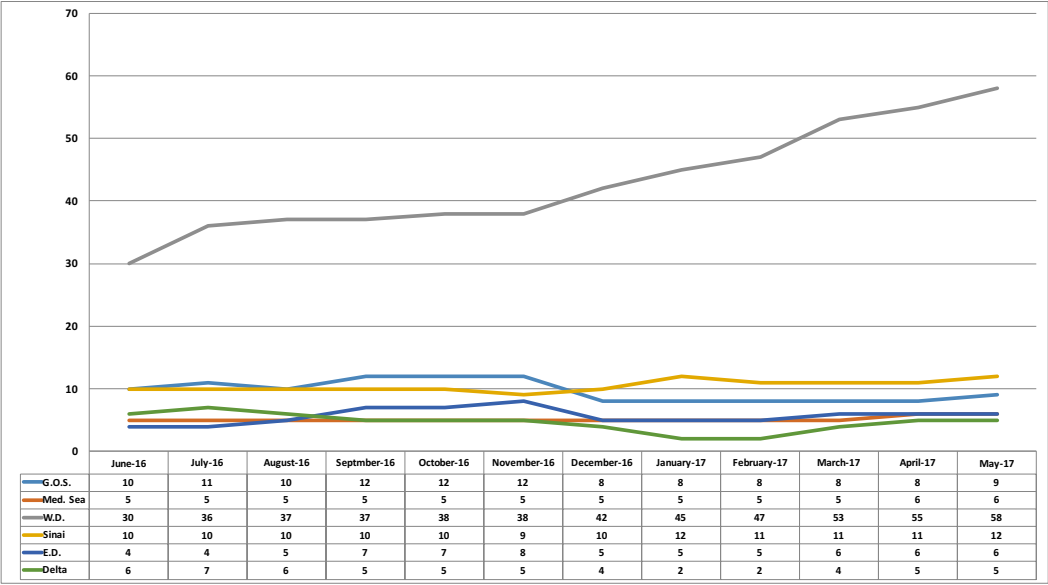
OFFICIAL PUBLICATIONS:



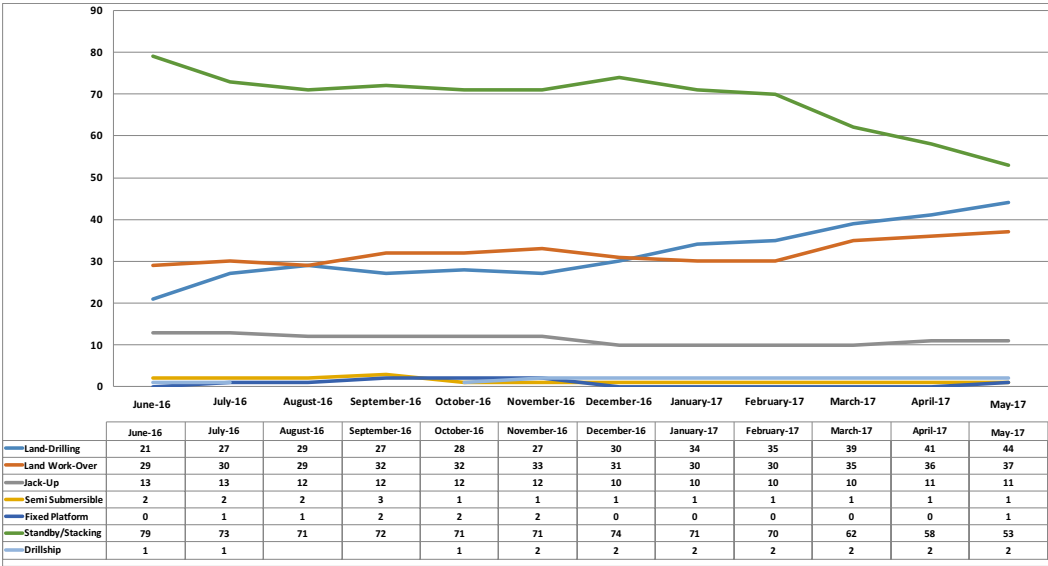
EGYPS IS CO-ORGANISED BY:



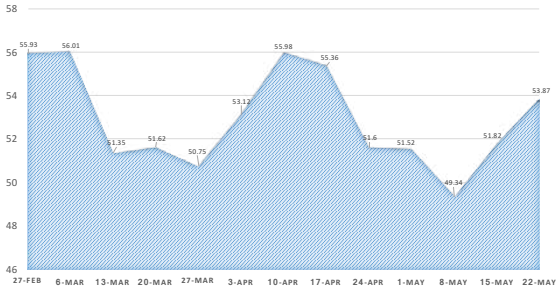
Changes in Rigs by Area- June 2016 to May 2017



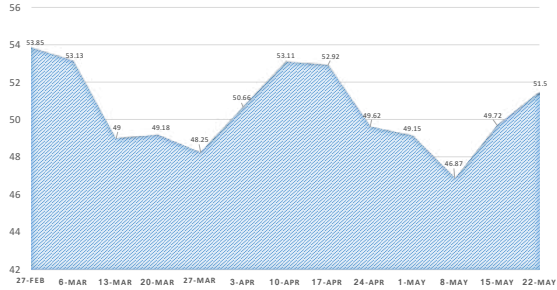
Changes in Rigs by Type - June 2016 to May 2017



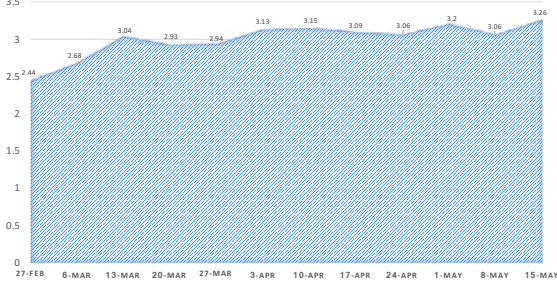
BRENT PRICES



OPEC BASKET PRICES



NATURAL GAS PRICES

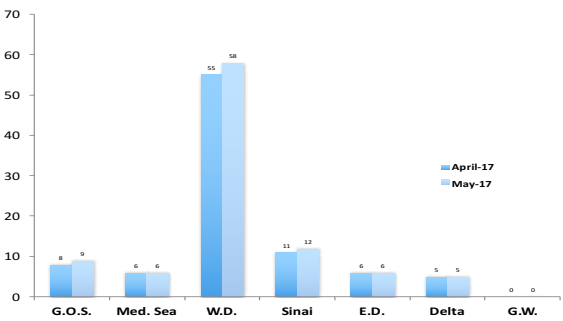


PRODUCTION APRIL 2017

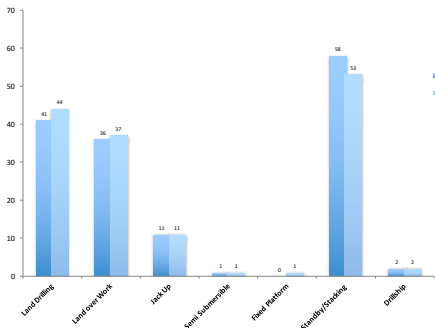
	Crude Oil	Equivalent Gas	Liquified Gas	Condensate
Med. Sea	—	12420893	181715	663425
E.D.	1973008	14464	2493	1008
W.D.	8663986	7380000	693316	1338110
GOS	3828645	610179	269995	80178
Delta	31714	6742321	110035	425058
Sinai	1527397	—	24731	17886
U.Egypt	7155	—	—	—
Total	16031905	27167857	1282285	2525665

Unit: Barrel

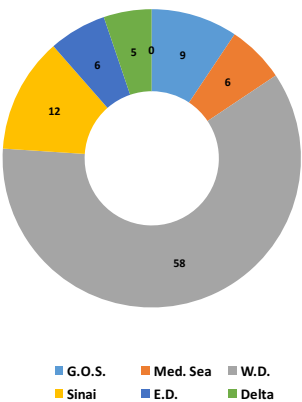
Rigs per Area - April 2017 - May 2017



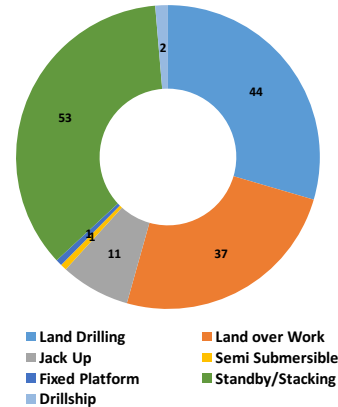
Rigs per Specification - April 2017 - May 2017



Rig Count per Area - May 2017



Rigs per Specification - May 2017



RIGS PER SPECIFICATION
APRIL 2017 - MAY 2017

LOCATION	April-17	May-17
Land Drilling	41	44
Land over Work	36	37
Jack Up	11	11
Semi Submersible	1	1
Fixed Platform	0	1
Standby/Stacking	58	53
Drillship	2	2
Total	149	149

RIGS PER AREA
APRIL 2017 - MAY 2017

LOCATION	April-17	May-17
G.O.S.	8	9
Med. Sea	6	6
W.D.	55	58
Sinai	11	12
E.D.	6	6
Delta	5	5
G.W.	0	0
Total	91	96



PAN MARINE GROUP

"WE SERVE YOU WHEREVER YOU ARE"

Pan Marine Group a one stop service provider for Oil & Gas sector in Egypt , our group consists of:-

- *Pan Marine Petroleum Services FZ*
- *Pan Marine Shipping Services*
- *Pan Marine Logistics Services.*

Our customers are our great asset that we aim to provide them with first class services in the most economical & efficient way understanding their needs, solving their problems and being a supportive consultant. We do our best to meet and exceed our clients expectations.

We are proud of past successes and will continue to strive into the future.



VROON OFFSHORE SERVICES

"...CONNECTING MARKETS"

VROON OFFSHORE SERVICES excels in the provision of diverse services and solutions for key offshore-support needs, including platform supply, emergency response and rescue, anchor handling tug supply, walk to work and subsea support.

With a versatile fleet of approximately 100 vessels and 2,400 highly qualified and experienced colleagues, we are committed to providing safe, reliable and cost-effective services.

Vroon Offshore Services is an international operator with a strong geographical presence in North Europe, the Mediterranean, North Africa, the Indian Ocean and Asian regions.

"TOGETHER, YOUR PARTNERS IN EGYPT"



Leaders in Safety



MACN
Maritime and Aviation Network

ABERDEEN | DEN HELDER | GENOA | SINGAPORE

WWW.PAN-MARINE.NET

WWW.VROONOFFSHORE.COM

HEAD OFFICE: MARHABA TOWER, FOUAD ST., OFF HOREIYA ROAD, ALEXANDRIA 21131, EGYPT
TEL.: +2033913820 (10 LINES) FAX: +2033913829 EMAIL: OFFSHORE@PAN-MARINE.NET

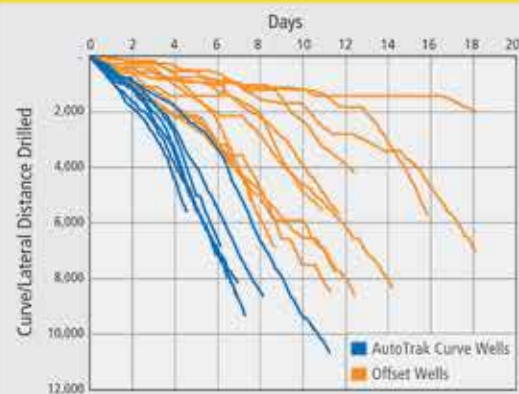
\$58,000,000 and 755 days of rig time saved in unconventional plays

On recent Marcellus shale wells, the AutoTrak Curve system outpaced the field's average drilling time by six days.

The AutoTrak™ Curve system drills 3 million feet in 22 months... and keeps on drilling.

Save time and money on unconventional wells by safely and efficiently kicking off from vertical and drilling a high buildup curve and the lateral section in one smooth, fast run.

Maximize ultimate reserve recovery by exposing more of the reservoir with a rotary steerable system with a build-rate of 15°/100 ft (30.48 m). Three-pad steering capabilities keep the well in the target payzone and deliver a smooth, high-quality wellbore.



bakerhughes.com/autotrakcurve

Advancing Reservoir Performance

