EGYPT
OIL&GAS
NEWSPAPER

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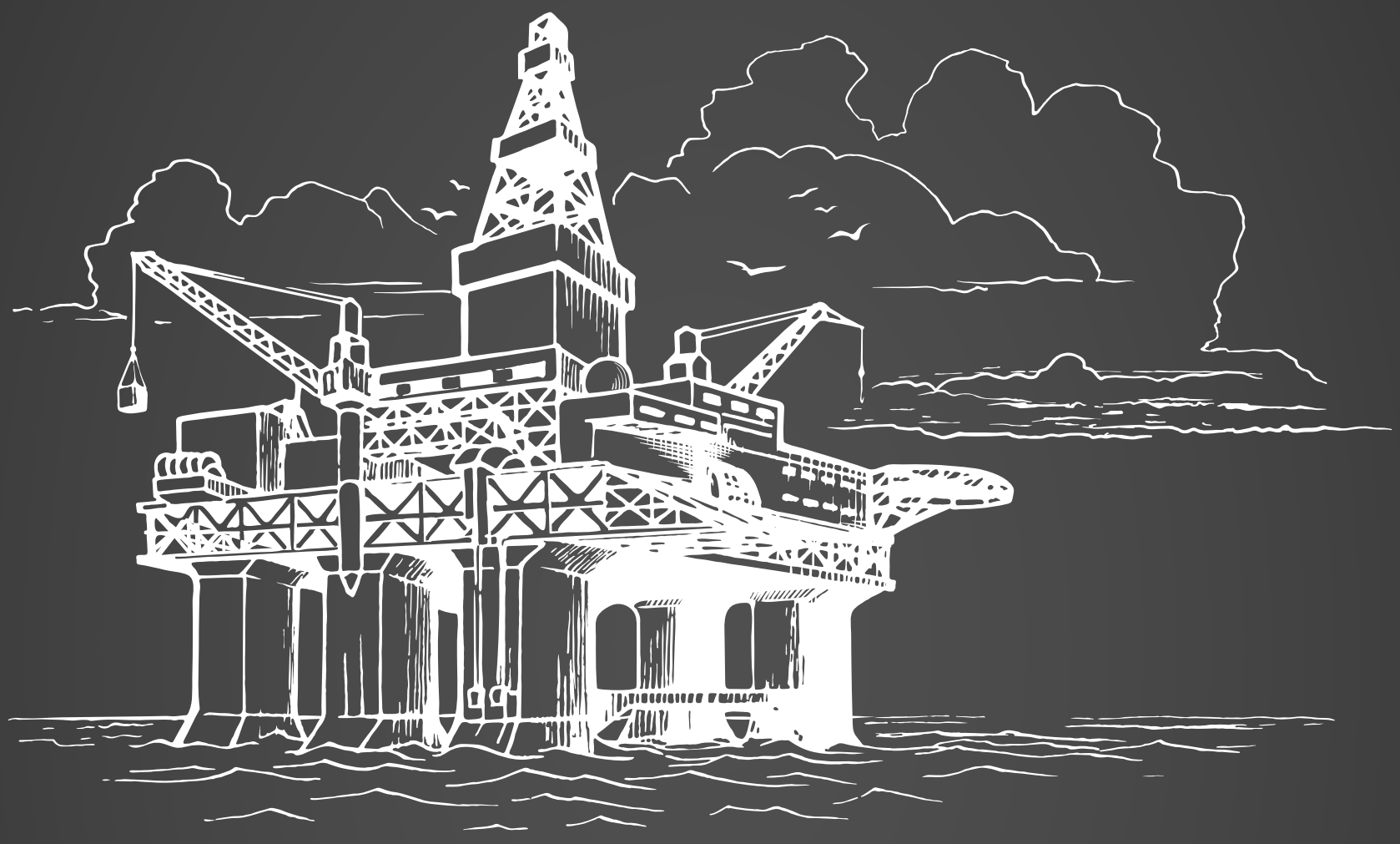
COLLABORATION AS A GAME CHANGER



- **PERPLEXITIES OF DITCHING OFFSHORE PROJECTS**
- **Upstream Sector's Struggle for Survival**
- **INTRODUCING LEGAL TRAINING FOR OIL&GAS COMPANIES**
- **Midor & Tharwa United in People Development**

EDITOR'S NOTE

Perplexities of oil and gas drilling in the present global oil price climate continue to hover above the industry's future. All actors are intensively seeking to find a cure.

In this issue, EOG team looked into the issues that pose threats to the paused drilling operations.

In an interview with SUCO Chairman, we explored possibilities to navigate through the environment in a way that would promise new sustainable solutions to ameliorate negative impacts, in the Egyptian industry in particular.

At present, the global upstream sector meets its challenge in significant financial distress. As we explored, minimizing costs of drilling operations is only one of temporary solutions. Instead, the companies may seek to maintain their investments at a rate that would ensure steady production.

Additionally, examining impediments of drilling in deep waters, despite the unfavorable price climate, it appears even more important to continue in offshore exploration and production activities, primarily for geopolitical, economic, and energy sustainability reasons. While the offshore sector shows a series of challenges, there is a common reasoning that new offshore technologies, which would eliminate the environmental risks at a fast pace, alleviate economic burden, and help mitigate other obstacles, should become a part of a smart investment rationale of international and national oil and gas companies.

As EOG promotes an informed discussion among industry leaders, in this issue we bring you closer to the current debates in Egypt revolving around regulatory re-arrangements. There is a belief that relevant amendments to the oil and gas agreements may push the entire industry forward.

In line with that, the Egyptian Gas Association in collaboration with Andrews Kurth LLP and Open Change & Associates held a training program focused on international oil and gas law and contacts. The training sessions offered an insight into legal conundrums and unveiled a plethora of useful tips as to how to navigate through the international and Egyptian legal frameworks in drafting oil and gas contracts with future positive prospects in mind.

We hope that you will enjoy our selection this month.

And we thank you for your continuous support of our efforts to bring you inspiring insights into recent events and developments in the oil and gas industry.

EOG team is wishing you a nice holiday season.

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Re-Assessing Risk Avoidance Strategies in LNG Contracting

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EGYPT OIL&GAS NEWSPAPER

BP, Eni Announce New Gas Discovery

European oil and gas giants, BP and Eni, announced their latest natural gas reservoir discovery in the Baltim exploration region in Egypt, which is jointly owned by both companies, reported Your Oil and Gas News.

Bloomberg added that Egypt has decided to keep all the natural gas discovered within the reservoir for its domestic consumption, allowing the country to cut its liquefied natural gas (LNG) imports and encourage competition for the cleaner-burning fuel.

According to Ahram Online, the Baltim South West Well (SW-1) is located 10 km north of the Nooros field – that was discovered in July 2015 – and 12 km off the Egyptian coast. The discovery further "confirms the significant potential of the so called Great Nooros Area, which is now estimated to hold 70-80bcm of gas in place," read a statement by Eni.

The SW-1 exploration well was drilled in a water depth of 25 meters by the operator IEOC, reached a total depth of 3,750 meters, and penetrated almost 62 meters of net gas pay in high quality Messinian Sandstones. The well was drilled by Petrobel, a joint venture between IEOC and EGPC. BP stated further that additional operations are required to define the exact size of the reservoir.

This is the third largest gas discovery since the findings of both the Nooros and Zohr fields in July 2015 and August 2015, respectively. All of the following oil and gas discoveries put Egypt on track to become energy independent country as gas production from the fields is expected to come online by the end of 2017.

Zohr alone will produce the equivalent of 40% of Egypt total natural gas production based on 2015 rates. The Greater Nooros Area holds an estimated 80bcm of gas in total. Currently, the Nooros field pumps 65,000 b/d of gas for the domestic market.

The Baltim South Development lease is 50% owned by BP, while Eni holds the remaining 50% interest. At present, the company produces almost 10% of the country's annual oil and condensate. To date, BP Egypt has produced almost 40% of Egypt's entire oil production.

Aker Solutions Won Order for Zohr Field

Aker Solutions, the Norwegian global oil and gas service provider, has won an order to deliver its largest-ever umbilicals project for the Zohr gas field in Egypt, the company informed in a press release on its website.

World Oil further reported that the binding agreement with Egypt's Petrobel is worth more than $122m. The contract stipulates the delivery of 180 km of steel tube umbilicals that will connect the Zohr subsea development with an offshore control platform by mid-April 2017, according to Offshore Magazine.

The work will be led by Aker Solution's subsea division in Oslo and the manufacturing will take place at the umbilicals plant in Moss, Norway.

Aker Solutions has more than 20 years of experience in the umbilical systems manufacturing industry; it has successfully constructed various advanced and complex umbilical systems that are used to transfer data, power, and liquids between oil and gas installations on the seafloor and their onshore facilities.

The company's CEO, Luis Araujo, was quoted by Nasdaq as saying: "Aker Solutions is building on its previous experience offshore Egypt to now deliver its largest-ever umbilicals project."

Petrobel, a joint venture between EGPC and Eni, is the company in charge of developments and operations at the Zohr offshore gas field.

Egypt Shipped Its Second LNG Cargo

Egypt has sent out its second liquefied natural gas (LNG) shipment this year with 60,000 metric tons heading to Niigata, Japan, and it will be received by Tohoku Electric Power Company in July, under a short term contract, reported Bloomberg. Egypt's first LNG cargo this year was shipped to India in late March.

The last time Japan, the world's biggest LNG buyer, imported LNG from Egypt was in 2014.

Egypt has marked an 88% decline of LNG shipment compared with 0.3m tons dispatched in 2014. There were no shipments sent from Egypt's side in 2015. By contrast, LNG imports amounted to 2.6m tons last year. According to a report by Bloomberg New Energy Finance, Egypt's LNG import demand is forecast to further increase in 2016 and then fall again in 2018.

Egypt was once a net LNG exporter from 2005 until 2014 and then turned into one of the world's newest major LNG importers due to its economic instability, before starting exporting the fuel again. The country is expected to finally become self-sufficient again from 2022 and rely on its own energy output.

"If Egypt could return to its previous position as a major exporter, and that is a big and longer-term 'if,' it would make a material difference to the world's future supply-demand balance," Hellenic Shipping News quoted James Taverner, a Tokyo-based analyst for IHS Inc. as saying.

Egypt's Foreign Reserves Rose

Egypt's net foreign reserves rose to $17.52b at the end of May, up from $17.011b in April, the Central Bank of Egypt (CBE) announced, according to Ahram Online. CBE stated that foreign reserves increased by $510m during May, registering the eighth month consecutive rise, informed Daily News Egypt, without providing reasons that led to this development. In addition, the bank awaits the receipt of liquidity estimated at EGP 4.5b from the UAE and Saudi Arabia, which will further support country's total foreign reserves. The current sum is slightly over 50% of total foreign reserves that the country held before the 2011 uprising.

Shell, Apache to Complete Apollonia Field Tests

Royal Dutch Shell will partner up with the American corporation Apache in the Apollonia field in the Western Desert to complete the initial tests required for gas production from limestone layers by the end of June, reported Daily News Egypt. If the final results, reached by the two oil and gas exploration giants, are positive, several other investment opportunities will open up in the Western Desert that accommodates many limestone layers that contain natural gas. Shell and Apache have estimated that the gas reserves, which can be extracted from the concession area, are approximately 700bcf. The Oil Ministry declared that the two companies plan to drill 30 wells in the Western Desert after the production and feasibility tests are successfully completed.

EGPC to Pay Eni in EGP

EGPC has reached an agreement with Eni to pay the Rome-based multinational oil and gas company its $650m receivables in the Egyptian pounds, according to Enterprise. This value represents Eni's production share from JVs Agiba, Petrobel, and Pharaonic. Al Borsa News reported that this agreement was being discussed between the two companies over several months and finally reached a conclusion after local operators Petrojet and Enppi had agreed to conduct the marine services needed to enhance the production at the Zohr offshore natural gas field and earn their payments in EGP. EGPC is also currently negotiating another agreement of the same sort with one of the major IOCs that operates in the nation, however, the name of the company was not revealed. EGPC intends to pay the company its $800m in EGP in an attempt to reduce the burden that Egypt is facing with regard to lacking foreign currency reserves.

Egypt to Finalize Nuclear Power Contracts

In a meeting with Prime Minister, Sherif Ismail, Electricity Minister, Mohamed Shaker, and the Head of the Armed Forces Engineering Authority, Major General Kamel al-Wazir, President Abdel Fattah Al Sisi drew attention towards the importance of finalizing the contracts needed for the construction of the Dabaa nuclear station as soon as possible, Egypt Independent reported.

The Electricity Minister had traveled to Moscow to settle all the issues between the Egyptian and the Russian sides before proceeding to the next stage and signing the contracts. The legal and technical issues that caused the delay in signing the contract are all resolved and an Italian consultancy firm had revised the contract terms that bind Cairo and Moscow.

According to Egypt Independent, Rosatom's General Director, Sergei Kiriyenko, said that in order to finalize the Russian-Egyptian agreement, various important matters had to be taken into consideration and carefully discussed, such as the nuclear fuel supply to the reactors, the role of both sides during the operation, maintenance and repair of reactors, methods of treating nuclear waste, training the plant's workers, and the improvement of standards and legislation within Egypt's nuclear energy and nuclear infrastructure sectors.

Of all the above issues, the most challenging one is the disposal of nuclear waste. Kiriyenko said that Rosatom always ensures that the contracting countries comply with using proper methods of waste disposal.

Since 2015, Egypt has been negotiating plans with the Russian company for nuclear power, Rosatom, to fund and construct a nuclear power station in Dabaa. The project is set to be completed by 2022 following a presidential approval of the Russian $25b loan to Egypt issued in mid-May 2016.

The nuclear power station in Dabaa is the biggest joint project between Egypt and Russia since the construction of the High Dam in Aswan, and after successfully constructing the project, Egypt will be the only country in the region to own an advanced nuclear power station.

Shell's Gas Production Increased

Royal Dutch Shell's natural gas production from Egypt's Burullus and Rosetta concessions has increased to 686 mcf/d from 640 mcf/d in late 2015, wrote Enterprise. The Burullus concession accounted for 641mcf/d and the Rosetta concession was responsible for 45mcf/d of the total volume produced. The two concessions are among Egypt's most important strategic sites for natural gas production, as they account for 25% of Egypt's total gas production in 2012-2013, according to Al Borsa News.

The two concessions lose around 480mcf/y of natural gas, such loss is anticipated to be recovered when the $1.3b worth Phase 9b becomes operational, Oil Ministry informed.

SDX Energy Completed 3D Data Acquisition

SDX Energy Inc. has completed the acquisition of some 300 square km of 3D seismic data on the South Disouq asset, located onshore the Nile Delta in Egypt, "safely, under budget, and ahead of the anticipated schedule," reported Rig Zone. The initial data set from the seismic survey is of "good quality" and "clearly indicates the presence of the prolific Abu Madi trend within the block," along which large discoveries have been made in recent years, according to a company statement. Data processing is now expected to last for three months, once complete, it will inform the selection of a well location. Drilling could subsequently get underway in late 2016, informed Proactive Investors. The concession area contains a gross resource estimate of 526bcf of gas. SDX has a 55% equity in the asset. SDX's seismic survey commenced in March and was initially expected to take between three and four months to complete, according to E&P.

Cairo, Riyadh to Finalize Electricity Project

An Egyptian government official has affirmed that the Egyptian-Saudi electricity linkage project is due to be finalized within a few months. The two countries will be able to share electric power of up to 3,000 MW during the off-peak periods of the exporting country, reported Asharq Al-Awsat. The project will be finalized in 2018 and it will enable the two countries to use each other's power surpluses during overload times while enhancing the stability of the electric networks on both sides. Media Meter further explained that Saudi Arabia's peak time in the summer falls between noon and mid-afternoon, while in Egypt, the peak time is after sunset.

Egypt's CO2 Emissions Rose

Egypt's carbon dioxide emissions rose from 197.14m tons in 2013/2014 to 201.34m tons in 2014/2015, the Central Agency for Public Mobilization and Statistics (CAPMAS) reported through a press release on its website. This 2.13% increase in Egypt's carbon dioxide emissions is believed to be the aftermath of the consumption of both petroleum products and natural gas.

Egypt Independent wrote that according to the CAPMAS statistics, the electricity sector in Egypt accounted for 42.6% of the nation's total carbon dioxide emissions in 2014/2015. The electricity sector is a heavy consumer of petroleum products and is considered to be the largest single producer of carbon dioxide emissions in the nation.

Other sectors that also significantly contribute to the nation's total carbon dioxide emissions are the transport sector, accounting for 17.9%; the industrial sector, accounting for 17.2%, and the trade sector, accounting for 8%.

CAPMAS' press release additionally mentioned that Egypt has managed to drastically cut down on ozone-depleting substances, in the framework of the country's commitment to the environment protection agreement, the Montreal Protocol. Egypt has quit using halon gas in 2007 and chlorofluorocarbons (CFCs) in 2011. The country also consumed only 10 tons of bromomethane gas in 2014, in comparison with consuming 92 tons in 2013, indicating a substantial decrease of 89.1%.

TerniEnergia Acquired $9.2m Solar Project

Italian energy company TerniEnergia has secured an order worth approximately $9.2m for the construction of an industrial-scale solar power plant in Egypt with a total capacity of 47 MW.

The solar park will be constructed at a location in the Benban area of Aswan, situated roughly 900 km from Cairo, Egyptian Street reported. Covering approximately 150 hectares, the plant will be using Italian-made 3Sun solar panels mounted on steel structures.

The solar power plant will help diversify Egypt's energy mix and expand its renewable energy sources.

According to a PV Magazine report cited by Forbes, Egypt had introduced a feed-in tariff (FIT) program to encourage private investment in clean energy projects and to support its national goal to generate 2.3 GW energy from renewables. The country's New and Renewable Energy Authority had also selected "69 consortiums with large-scale projects of more than 20 MW as part of the initial FIT program for 2GW of solar capacity."

In efforts to enhance national solar energy capacity, Egypt has acquired funding from the European Bank for Reconstruction and Development (EBRD) in December 2015, which allocated $500m in support of the country's solar energy program in 2016.

Shell, Apache Agree on Higher Gas Price

The Dutch company Shell and the American Apache have agreed with the Egyptian Ministry of Petroleum on the price of the gas in the limestone layers at Apollonia field in the Western Desert. The new agreement decided on $4.6 per 1m thermal units instead of $2.9, Daily News Egypt reported. The gas proven reserves in the limestone layers in Apollonia field are estimated at approximately 700bcf. Recently, Apache has successfully completed the drilling of the two horizontal wells in Apollonia field, after spending $3m and 19 working days on each well, according to the Ministry of Petroleum.

Egypt Will Increase Gas Production by 2019

Egypt's Oil Minister, Tarek El Molla, said that the country will increase its natural gas production to between 5.5 and 6bcf/d by the end of 2019, Reuters reported. Egypt currently produces 3.9bcf/d of natural gas. The average increase by 1.85bcf/d will aid in bridging the gap that Egypt has witnessed in FY 2014/2015 between its domestic energy production and consumption.

The minister also added that the country currently has 12 ongoing natural gas field development projects that required total investments of $33b. Three of these 12 projects, which include the mammoth Mediterranean gas field Zohr discovered by Italy's Eni last year, are forecast to collectively bring in 4.6bcf/d, by the beginning of 2019.

According to the Central Agency for Public Mobilization and Statistics (CAPMAS), Egypt consumed about 73.36m tons of petroleum products and natural gas during the fiscal year (FY) 2014/2015, compared to 73.04m tons in FY 2013/2014, an increase of 0.43%, Daily News Egypt reported.

In efforts to meet domestic demand, the country is currently spending $795m every month on energy imports. Discovering new natural gas fields and developing the existing ones will not only improve Egypt's energy production/consumption demographics, but also cure the foreign currency crisis that the nation is going through by making the country self-sufficient, wrote Ahram Online.

France Offers $75.8m Gas Grant to Egypt

The French Development Agency (AFD) has offered Egypt a $75.8m grant to finance a mega-project that aims to facilitate access to natural gas to 2.4m Egyptian households. The project will be prioritizing the underprivileged areas and will aim to increase the total number of households that are connected to the natural gas grid by 40%, to reach 8.2m, Daily News Egypt reported. According to the World Bank, more than75% of Egyptian households rely on LPG cylinder distribution for meeting their energy requirements. The Egyptian government aims to reduce this figure and shift to the usage of natural gas which is a better alternative especially for commercial and industrial usage.

Onera Systems Finalizes Three Solar Plants

Onera Systems, the Egyptian leading company in the solar energy sector in the Middle East, has finalized the establishment of three solar power stations in the Abu Korkas and South Delta areas in Egypt, Petro-Mining reported. The company's Chairman, Wael El Nashar, told Al-Mal News that the stations' cost exceeded EGP 1m and each of the solar power stations will operate with a capacity ranging between 10kW and 30kW. He added that the company has been allocated with several projects within the framework of an initiative – Your Sun Egypt – that focuses on developing projects that would increase the reliance on photovoltaic energy in Egypt.

Qalaa's New Oil Refinery to Cut Import Bill

Egyptian Qalaa Holdings, the most dominating investment company in the Middle East and Africa, is positive about how its new mega refinery will reduce the country's dependence on oil imports, according to what its Chairman, Ahmed Heikal, said in an interview with Reuters. The $3.7b Egyptian Refining Co (ERC), which is currently being built on a land space spanning 300,000 square meter, will have the capacity to produce 4.2m tons of refined products annually. The refinery will sell its production to the state-controlled Egyptian General Petroleum Corporation (EGPC) at international prices under a 25-year agreement.

Suez Canal Authorities Set New Fares for VLCCs

New toll rates have been set by Egypt's Suez Canal Authority, as part of a six-month experiment, for the oil tankers that will be using the vital waterway to deliver very large crude carriers (VLCCs), reported Reuters. All VLCCs passing through the Canal from the Arabian Gulf, that are carrying more than 250,000 in deadweight tonnage, will be charged $155,000 after they discharge at the SUMED oil pipeline. They will also pay $230,000 on their return ballast trip. International Business Times added that Egypt's President, Abdel Fattah El Sisi, has inaugurated an $8b expansion of the Canal in 2015 in order to double the daily traffic and increase the annual revenue to more than $13b by 2023.

DRILLING

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. The production rate of Qarun in May 2016 was 1,233,967 barrels of oil.

WON C-11

The well was drilled at a depth of 8,300ft utilizing the EDC-47 rig. Investments surrounding the project are estimated at $1m.

NED-34

The well was drilled at a depth of 6,200ft utilizing the EDC-17 rig. Investments surrounding the project are estimated at $800,000.

WON X-5

The well was drilled at a depth of 7,125ft utilizing the EDC-63 rig. Investments surrounding the project are estimated at $1m.

WON X-7

The well was drilled at a depth of 6,850ft utilizing the EDC-64 rig. Investments surrounding the project are estimated at $800,000.

PETROSILAH

PETROSILAH, a joint venture between EGPC and MERLON, has completed drilling new oil development wells in its concession area in the Western Desert. The production rate of Khalda in May 2016 was 322,124 barrels of oil.

N.SILAH D-4

The well was drilled at a depth of 8,838ft utilizing the IPR-1 rig. Investments surrounding the project are estimated at $1.464m.

KHALDA

KHALDA, a joint venture between EGPC and Apache, has completed drilling new oil-development wells in its concession area in the Western Desert. The production rate of Khalda in May 2016 was 3,767,552 barrels of oil.

W.RZK-169

The well was drilled at a depth of 6,500ft utilizing the EDC-61 rig. Investments surrounding the project are estimated at $1.131m.

TUT-114

The development well was drilled at a depth of 9,300ft utilizing the EDC-65 rig. Investments surrounding the project are estimated to be $1.215m.

HYDRA-2 ST-1

The development well was drilled at a depth of 12,803ft utilizing the EDC-57 rig. Investments surrounding the project are estimated to be $2.008m.

N.RZK-17

The well was drilled at a depth of 8,200ft utilizing the EDC-65 rig. Investments surrounding the project are estimated at $1m.

GPC

GPC, a public sector company, has completed drilling a new crude oil development well in its concession area in the Western Desert. The production rate of GPC in May 2016 was 1,339,390 barrels of oil.

N.E.E.M-2

The well was drilled at a depth of 4,239ft utilizing the ST- 9 rig. Investments surrounding the project are estimated at $1.5m.

HF 35/15

The well was drilled at a depth of 6,700ft utilizing the AMAK- 1 rig. Investments surrounding the project are estimated at $2m.

PETROBEL

PETROBEL, a joint venture between EGPC and ENI, has recently completed drilling new oil development wells in its concession area in Sinai. The production rate of PETROBEL was 2,612,018 barrels of oil in May 2016.

NIDOCO NW-4 ST-2

The well was drilled at the depth of 15,377ft utilizing the EMSCO-602. Investments surrounding the project are estimated at $8.973m. It is worth noting that the well is being placed on production.

SHELL

SHELL, a Dutch research and exploration company, is drilling a new oil development well in its concession area in the Western Desert.

N M TEEN-A

The well was drilled at a depth of 16,913ft utilizing the EDC-42 rig. Investments surrounding the project are estimated at $6.1m.

Under the High Patronage of **HE. ENG. TAREK EL MOLLA,**
Minister of Petroleum & Mineral Resources Arab Republic of Egypt

EGYPT OIL AND GAS
PEOPLE DEVELOPMENT
ROUNDTABLE

OCTOBER 2016

COMPETENCY AND DEVELOPMENT REQUIREMENTS FOR CAREER PROGRESSION
- Definitions of competency requirements for specific jobs.
- Competence and expertise assessments for individuals.
- Career path within organization.
- Retention of talented staff.

IOC/EGPC PARTNERSHIP
- Obligations within concession agreements.
- Defining roles of IOCs and government in people development within the JV environment.
- Barriers to personnel development.

DEVELOPMENT OF TECHNICAL AND NON-TECHNICAL STAFF
- Traditional focus is on professional level staff – G&G, Engineering etc.
- Field operations can also benefit from improved competence. How can that be achieved?
- Developing commercial and support staff such as contracting, agreements, finance, human resources and administration.

MAKING IN-COUNTRY TRAINING MORE EFFECTIVE
- The role of OGS.
- Support from international institutions.
- The role of academia in Egypt.

THE VALUE OF COMMUNICATION IN PEOPLE DEVELOPMENT

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Israel Downplays Leviathan Field Reserves

Israel's Energy Minister, Yuval Steinitz, said that the Leviathan offshore field likely contains 20% less of gas than previously announced, The Times of Israel reported, amid the ongoing debate in the country.

Steinitz explained the estimates could change after the energy ministry receives more drilling data on one of the project's wells, Leviathan 5. Until now, the Leviathan gas field, discovered in 2010, was reported to be one of the biggest offshore discoveries with an estimate of 622bcm of natural gas reserves.

Meanwhile, the Israeli government has approved the development of the gas field, off Israel's Mediterranean coast, which will be a second source of gas supply to the country and help the country become a gas exporter, according to Reuters.

The approved Plan of Development (PoD) contemplates a subsea system that connects production wells to a fixed platform located offshore with tie-in onshore in the northern part of Israel. Expected to become operational in 2019, the Leviathan gas field will come with a production capacity of 1.2bcf/d, and will be expandable later on to 2.1bcf/d, said Texas-based Noble Energy, the partner in the field that holds the largest stake, according to Offshore Magazine.

Once gas starts flowing, US's Noble Energy and Israel's Delek Group, the partners in Israel's Leviathan natural gas field, announced they had signed a deal to supply as much as $3b worth of gas to a new private power plant in central Israel, Fortune reported. Leviathan partners will supply up to 13bcm to the IPM Be'er Tuvia plant for the period of 18 years. In addition, Noble estimates gross revenue from the deal to amount to $2.5b.

In March, the Leviathan gas field project hit a major obstacle when Israel's Supreme Court blocked a previous agreement between the field's shareholders and the Israeli state. The ruling stated that the terms of signed development agreements would remain unchanged for ten years. The agreement had meant the government would be committed not to change taxes, export quotas, or other regulation.

Noble operates Leviathan gas field with a 39.66% interest. Its partners are Delek Drilling (22.67%), Avner Oil Exploration (22.67%), and Ratio Oil Exploration with the remaining 15%.

Riyadh Seeking Solar Plant Bids

Saudi Electricity Co. (SEC) is seeking bids from international developers to build two solar-power plants in Al-Jouf and Rafha in the north of the country, Reuters reported.

As much as 50 MW of capacity will be developed at each site on land provided by SEC, and the developers will sell the electricity to SEC under long-term agreements. Each plant is estimated to cost between $100m and $120m to build.

Meanwhile, Saudi Aramco has partnered with General Electric (GE) to install the kingdom's first wind turbine at the Turaif Bulk Plant, located in the north-west of the kingdom, Trade Arabia informed.

The project marks the first regional installation of GE's 2.75-120 Wind Turbine, which has been specifically designed for the kingdom's climate.

The potential for wind energy generation in the kingdom has been confirmed by many studies, GE explained in the statement, adding that the northeast and central regions in particular are conducive to the technology as they experience wind speeds near 8 m/s and above.

Both projects come in line with Riyadh's policy on renewable energy, as the kingdom plans to generate 9.5 GW of electricity from renewable sources by 2030, which would help to conserve its oil production for export.

Algeria's In Amenas Gas Plant Re-Opens

Algeria's In Amenas gas plant started test production at its third train, and will soon be fully operational, more than three years after an attack on the facility by Al-Qaeda linked militants, the state energy firm Sonatrach said, Reuters reported.

Re-opening of In Amenas by late June would be the first time for the gas plant to run at full capacity since the 2013 attack that killed 40 oil workers and hit output.

"In the third week of June the plant will come back to full production at 9 bcm per year," a top Sonatrach source told Reuters, affirming that test production has been launched successfully and the official opening is expected shortly.

According to Rigzone, BP, Statoil, and the Algerian state-owned oil company, Sonatrach, were in charge of operating the plant, however, BP and Statoil withdrew their manpower after the rocket attack in March 2013, leaving the plant management for Sonatrach to take over.

Meanwhile, European Union officials and industry representatives urged Algeria during the business forum held in Algiers to adapt to more competitive markets and attract the investment needed to pump more gas north again after years of sliding exports.

Iran Exports First Fuel Oil

Iran exported its first consignment of fuel oil from Assalouyeh, Bushehr province, destined for regional countries, and weighing 4,500 tons. The shipment took place as the country had reduced consumption of liquid fuels by its power plants, after having replaced them with gas. The country thus has large volumes of liquid fuels, including fuel oil, up for grabs, Shana informed. Previously, according to Fars News, Iran supplied 38, 50, and 58bcm of natural gas to power plants for generation of electricity in the years 2013, 2014, and 2015, respectively. The strategy to expand natural gas consumption, which helps the country to save $6b annually, came with the goal to apply clean energy carriers.

Morocco, Portugal Study Electric Interconnection

Moroccan Energy Minister, Abdelkader Amara, and Portuguese Economy Minister, Manuel Caldeira Cabral, have inked a ministerial declaration to carry out a technical and economic feasibility study for an electric interconnection project between the two countries, Morocco World News reported. The project is to provide an electric capacity of 1,000 MW, which will help the two countries exchange electricity. The project will also inject electricity from renewable sources to solve the issue of climate change given that 60% of climate imbalance is linked to energy. The agreement proves that Rabat and Lisbon are willing to build together a regional energy hub, Trade Arabia wrote.

Kuwait Looks to Solar for EOR

Kuwait Oil Company (KOC) said it was in discussions with companies to use solar for enhanced oil recovery (EOR) in efforts to find alternative methods to maximize production, and meet the government's 15% renewable energy target, The National reported. According to See News Renewables, solar is considered a cheaper alternative to using imported natural gas or petroleum to produce steam for EOR. California-based Glasspoint Solar was cited as saying that solar steam could supply most of Kuwait's thermal EOR demand at half the price. Kuwait has been facing a gas deficit triggered by its power sector and industrial expansion.

Bahrain Seeks Bids for Oil Refinery Expansion

State-run Bahrain Petroleum Company (Bapco) is seeking bids to boost the capacity expansion of its 267,000 b/d Sitra oil refinery, Reuters reported. The expansion is expected to cost about $5b to reach a production capacity of 360,000 b/d. Companies that are planning to submit bids and that have formed consortia are: Japan's JGC Corp and South Korea's GS; Technip, TecnicasReunidas, and Samsung Engineering; Fluor, Hyundai Engineering and Construction, and Daewoo E&C; and CB&I and Petrofac. According to Gulf News, Bapco said last year it would make a final decision on whether to expand its Sitra oil refinery in 2016.

Tunisia Publishes All Oil Agreements Since 1960

Tunisian Minister of Energy and Mining, Mongi Marzouk, announced that the Tunisian Agency for Oil Activities officially began publishing documents of all oil agreements that were signed in the country since 1960, Zawya reported. The minister pointed out that experts, investors, and journalists have the possibility to access data concerning the energy sector in Tunisia, including data on production, consumption, and the distribution of oil products. In addition, the Ministry is preparing a data portal on investment in the hydrocarbon and mining sector. Marzouk said that this initiative represents "a step forward in the framework of a global strategy for a good management of the sector."

Iran Petchem Export Skyrocketed

Iranian Minister of Petroleum, Bijan Zangeneh, said Iran's export of petrochemical products increased by 46% and stood at 18.7m metric tons in the previous Iranian calendar year which ended on March 19th, compared to two years ago, SHANA reported.
Zangeneh said that production of petrochemicals by Iranian plants crossed 46mt/y during 2015, which exceeded production of the calendar year from March 2013 to March 2014 (1392) by 6.6mt/y.
Addressing the Iranian parliament, Zangeneh stated, according to Fars News, that the country has no limits in petrochemical plants with natural gas as feed stock. He further noted that the current calendar year will be exceptional for the petrochemical industry through the operations of several petchem projects, saying: "Once these projects come on-stream, Iran will earn $5.7b from selling petrochemical projects at 1392 prices," which will be a giant step for doubling the country's petrochemical revenues.
Iran also inked the first post-sanctions petrochemical contract with a Swiss firm, Swiss Welding Engineers Ltd, in which the latter will help in the production of the synthetic polymer Emulsion Styrene Butadiene Rubber (ESBR), used in the petrochemical industry and rubber manufacturing.
In addition, a Kurdish Iran petrochemical complex is being constructed at a total cost of $356m and will be able to produce 300,000 tons a year of light polyethylene.
In related news, Iran's Deputy Petroleum Minister in Petrochemical Affairs, Marziyeh Shahdaei, said that talks are under way with heads and leaders of Iran's petrochemical holdings in a push to bring their exports together, SHANA reported.
"Once export of petrochemicals is done in an integrated manner, the exports will be able to devise their strategies and policy making to grasp a stronger hold in the market," Managing Director

of National Petrochemical Company (NPC), Shahdaei said
According to The Iran Project, Shahdaei explained that integrating petrochemical exports allows petrochemical companies to manage in domestic and foreign markets. This could happen if methanol producers are grouped while producers of urea and ammonia work and control their markets together.
Furthermore, Iran's Petrochemical Commercial Company (PCC) considers the formation of a committee that would integrate exports of petrochemicals by Iranian producers. There's a large number of petrochemical exporters in Iran that stands at 55 companies, and export items as 12 holding companies.

Libyan Guards Re-Took Port of Sirte

Libyan forces fighting the Islamic State (IS) in the country claim to have re-taken the port of Sirte from the militants, The Guardian reported. Militias aligned with the new Government of National Accord (GNA), the Libyan UN-backed government, were fighting IS to gain control over Ouagadougou conference complex.
A source from the operations room in Misrata said fighters from the front line in the south of Sirte had looped round to the seafront to capture the port, which lies east of the city center, according to Trade Arabia.
The Islamic State took advantage of the security vacuum, resulted from the division of the Libyan territory between east and west, and had seized control of Sirte in 2015, extending its presence along about 250 km of coastline.
In related news, Libya's Petroleum Facilities Guard (PFG), a force that controls oil terminals in eastern Libya, re-captured a town near the country's biggest oil port of Es Sider after clashes with IS militants, Bloomberg reported.
The PFG pushed the militant group back along a coastal strip they control east of their stronghold of Sirte, five guards were killed and 18 wounded, Reuters wrote.
Meanwhile, Libya resumed its oil exports in May from the Hariga port in eastern Libya, easing a bottleneck and allowing for crude production to increase after an agreement was reached in Vienna.

BP Oman Completing Khazan Gas Field Work

Work on the Khazan gas field reservoir and infrastructure project in Oman, one of the largest non-traditional narrow reservoir with tight gas in the Middle East region, is progressing as per schedule with more than 70% of the project already completed, Trade Arabia reported.
"The first consignment of gas from the Khazan reservoir project will be delivered to the pipeline network of the Ministry of Oil and Gas in November 2017, according to the plan implemented by the company for start of operation," BP Oman Chairman, Yousef bin Mohammed Al-Ojaili, said Gulf Digital News added.
Further, Al-Ojaili, explained that BP Oman also plans to start the drilling of the first exploratory well of gas within the framework of the second phase development of the Khazan field before the end of the year 2016. It is estimated that 125 wells will be drilled and the first gas from the wells is scheduled to flow in 2020.
The development of Khazan field, which began in 2014, is located in the concession area in block 61. BP Oman owns 60% of the stake, and the rest is with the Oman Oil Company Exploration and Production,

Algeria's President Replaces Energy Minister

Algeria's President, Abdelaziz Bouteflika, replaced Energy Minister, Salah Khebri, after a year in office, with the Head of the state power company, Sonelgaz, Noureddine Boutarfa, reported Reuters. Bouteflika has recently organized a surprise reshuffle in the energy and banking sector reflecting on an economic crisis that hit the country due to the falling oil prices, informed Fortune, as the country is trying to push forward with foreign investments and revive its economic status. The North African state has taken some measures to adapt to falling income from oil, including raising subsidized fuel and electricity prices, cutting back on infrastructure projects, and trimming budget spending.

OPEC: Oil Market to Balance by End 2016

The Organization of Petroleum Exporting Countries (OPEC) predicted that the global oil market will be more balanced in the second half of this year as demand rises and rival supplies falter, echoing views expressed by ministers at the group's meeting this month, Bloomberg reported. OPEC kept estimates for world supply and demand in 2016 unchanged in its monthly market report. Demand for OPEC crude in 2016 is projected at 31.5mb/d, unchanged from the last report and 1.8mb/d higher than last year. For 2015, demand for OPEC crude is also unchanged, averaging 29.7m b/d, Hellenic Shipping News wrote, citing the OPEC report.

OPEC Unagreed to Cap Oil Output

The Organization of Petroleum Exporting Countries (OPEC) will stick to its policy of unfettered oil production after members failed to agree on a new output ceiling during a meeting in Vienna in June, Boston Globe reported.

OPEC needs more time to come up with a new output ceiling, outgoing Secretary-General, Abdalla El-Badri said, adding that it is hard to find a target when Iranian production is rising and significant Libyan volumes are halted.

Gulf OPEC members including Saudi Arabia were looking to revive the idea of a joint oil-output action by major producers ahead of the meeting. "The Gulf Cooperation Council [GCC] is looking for coordinated action," a source told the press, referring also to Qatar, Kuwait and the United Arab Emirates. However, Tehran has been the main stumbling block for the OPEC to agree on output policy as the country boosted supplies despite calls from other members for a production freeze, reported Reuters.

Iran has long rejected any cap on production as Zangeneh explicitly stated: "We cannot cooperate with them to freeze our own output, and in other words impose sanctions on ourselves," according to US News.

Iran argues it should be allowed to raise production to levels seen before the imposition of the recently lifted Western sanctions over the country's nuclear program. Therefore, Tehran said it would only support individual country quotas for production cap, which would, however, be difficult to agree on in a single meeting, Fuelfix wrote. The oil minister also stressed that Tehran deserves a high quota based on its historic output, according to CNBC.

On a previous occasion, Zangeneh also accused the regional neighbors and OPEC members of trying to take away its customers by offering cheaper oil. In an interview with Platts, he added that despite Iran is not offering a price discount itself, it had managed to retake 1mb/d. Therefore, "Iran expects fellow OPEC members to understand Tehran's status which is trying to bring its market share and production level after years of draconian sanctions to the pre-sanctions levels," he said.

In addition, the minister informed that Iran is currently producing more than 3.8 mb/d and that the country is targeting 4.8 mb/d in the next five years.

Iran's Oil Export Doubles

Iranian Ministry of Petroleum announced that the country's crude oil exports have doubled since Iranian President, Hassan Rouhani, took office in August 2013, reported SHANA. The country's crude oil output has crossed 3.8mb/d with over 2m barrels being exported to foreign destinations, Iran's Minister of Petroleum, Bijan Zangeneh, said.

Iran's oil exports to the European Union countries are on track to hit the highest in almost four and half year in June, as shipments to Europe recover to near pre-sanctions level, reported Daily Mail.

According to a report by the Planning and Supervisor of Hydrocarbon Reserves department at the Iranian oil ministry, Iran has also boosted its condensate output by 37% during the same period, Iran Business News wrote.

Government Spokesperson, Mohammad Bagher Nobakht, said that Tehran is committed to preserving its share in the global oil market and at the annual OPEC meeting defended its right to raise production, The Iran Project informed.

Iraq Boosts Oil Output

Iraq, the OPEC's second-largest producer, managed to increase its daily oil production to an all-time high of 4.5mb/d according to estimates by a research firm, JBC Energy, CNN reported. The statistics show an increase by 100,000b/d compared to April and it is about 2mb/d more than what Iraq was pumping before the 2003 US invasion.

However, issues including maintenance and power outages slow output from January's record high 4.78mb/d, Iraq's OPEC Governor and Head of State Oil Marketing Organisation (SOMO), Falah Alammri, explained, according to Zawya. Additionally, the country's overall output was impacted by the decision to stop production of 170,000b/d of Kirkuk crude due to the ongoing conflict with the Islamic State militants.

A turning point came as the Iraqi Army and Shiite militias, backed by US airstrikes, launched an offensive to retake the city of Fallujah from Daesh militants.

Furthermore, the Iraqi forces also recaptured from Daesh's hands key parts of the northern refinery town of Beiji, Shafaqna News reported.

OPEC's Revenues to Fall in 2016

OPEC's 2016 oil export revenues will probably fall 15%, about $341b in 2016, compared to 2015 levels, based on projections of global oil prices and the group's production levels, Reuters wrote. Oil revenues are expected to decline for the third consecutive year, which will likely be the lowest in more than a decade, but may start rising again in 2017, the US Energy Information Administration (EIA) said, according to Trade Arabia. At the projected level, OPEC's 2016 export earnings would be the lowest since 2004, when it earned about $295b. While for 2017, OPEC revenues are expected to reach $427b, as a result of an estimated rise in crude oil prices, higher OPEC production, and stronger exports.

Algeria Urges Upstream Investments

Algeria is calling oil companies to invest in oil upstream activities in the country, emphasizing the regulatory and fiscal advantages offered by the Algerian market. The President of the Executive Committee of the National Agency for the Promotion of Hydrocarbon Resources (Alnaft), Sid Ali Betata, lamented recently that only 40% of the mining deposits is prospected, Algeria Press Service reported. He said that the mining field has a poor drill density in comparison with the international average and "the remaining 60% constitutes opportunities to develop win-win partnerships." Betata added that intense efforts in exploration and development of the already made discoveries are needed as part of the program of the energy policy in term of hydrocarbons.

Technip Inked Libyan Offshore Deal

French company Technip inked a deal worth $500m with a consortium that includes Libya's National Oil Company (NOC) and Italy's oil and gas major Eni to refurbish the offshore oil platform for the Bahr Essalam oil field about 100 km off Tripoli, Reuters reported. The agreement is crucial to show that foreign firms were starting to return to do business in a country hit by over five years of conflict. The NOC aims to restore oil production after a UN-backed unity government arrived in the capital in March with the hope of ending Libya's prolonged political crisis, and bring together warring factions.

Morocco's Exploration Extends in Gharb Basin Acreage

Morocco's Office National des Hydrocorbures et des Mines (ONHYM) has set a deadline in August for a tender of an acreage in the Gharb Centre area of the greater Gharb basin in the northern portion of the country, where exploration has increased since the early 2000s, Oil&Gas Journal reported. The tender includes 1,362 km2 of acreage, excluding three zones where ONHYM fields and infrastructure already exist. Throughout the last 15 years, 18 wells have been drilled in this area, allowing ONHYM to retain 1,620 km of 2D seismic and 527 km2 of 3D seismic, NXT Wire wrote.

Riyadh Approves National Transformation Plan

Saudi Arabia's National Transformation Plan (NTP), which outlines the key elements to shift the kingdom's economy away from its dependence on oil, was approved by the Saudi cabinet, The Wall Street Journal informed. The focus has been on the steps to partly privatize the state oil company, Aramco, which dominates the Saudi economy, by selling under 5% of the firm. According to The Daily Mail, the NTP 2020 aims to generate 450,000 non-government jobs, to cut the share of public wages in the budget to 40% over the next five years, and to boost the contribution of the private sector.

Japan to Switch to Coal

Coal is anticipated to outshine gas and become country's largest power generator within the next three years, as power utilities are replacing aging nuclear capacity with fossil fuel, according to Bloomberg.

Shifting its focus on coal, Japan is also interested in investing in Pakistan's Lakhra coal projects and the country will participate in the processes needed for coal production in order to meet its target goal and become more dependent on coal as the nation's biggest source of energy, The Express Tribune wrote.

According to Reuters, Prime Minister, Shinzo Abe's government pushes coal power, both at home and through exporting technology abroad, while some of Japan's powerful trading houses are cutting or freezing coal investments over concerns about the environmental fallout. Japanese trading houses, Mitsui & Co, plan to cut their investment exposure to coal by a third within three years, citing environmental concerns after the UN climate agreement in Paris in 2015. Japan's Sojitz announced it would follow suit.

Even with the greater reliance on coal, the country will likely meet its 2030 emission reduction target for the power sector due to a drop in power demand. Tokyo aims to reduce its emissions by 34% by 2030 – compared with the 2013 levels of emissions – by eliminating oil-fired generation and increasing clean energy.

However, the government's aim for zero-emission sources to account for 44% electricity generation in 2030 is unlikely to be attained without imposing new policies.

Before the 2011 Fukushima disaster, nuclear power accounted for approximately 29% of Japan's total energy production. By 2023, it will be responsible for no more than 13.6% of the country's total power, and by 2040, it is anticipated to fall down to just 1.2%, according to a report released by Bloomberg New Energy Finance.

BP: Oil Forms 32.9% of Global Energy Consumption

BP has released its 65th edition of the Statistical Review of World Energy revealing that in 2015 the global demand and supply of energy had advanced as the global consumption had slowed down and the mix of energy sources has been shifting towards lower-carbon fuels, reported Energy Voice.

According to BP's report, oil accounted for 32.9% of global energy consumption, thus remained the world's leading fuel and gained more market share for the first time since 1999. It was succeeded by coal that had a 29.2% market share, thus remained the world's second largest fuel and became the only fuel that lost global market in 2015. Natural gas represents a market share of 23.8% of primary energy consumption.

The report also contained data that proved that the emerging economies continued to dominate the growth in global energy consumption, however, the growth rate in these countries was estimated at 1.6%, well below its 10-year average rate, and currently these emerging economies accounted for 58.1% of global energy consumption.

Finally, the report mentioned that carbon emissions produced from energy consumption had only increased by 0.1% in 2015, aside from 2009's recession, this indicated the lowest growth rate in carbon emissions since 1992. Energy Voice wrote that this has occurred due to the shift away from coal usage.

TransCanada Wins Offshore Gas Deal in Mexico

TransCanada Corporation, one of the major North American energy companies, has been awarded a $2.1b contract, along with a Mexican joint-venture partner, Sempra Energy, to build and operate an 800 km offshore pipeline that will deliver natural gas from South Texas to northeastern Mexico, reported The Wall Street Journal.

The line will run under the Gulf of Mexico and will have the capacity to transport 2.6bcf/d of natural gas. It will also be supplying the power plants of the Mexican state electric utility Comisión Federal de Electricidad (CFE), under a 25-year service contract.

Fortune wrote that TransCanada will invest $1.3b in the project, thus own 60% of its stake, and become its operator. Sempra's unit IEnova will account for the remaining stake.

According to Financial Post, the project is set to be completed in 2018 and is estimated to double the Calgary-based midstream company's natural gas capacity in Mexico, where it currently owns and operates five smaller pipelines. The project is also anticipated to play an important role in shifting Mexico's electricity system away from fuel oil that currently generates more than 30% of Mexico's power.

TransCanada was one of the first private energy companies to invest in the Mexican market.

Sweden Bets on Nuclear Energy

The Swedish government coalition has reached a new agreement with the three opposition parties to continue developing nuclear energy, while at the same time committing to converting Sweden's energy production to 100% renewables by 2040, however, no deadlines were put for the phase out of nuclear energy, wrote Business Insider. The agreement promises better conditions for Sweden's nuclear power production: lower taxation, new facilities, and no expiration dates, thus aims to secure long-term energy supplies to the Swedish households and industries. According to Channel News Asia, Sweden currently has nine functional reactors at three nuclear power plants, which were responsible for 38% of the electricity used in the country in 2014.

Nigeria's Oil Firm Shuts Off Gas Pipeline

The Nigerian National Petroleum Corporation (NNPC) announced it had shut off a pipeline valve attacked by Niger Delta Avengers in Oruk Anam Local Government Area, Akwa Ibom State. The Nigerian state oil firm said the pipeline had to be closed in order to contain a gas leak caused by an explosion, Reuters reported. The Niger Delta Avengers has claimed responsibility for blowing up a pipeline owned by the Nigerian National Petroleum Corporation (NNPC), according to All Africa, citing community leaders' testimonies. The group has previously attacked pipelines and facilities operated by local subsidiaries of Shell, Chevron, and Eni. The militant attacks have slashed country's crude production to an almost 30-year low, according to the International Energy Agency.

Ghana to Import First LNG by 2017

Ghana expects to start importing liquefied natural gas (LNG) early next year, the acting CEO of Ghana National Petroleum Corporation (GNPC) said, Reuters reported. Ghana has two import terminal projects and GNPC is currently holding talks with Qatargas, BP, Shell, Woodside to reach an agreement. Norwegian shipping company Golar LNG has already supplied a floating terminal to the Atlantic coast port of Tema, but sources said there are logistical issues causing uncertainty over when it will start up. Imported LNG is to be regasified using a dedicated floating storage and regasification unit (FSRU) moored off shore.

UK Oil Sector to Lose 120,000 Jobs

The aftermath of the international downturn in the oil and gas industry in the UK is expected to lead to a total of 120,000 jobs lost by the end of 2016, according to BBC. Oil & Gas UK estimated 84,000 industry employees were laid off in 2015, with 40,000 losses expected this year. The UK's biggest oil companies, including Shell, BP, Talisman, Wood Group, and Schlumberger have been making drastic cutbacks. The companies were forced to slash their job number to save on the operation costs and to improve their weak balance sheets.

Venezuela's Orinoco Oil Belt Output Increased

The Venezuelan Minister of Petroleum and Mining, Eulogio del Pino, has declared that the daily production of crude oil from Orinoco Oil Belt has increased from 20,000 to 30,000 b/d, thus benefiting the whole region, wrote Prensa Latina.

Del Pino has also signed the agreements to revive an old oil refinery and other joint development plans with Aruba. Aruba will invest $450m to $650m to reactivate the oil refinery that has been idle since 2012 and the refinery is expected to process up to 209,000 b/d of Venezuelan extra-heavy crude into intermediate crude, according to AP.

The Venezuelan Minister, who is also the President of the state-run oil company Petroleos de Venezuela, stressed the importance of the refinery start-up following the increase in production capacities in the Oil Belt, which covers the states of Anzoategui, Monagas, Guarico, and Bolivar.

Aruba's oil refinery will allow reducing costs in the Oil Belt operations, and will contribute to logistical progress. The construction of similar facilities would require works during a minimum of four years, Del Pino said.

The Aruba oil refinery is the fifth facility that Petroleos de Venezuela operates in the Caribbean, along with others in Jamaica, the Dominican Republic, Curacao, and Cuba.

Japan Eyes New Oil Suppliers

Japanese oil companies are expanding their network of crude oil suppliers, becoming less dependent on the Middle East's imports, reported Nikkei Asian Review.

After the US had removed the 40-year ban on crude oil exports in late 2015, Japan's Cosmo Oil decided to buy crude from West Texas Intermediate (WTI) at low prices. General Manager of Cosmo Oil's crude and tanker department, Masashi Nakayama, said: "This was a fruit of our efforts to build a flexible purchase framework,"

In light of increased US shale output, Cosmo Oil added the Americas to its list of possible suppliers while starting to buy Mexico-produced crude. The prices are linked to that of WTI, meaning that a buyer can wait for an opportunity to purchase rather than being constrained by long-term contracts commonly used for Middle Eastern oil.

The company started buying Mexico-produced crude oil last May and it imported 300,000 barrels of WTI crude. This was the first time a Japanese company imported WTI oil rather than buying futures.

3.3% of Japan's oil procurement came from Central and South America in 2015, this figure is ten times the figures that were witnessed in 2010.

Nakayama also mentioned that Cosmo Oil now eyes Canada and Ecuador as next oil suppliers to Japan.

Iceland Turns Carbon Emissions to Stone

Iceland's Hellishiedi power plant became the first in the world to successfully convert its carbon emissions to stone, providing a new method for battling pollution and reducing global warming, according to Inhabitat.

CNBC explained that the process involves mixing carbon dioxide and hydrogen sulfide and injecting the mixture into undergrounds layers of basalt. Within months, the mixture is converted into rock-hard carbonate, safely storing the carbon and preventing it from entering the atmosphere.

The basalt rock is commonly found all over the world, therefore, this project has the potential to be scaled up and put into a wider global use.

One of the major drawbacks of the CarbFix process is that it requires a lot of water, from 15-25 tons of water for each ton of carbon. The process of pumping that amount of water will itself require much efforts and energy. This is the reason why the project is not ready to be implemented on an international scale yet. Further research and feasibility studies are required.

The scientists responsible for this accomplishment succeeded in the CarbFix project within only two years, instead of a much longer period as many believed before.

Sigurdur Gislason, a professor at the University of Iceland's Institute of Earth Sciences, said that "mineralizing is the safest way of storing CO2."

Kenya Steps Up Nuclear Plans

Kenya has intensified import of nuclear reactors as part of its plans to diversify the national power generation mix, African Latest News informed. Kenya had previously announced its ambition to set up a nuclear plant to stabilize national power supply by cutting reliance on expensive thermal energy and weather-dependent hydro power, reported All Africa. Nuclear reactors are among the common items that Kenya has ordered by sea, according to the data gathered in a trial run of the Electronic Cargo Tracking Notes (ECTNs).

Ukraine Rejects Russia's Gas Offer

Ukraine will likely turn down Russia's most recent offer of supplying the country with natural gas at a price of $177 per 1,000 cm in the third quarter of 2016, reported Reuters. Ukrainian state energy firm Naftogaz explained that it would have agreed to the new supply deal with Russia's Gazprom if the price was economically reasonable. Business Development Director of Naftogaz, Yuri Vitrenko, was quoted by Tass saying: "It means the price will actually be $182-183 when adjusted by the calorific value," which is below the market price." He added that the prices for gas in Europe have decreased to less than $173 per 1,000 cm.

BP to Pay $175m over Oil Spill

BP has agreed to pay $175m to settle claims that it deceived shareholders by underplaying the severity of the 2010 Gulf of Mexico oil spill. As the The Guardian wrote, the settlement, which is to be paid this year or in 2017, ends a legal battle that began when a Houston judge ruled investors who bought shares shortly after the explosion at its Deepwater Horizon rig could sue BP. Their claim was based on the allegation that BP publicly "low balled" the amount of oil flowing from its Macondo well into the Gulf of Mexico. The well spewed more than 3m barrels of oil into the Gulf of Mexico over 87 days.

Collaboration as a Game Changer

By Nataša Kubíková

At the time ENG. SALEM HASSAN ABDALLAH joined Suez Oil Company (SUCO) as its Chairman, the oil prices witnessed a major downfall, which "has become a serious problem for all the companies," as he said in an exclusive interview with Egypt Oil&-Gas.

It is no surprise that the global oil price environment hit the Egyptian oil and gas companies harshly and limited the scope of their operations. "All activities are reduced to the minimum and SUCO's budget in the GOS decreased by 10%," noted the chairman. This was visible especially in the operations related to the oil. Although the payments and investments in the gas exploration and production remain less affected, the pay-outs are still lower than before, according to Eng. Hassan.

SUCO, the company that has formed a joint venture entity with German RWE Dea, was no different to other players in the industry when the news hit the shore. "We have stopped the drilling, and until now we have not built a new oil rig," the chairman explained. Currently, SUCO is operating merely workover oil rigs with an average production cost of $22 per barrel.

In oil production from the company's mature fields, the chairman said, "SUCO is applying gas lift, water injection, and EOR technology" to boost the output, however, the drop in oil prices prevented several projects from being completed. Nonetheless, the company hopes to renew some of its recently terminated contracts, which "may result in launching new drilling rigs," as Eng. Hassan added.

The situation for SUCO is slightly different when it comes to the gas. Its chairman said that currently "the only rig we have [drilled] is for the gas, not for the oil." In addition, the company called for a tender for its gas reserves and "plans to drill a new gas well in June," as Eng. Hassan stressed. Drilling a second well is optional and depends on several financial and market factors.

In the current unfavorable environment, SUCO is determined to face difficulties with grace. "We are planning to meet the challenge of low oil prices by introducing cost savings and cost reduction," he noted. Yes, "our vision is to always use all our resources and potential to achieve our target economically, safely, and environmentally," and to achieve "responsible growth for the benefits of all employees, social [actors], and shareholders," Eng. Hassan added.

Success of the Disouq Gas Project

In the area of gas exploration and production, "the major achievement of SUCO in the last year is the Disouq Gas Project, currently producing 120 mscf/d," as the chairman said. "Our current production is further boosted with 50 mscf/d of gas produced from the Zeit Bayt field," revealed Eng. Hassan. He further described the details of the company's plans in the sector in the future.

SUCO is following its vision to complete the Phases B in the Disouq gas field. The company will lay new pipelines as a frontline to collect the produced gas from the fields. The first three wells of the field will then be connected to the pipeline grid by February 2016, with other two wells scheduled to be added in April 2017. Phase B of the Disouq project is scheduled to be completed by June 2017 with the last four wells coming online."The wells will not be connected at the same time because of a decline in production," he added, and "the total production from these wells will be about 100 mcf/d, as Eng. Hassan estimated.

In addition, the Disouq Central Treatment Plant (CTP), built in 2014, is currently "enough to handle our production side by side with rental processing facilities, although we started studying [the processes of] upgrading CTP in order to boost company's production capacity to 200 mcf/d, up from the current production of 120 mcf/d," according to the company's chairman. Even before that, SUCO plans to gradually increase its production from the Disouq field already by the end of this year with a projected "rise to the level of 150 mcf/d of gas."

As Eng. Hassan further noted, in terms of the gas projects, "we are still in the beginnings and our production will increase by the end of 2016 when we connect two wells to production."

Projecting New Opportunities

With ongoing production and existing facilities in the low oil price environment, "our situation is better than that of other companies," said Eng. Hassan, because "in SUCO we have a lot of opportunities."

According to the company's Head, "we have more than 20 wells waiting for a workover, from which we can gain 6,000 barrels of oil," however, investors are not willing to invest and instead they are waiting for prices to improve before these operations are realized.

This wait-and-see strategy shrinks possibilities to enhance SUCO's potential, it seems, as the company has many in-field wells and appraisal wells that are halted. Based on studies conducted by SUCO, "the remaining reserves in SUCO's fields are at the level of 54 million barrels of recoverable oil," emphasized the chairman, and "additional 50 million barrels of oil can be expected to be added to the overall output "

While the rationale behind decreased levels of operations is expected, there are some that may argue for further drilling investments even in the currently unfavorable price climate.

SUCO's Chairman argued from a comparative angle saying that according to standard operational calculations, "costs for drilling a well is between $1.5m to $3m with the production output of around 600 barrels or 1,000 barrels." This financial estimate suggests higher expenses and lower output. However, the case of SUCO is different. SUCO's fields may promise more. Eng. Hassan has calculated that investing "up to $1m in production activities [in company's fields] will contribute to extracting additional 3,000 barrels of oil a month," which will necessarily boost today's rates at relatively bearable costs.

The proposition, which SUCO has at its disposal, can work to the benefit of the JV if it was not for a lack of finances. "The funding is the only difficulty. The problem is the operating costs, not one of a technical character," said Eng. Hassan. As he further clarified, "these opportunities are coming from workover rigs." There seems to be a lack of evidence to support the currently adopted option, even in the given oil price context, which makes the company "wait for rigorous operations [to be undertaken] without a risk." Eng. Hassan thus made a case that instead a reversed strategy of opening up operations anew may come at hand despite involved risks.

Nevertheless, the issue of financing reaches further, beyond the framework of operations and performance conducted in a JV structure, and relates to the survival strategy of each and every Egyptian company. "If a [foreign] partner leaves, the [Egyptian] company needs to have the minimum operating costs budget [available to be able] to continue its operations. The same logic may apply if an international partner in a JV opts for a paused tactic in its investments in operations.

Alternative Forms of Activities

In the context of halted activities, companies may ponder many other ways out of this restrained situation. As the scope of operations is often dependent on investors' decision to conduct further exploration and drill new wells, the Egyptian companies may search for other activities instead.

As Eng. Hassan explained, "we have 1,800 employees in our fields, which is a high number, the only way for us is to open other activities with other companies to use employees' experience in new projects," he argued citing an example of companies that for instance pushed their operations abroad such as EMC. Another solution may be the example of another company, CORC, that internally allowed its employees to work for another one as service providers" to get a temporary benefit from people's qualifications, according to Eng. Hassan.

As for SUCO, its Head plans to apply these processes "internally through some experts who can train the employees."

Mutual Cooperation Approach

Under the burden of present challenges, mutual cooperation can open previously unthinkable room for enthusiasm. As SUCO Chairman put it, the companies should "sit together to try to find solutions and exchange experience related to these [financial and operational] problems."

One way to achieve this is through an action plan that would encourage companies "to open their available activities and operations to other players," he added. For instance, as he further elaborated," some companies can "offer their training centers to others in the market in order to expand the already existing potential and capacities" within the Egyptian oil and gas companies.

This mode of cooperation would be a significant game-changer for the sector, and Eng. Hassan has already become a pioneer in this respect. He has adopted a collaborative strategy fully, as he said: "I am working for the sector, not for a certain company." "When I know that one of our companies needs one of our people, and it will not affect us in SUCO, that person can go to another company to help out. If we send him to another company, we cover his job by other employees," openly shared the chairman, stressing that he is willing to do so, because "the other company is like my company." This shift of focus from individual companies to the interest of the entire sector advocates for joint actions in favor of long lasting achievements.

Similarly, this collaborative approach may be further beneficial in the area of material support. As SUCO transfers its equipment from Cairo to its other fields and platforms, the arrangement can be made with other companies as well. The chairman said that such "coordination can be made with different companies [in order] to help each other in transporting the equipments," that may further lift a part of the burden that the sector is currently facing.

A collaborative approach that Eng. Hassan promotes is based on a rationale that when one company suffers difficulties, the entire sector will be affected. Therefore, his proposition to find alternative ways to coordinate among companies bears the importance and promises success.

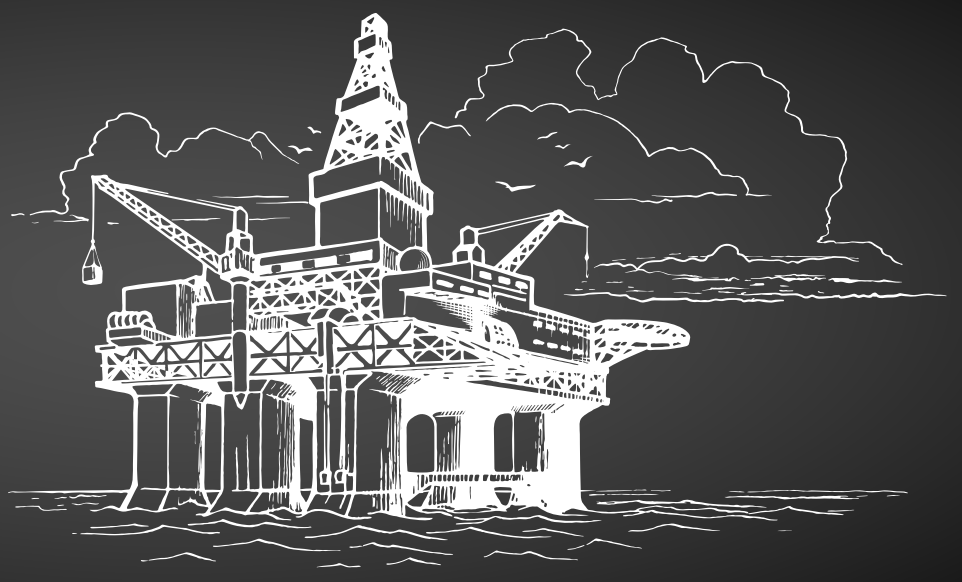
Currently, this way of collaboration is already in place in the area of human resources. "If a JV partner leaves the business, we [as the sector] have laborers that are redistributed," he added. SUCO is no exception to this practice scheme, and its chairman praises advantages of this arrangement for the entire sector.

Therefore, in a short term, this pro-active approach to mutual cooperation among companies in the sector may help to navigate all firms more easily through the current low oil price crisis. In a long run, it may help withstand the challenges, and more importantly preserve the professional capital within the domestic structures, as well as develop it further.

Therefore, Eng. Hassan is rather positive about the prospects. He has 31years of technical and management experience in the sector, previously working as a Field Manager at Petrobel in offshore and onshore fields and as the Former Chairman of Petrozeit. This allows him to strategize through the climate and point out many new opportunities that were not yet fully explored in the industry.

UPSTREAM Sector's Strategy for SURVIVAL

By Basma Mostafa



The entire oil and gas industry was shaken to the core, when oil prices began tumbling in mid 2014 after trading above $100 a barrel, but it was the upstream sector that bore the brunt of the dramatic price drop worst.

The profit margin of downstream companies was likely to remain unaffected; however, oil and gas companies that focus on exploration and production, that is, upstream companies, have faced significant financial distress. Adding insult to injury, production costs did not mirror the decline on the prices of crude oil.

Production Costs vs. Oil Prices

The costs of drilling new wells have been declining all over the world, yet oil prices have been spiraling downwards faster than costs could have kept up with.

The increasing gap between costs and crude price refuted the popular argument that prices could not fall because production costs are high, according to an analysis published by VOX, the Center for Economic and Policy Research (CEPR) portal. Nonetheless, the report stated that upstream costs in fact follow oil prices, however, with a time lag. "A sustained 10% decrease in the price of oil leads to a decrease in upstream activity of about 4%, and in this way triggers a sustained 3% decrease in global upstream costs after a lag of one to two years," the analysis calculated.

It is reasonable to expect that companies operating in the upstream sector would consistently work towards reducing high production costs to ensure profitability or, in some cases, a mere survival. Although the industry has been adjusting to the lower price environment by cutting production costs in the past few years, it is still expected that nearly "50% of oil production from future developments is [going to be] uneconomic at $60 per barrel, [because] the sustainable price of oil is above $70 per barrel in the longer term," according to the energy consultancy, Wood Mackenzie, as quoted by BBC in February 2016.

Regardless of the price environment, in many countries, the cost of extracting oil is much higher than what crude is sold for. For instance, in the United Kingdom, the cost of producing a barrel of oil was $52.50 in November 2015, whereas it was sold for $42 per barrel at that time.

Many exploration & production (E&P) companies operating in high-cost countries were marking significant losses, which pushed them to adopt a range of cutbacks to ensure their survival.

Debts, bankruptcies

The situation became more challenging with the price drop as debts of upstream companies were rising and bankruptcy posed a serious threat.

The net debt of US oil and gas E&Ps jumped from $81 billion in 2010 to $169 billion by the first half of 2015, the main reason for that being the sharp fall in crude oil prices, according to an analysis published by The Market Realist in late 2015.

Since the decline began in mid 2014 through to the end of 2015, at least 67 oil and gas companies in the US filed for bankruptcy, which was a 379% rise, according to a news report by CNN Money published in early 2016. Further, on a global scale, almost 35% of companies operating solely in the E&P sector were at "high risk" of going bankrupt in 2016, according to Deloitte's data published by CNBC in February 2016.

Upstream companies that wanted to keep their heads above the water level did not have a pool of options in front of them. At the end, they had to either make adjustments or risk going out of business.

Layoffs and Cost Reduction

Cost reduction attempts could have been spotted throughout the sector in the past couple of years, most visibly through layoffs. The Market Realist wrote that around 250,000 jobs were lost as a result of the turbulence in energy markets. In 2015, Royal Dutch Shell ended up cutting 10,000 as its annual profits declined, according to a report published by BBC. Similarly, BP laid off 4,000 employees in 2015, and again this year announced a further 4,000 job cuts, all at the companies' E&P divisions. Total and Exxon Mobil have also followed suit and thousands of employees have been laid off.

While the sector as a whole is facing one of the most profound challenges in the industry's history, The Wall Street Journal wrote that the situation is far worse for smaller independent oil and gas producers.

Delaying Investments

In addition to reducing costs through layoffs, almost all major independent oil and gas companies have delayed their investment decisions on a number of large projects in 2015, according to Wood Mackenzie, as quoted by the VOX report. Investment in the upstream oil and gas sector fell by about 20% for the first time in seven years, according to the International Energy Agency (IEA).

The adopted strategy goes in line with the assessment that "the way upstream companies can attempt to rebound from the sharp decline in crude oil prices - or at least to make their financial reports look better - is by cutting back on new exploration. Over the long term, this cannot improve profitability, but it can make the situation look better," Gail Tverberg, a Fellow of the Casualty Actuarial Society and a Member of the American Academy of Actuaries, told Egypt Oil&Gas.

"The easiest way to keep cash flow positive - or not too negative - is by cutting back on new exploration and production business. Thus, this part of the business is being cut back more than projects which are already under development," Tverberg explained.

Using up Reserves

This inevitably let to the situation in which energy companies have been using up their petroleum reserves faster than they were able to replace them.

In 2015, seven biggest publicly traded Western energy companies, including Exxon Mobil and Royal Dutch Shell, were able to replace only 75% of the oil and natural gas they pumped, according to a Wall Street Journal analysis of the two companies' data. Before the plunge in oil prices, dwindling reserves could have caused panic for investors and companies' executives. But today, the situation is different, even though not necessarily more optimistic.

Many oil and gas companies have no choice but to cut spending wherever they can, and exploratory drilling and investments in new projects are sacrificed in favor of maintaining profits at their maximum.

As The Wall Street Journal reported, "when the house is burning you are not worrying if you need to paint the outside," said Christopher Wheaton, a Fund Manager at Allianz Global Investors, which holds stocks in several of the largest oil companies including Shell, Total, and BP. As he added, "it is crisis management at the moment."

Good Operational Losses

Investments have shrunken E&P activities, but these operations are paradoxically exactly what the industry needs in order for oil prices to bounce back.

Oil markets thus remain in a predicament also due to the fact that even though some upstream companies are cutting costs and reducing production, global crude supply still outstrips demand. The explanation for this is that there are still many oil producers that are reluctant to reduce their production or shut down part of their businesses. This is an occurring phenomenon that has not been alleviated even if it brings lower profits.

"Curtailed budgets have slowed investment which will reduce future volumes [of production], but there is little evidence of production shut-ins for economic reasons," Robert Plummer, VP of Investment Research at Wood Mackenzie told Reuters in an interview.

According to a report Oil Prices: Production Shut-ins and the Cost Curve published by Wood Mackenzie in 2016, at the Brent oil price of $35 per barrel, companies have recorded losses equal to oil

"A sustained 10% decrease in the price of oil leads to a decrease in upstream activity of about 4%, and in this way triggers a sustained 3% decrease in global upstream costs after a lag of one to two years."

Center for Economic and Policy Research (CEPR)

"50% of oil production from future developments is [going to be] uneconomic at $60 per barrel, the sustainable price of oil is above $70 per barrel in the longer term." *Wood Mackenzie*

"The way upstream companies can attempt to rebound from the sharp decline in crude oil prices - or at least to make their financial reports look better - is by cutting back on new exploration."
Gail Tverberg, American Academy of Actuaries Fellow

production levels of 3.4mb/d, which is an equivalent of about 3.5% of global oil production.
It may seem that upstream companies are shooting themselves in the foot by not cutting back production, but they do have their own rationale. Shutting down comes at a high cost as restarting could be more difficult and require even more financial resources than temporary lower profit businesses achieve. Furthermore, shutting down certain oil fields could permanently damage reservoirs. This explains why many companies opt for continuing with production, even if they will end up operating at a loss. As Robert Plummer explained, "given the cost of restarting production, many producers will continue to take the loss in the hope of a rebound in prices."
This reluctance to halt production, however, further complicates the situation and delays the eagerly anticipated recovery of oil prices.

What the Future Holds

In such a volatile industry, it is very difficult to predict in which direction oil prices may move or what the future may bring. Although prices have recently bounced back to the $50 per barrel benchmark after hitting a low of $26.21 in early February 2016, it is still believed that it will take years for the price of oil to return to what was considered the standard over the last decade i.e. the $90 or $100 per barrel range, according to an article Oil Price Explained: Sings of a Modest Revival, published by The New York Times in May 2016.
It is important to note that, regardless of market fluctuations, the future of the upstream sector differs from one company to another. Major integrated companies will likely make it through the difficulties, probably unscathed, as a report Resilience in a Time of Volatility: Oil Prices and the Energy Industry published 2015 by the professional services firm, EY, previously known as Ernst & Young indicated.
Furthermore, new prices of oil can create an opportunity for the large players in the industry, an opportunity to pursue affordable acquisitions, and to strengthen their positions in the global market.
On the other hand, smaller independent companies with fewer resources to spare, especially those that are highly leveraged or insufficiently hedged, are more prone to face a struggle for survival; even more so if oil prices stay low for a long time. In this way, small companies may easily find themselves juggling bankruptcies.
In this alarming, yet still a viable scenario, larger companies, in search of a good bargain, may acquire their distressed assets at a lower price and initiative overtaking the remaining market shares.
The report on industry perspectives titled - 2015 Oil and Gas Trends – published by PwC's Strategy& goes on to confirm that only if companies manage to consolidate their strong assets will they be able to survive and thrive in today's challenging energy environment. Therefore, according to recommendations, companies need to cautiously evaluate their portfolios. Each field should be assessed to ensure it is a good fit for companies' strengths, skill sets, and customer demographics.
Unlike before the sharp decline in oil prices, when companies enjoyed a period of high growth and rapid extension, in today's global market, characterized by oversupply, companies need to redirect their main focus.
In addition to minimizing costs of operations, the companies may seek to maintain their investments at a rate that would ensure steady production, according to the PWC's Strategy& analysis. It would be a grave mistake for E&P companies to solely focus on cost reduction, as, in the oil and gas industry, this may easily project a rather short-sighted strategy.

UPSTREAM ACTIVITY AND CURRENT CHALLENGES

ENG. HANY SHAKER HASHEM, Assistant General Manager for Feasibility Studies & Projects Evaluation, Egyptian General Petroleum Corporation

The purpose of the upstream activities is to maximize the oil rent, which is the difference between crude oil price and the technical cost. The technical cost is the sum of the exploration, development, and production costs. Depending on the nature of the reservoir, the technical cost can vary between $20 and $80 per barrel. This cost must be carefully controlled to maintain the profitability of the business. Using more new technologies, optimizing costs, and formulating standards of equipments and processes, are very helpful actions towards total cost reduction.
Significant investments in exploration, technology, research, and development will be needed to transform all different reserves into producing reservoirs. Therefore, the amount of available finances will be closely dependent on the oil and gas prices and the existing type of fiscal regime.
Unconventional and mature fields have challenging economics. Therefore identifying difficulties and creating effective opportunities for oil delivery from subsurface to sale points will help boost overall exploration and production. Developing unconventional and mature fields requires new techniques, secondary and tertiary recovery tools. By reducing barrel operating costs and capital costs, economic continuity of these fields can be secured.
In addition, attractive and profitable agreements for exploring and developing such fields will be the gate to building mutual trust and profitable investment environment between stakeholders and decision makers.
Therefore, major partners in the upstream oil business, National Oil Companies (NOC), International Oil Companies (IOC) and service companies, should participate and collaborate in order to overcome all the challenges that exist in the upstream phase and minimize the negative impact.
For NOCs, it is the right time to re-assess and modify the current terms of agreements or even transform into a new fiscal regime. In this way, NOCs should be able to cope with new challenges quickly and improve or modify the current agreements by adding some incentives in order to help and encourage IOCs to carry on in the exploration and development of oil fields.
Some of these incentives may include for example:

- Accelerating the recovery of the capital cost by increasing the pool of recovery (Cost Recovery Limit) or by decreasing the years of recovery to minimize the investors payback time.
- Increasing the share in the profit to improve economic indicators for investors such as Net Present Value, Internal Rate of Return, and Profitability index.
- Adding Gas clause to the agreement and raising the floor of gas price that relates to the oil price to improve the feasibility of the gas projects.

In addition, IOCs should spend more efforts in Research and Development fields (R&D) and encourage the initiative of engineers to present new ideas that save time and reduce the capital and operations cost.
Further, service companies should show some flexibility in negotiating the current contracts and pay more attention to R&D.
This joint contributing approach will help support exploration, development of unconventional and mature fields, which will eventually lead to securing economic continuity and increasing investments in upstream businesses.

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Perplexities of Ditching Offshore Projects

By Salma Essam

Offshore drilling has been full of booms, busts, baulks, and boondoggles. Along with onshore exploration, countries of the Middle East, Africa, North America, and Asia have resorted to drilling in deep waters to boost oil production and to meet domestic as well as international demands. As these projects expand, the unlocking of the offshore fields potential presents different challenges. Investors are, however, continuously exerting efforts to overcome those, despite everything, as offshore drilling has by now become unavoidable from both the economic and energy sustainability perspectives.

Offshore Geopolitics

The reasons for international oil companies (IOCs), national oil companies (NOCs), and joint venture companies (JVs) to continue in offshore exploration and production are primarily of geopolitical and economic character.

Many countries mull different options for drilling offshore regardless of the existing amount of crude oil glut in the global market as they need to maintain energy resources replacing the depleted ones, expand energy export capacities, and thus secure their regular inflow of income and thus preserve their geopolitical roles.

Oil Market Competition

In this equation, market competition is a major factor that guides the sector's dynamics. Most recently, Iran has sparked an unprecedented market competition by boosting the amount of produced oil following the lifting of economic sanctions. The Islamic Republic, which has rejected a recent oil freeze plan and expressed determination to regain its prior position in the markets, has increased its exports to the European market at a level of 970,000 b/d. Tehran is exerting efforts to thrust its total production, and to attract foreign companies to invest in its territory, as Iranian Deputy Oil Minister, Rokneddin Javadi, told Reuters: "We welcome all oil companies, including the Americans that meet Islamic Republic's requirements to invest in Iran. We welcome competition among foreign oil companies."

In contrast, Gulf States stay at risk of losing their leverage in the global oil market due to Tehran's assertively pursued ambitions. They are, therefore, eager to protect their assets. Despite the fall in oil prices and suggestions raised by some OPEC members to freeze oil output, countries of the Gulf Cooperation Council (GCC) remain reluctant to take such a decision. They are instead trying to keep pace with Iran's rising oil production. Saudi Arabia is clearly defending its position, as country's new Oil Minister, Khalid El Falih, told The Guardian: "We remain committed to maintaining our role in international energy markets and strengthening our position as the world's most reliable supplier of energy."

High Offshore Revenues

High offshore revenue is another incentive for continuing drilling in deep waters, especially for countries whose economies are dependent on the petrol sector. In the case of the US, for instance, annual federal proceeds from offshore leases have ranged up as high as $18 billion in recent years, second only to income taxes as a revenue source, The Wall Street Journal wrote in a 2013 analysis discussing the continuation of offshore drilling in the country.

Similarly, the Kingdom of Saudi Arabia, whose petrol sector accounts for roughly 87% of budget revenues and 90% of export earnings, according to the Central Intelligence Agency factbook, is most likely to continue drilling offshore for the same reasons. It is for the fact that Riyadh owns the world's largest offshore oil field, Safaniya, which contributes with around 1.2mb/d of crude oil production to a total amount of Aramco's production at 10.2mb/d, as Saudi Aramco's key facts and figures show. Therefore, given the scope of offshore contribution to the overall revenues, it is unthinkable for the country to ponder stopping offshore production, if it is to avoid slashing national income at a

harmful level.

Onshore Maturity

Furthermore, offshore drilling is believed to be irreplaceable simply because onshore exploration and production activities are seeing more and more constraints due to depleted mature fields, whereas energy demand is still increasing.

Oxford Business group's analysis has shown that for instance the UAE's onshore oil fields are reaching their maturity, yet the Gulf state needs to raise its total oil production to 3.5mb/d. Indeed, this necessarily means that the government will have to allow offshore drilling to play a bigger role in the country's energy scheme, a scenario that many other states in the region may need to seriously consider as well.

Oil Prices

Global oil prices dynamic is undoubtedly another key factor ruling over the offshore sector of the industry. The mathematics is quite straight forward. While the demand for offshore drilling contracts increases when oil prices are expected to rise, contracts demand falls at times of low oil prices.

The statistics prove that as companies have been reducing their spending in the past two years with the oil price drop from above $100 per barrel in June 2014 to merely $60 in April 2015, the number of rigs and daily expenditure of the companies have significantly fallen, primarily due to this oil price shake-up. The world's rig count dropped to below 2,500 in April 2015, which is considerably lower than the 3,500 rigs drilled in June 2014, according to the calculations by NYM, ICE, and Baker Hughes, cited in the Market Realist's comprehensive study – Offshore Drilling Unveiled.

As it seems, low oil prices shrink investments as drillers fear that the revenues may not cover the money spent on financially demanding technological solutions such as huge vessels, salaries of workers, and the large scope of other related operational activities. Halting drilling projects until the market prices are stabilized, therefore, may seem to be a viable option for many IOCs, especially for smaller companies. On the other hand, international oil giants may choose a different path. In fact, as the demand for offshore drilling contracts is strongly driven by huge capital budgets, the opportunities seem to rest in the hands of large companies like British Petroleum, Exxon Mobil, and Royal Dutch Shell, as the Market Realist stated.

The question therefore remains if these limitations in capital, oil prices, and other present challenges may reverse the exponentially increasing trend in offshore drilling globally in the foreseeable future.

Offshore Drilling Challenges

In addition, there are other obstacles that pose a threat to drilling offshore. These are inextricably linked to water complexities defined by pressure, temperature, and other physical properties of deep waters. High costs of operations are also to be considered. The offshore sector is, however, eager to resolve these impediments.

Water Depth

Depth-related issues of extracting oil represent major hurdles for engineers and drilling units designers, who are to analyze geophysical properties and types of rocks on the sea beds as primary steps to launch drilling activities. Furthermore, as operations extend deeper, seismic data interpretation becomes more difficult, because in larger depths, reservoir properties cannot be easily controlled, an oilfield review by Schlumberger – Beyond Deep, The Challenges of Ultra Deep Water, stated.

Water temperature in ultra-deep seas and oceans pose another challenge, because the deeper the drilling is, the higher the water temperature reaches. As a result, the materials used in the drilling processes weaken and engineers are forced to search for sturdier and more expensive exploration devices.

Even though the pressure of the deep water can be controlled by ensuring that the pressure of the drilling fluid in the wellbore is sufficient to counteract the pressure in the oil reservoir itself, in some situations, uncontrolled over-pressure can cause the oil to enter the wellbore. This may cause serious blowouts. Dr. Bob Bea, a former Executive Officer at Shell, who is now an engineering professor at the University of California, Berkeley, told The Dallas Morning News that stopping a blowout at 10,000 ft is a fantasy because of the brutal conditions in the fields determined by pressure, temperature, and inaccessibility. He further noted that "the difficulty is an exponential function of the depth of the water."

Deep water operators also struggle with the technical issues related to the weight of the hanging drill pipes and the extensive length of riser pipes, which are needed to connect the wellhead to the rig. According to an analytical article Challenges of Deep Water Drilling published by Offshore Technology, deep-water drilling requires long, thick, and heavy pipes to withstand the necessary pumping pressures and motor torques, therefore, requirements for more efficient, and also more expensive materials for undersea exploration further increase the burden on offshore exploration and production companies.

High Operation Costs

High costs of offshore operations, especially amid the fall of oil prices, expose oil and gas firms to further complications. Deep water drilling requires technologies that can function in severe environments and physically complex areas. Exploration in water depth that exceeds 1,500 ft can be performed only with expensive, remotely operated underwater vehicles (ROVs) equipped for deep water conditions. The costs skyrocket even further in areas such as the Barents Sea, where the environment is subject to harsh freezing conditions, as Wilson Center informed in a report on Opportunities and Challenges for Arctic Oil and Gas Development. Heavy expensive structures and tailored technologies are used to extract oil in the extreme weather conditions. But high costs of offshore drilling apply to all reservoirs the world over, not only to those in extreme climate.

Costs are further rising due to the fact that offshore drilling is dependent on a large number of hired personnel that is to undertake costly training program and in return also demands high allowances.

In a study titled Oil Service Contracts dealing with incentive schemes in the drilling sector in Norway, co-authored by P. Osmundsen, T. Sorenes, and A. Toft, and published in the Journal of Petroleum Science and Engineering, University of Stavanger, the authors explained that "through the contract and tendering system, the oil companies seek to attract competent contractors at competitive rates and to achieve good quality and commitment within the framework of a contract. Incentives and bonus systems cannot simply just secure a higher commitment, but must in addition obtain a favorable allocation of personnel and hardware."

tional EOR methods, in order to boost output from subsea fields.

This and many other challenges may further lead some offshore companies to opt for pausing or withdrawing their operations in the deep waters and some countries to seek for alternative solutions. However, despite these complex issues, others seem to have come to an understanding that, in fact, offshore drilling is inevitable, even given the global energy output imbalance.

A Salient Sector

Going beyond offshore geopolitics, it appears that in overall statistics, offshore drilling projects have been continuously mounting, and countries are even now more willing to pour larger investments into the sector. This stems from the fact that the world possesses high proven offshore reserves valued at 280 billion barrels.

A study - Global Trends in Oil and Gas Markets to 2025 - published by Lukoil estimates that by 2020, 62% of new global oil production will come from offshore, and will generate $65 billion. The generated revenues are likely linked to the fact that the global offshore drilling rigs market value is expected to reach $102,473 million by 2019, growing at a compound annual growth rate (CAGR) of 9.27% from 2014 to 2019, as a research on Offshore Drilling Rigs Market conducted by Markets and Markets demonstrated.

"We remain committed to maintaining our role in international energy markets and strengthening our position as the world's most reliable supplier of energy."

Khalid El Falih, Saudi Arabia's Oil Minister

"In the Middle East, the operating companies are producing oil and gas at the lowest prices in the world and have decided to continue with longer-term investments."

Roberto Penno, Amec's Head of Southern Europe, Africa, the Middle East and Asia

As it seems, these difficulties are not easily avoidable.

Shallow Reservoirs

An option to focus on shallow waters reservoirs may seem attractive. However, drilling in shallow reservoirs proves to be as challenging as ultra-deep waters exploration, according to a research paper named Challenges of Drilling Horizontal Wells in Shallow Viscous Oil Formations published by the Society of Petroleum Engineers.

According to the study, in 2011, Baker Hughes faced a direct challenge in Kuwait's shallow waters as it had to drill horizontal medium radius wells in extremely soft formations using vertical rigs. These horizontal wells required a kick off from a 150 ft measure depth (MD) in the loose sand formation of shallow viscous oil formations. It has become evident that exploration in low pay thickness areas needs innovative approaches, other than the conven-

Large revenues are not related merely to deep water drilling, but include also shelf reservoirs. Currently, shelf production amounts to 30% of the global oil output, reveals the above-cited Lukoil study, where about 27% of shelf production is currently at a depth of 300 meters. With time, this share is set to grow, according to the estimates.

It can, therefore, be expected that investments in offshore drilling will appear more attractive.

Investments

The Middle Eastern region is perceived prone to enthusiastically boost investments in the offshore sector. As Amec's Head of Southern Europe, Africa, the Middle East and Asia, Roberto Penno, put it in a statement quoted by The

National, in the Middle East market, "the operating companies are producing oil and gas at the lowest prices in the world and have decided to continue with longer-term investments, when in other parts of the world investments have been stopped." Several major investments in offshore drilling have already followed suit.

The UAE is to witness more than $25 billion in investments in offshore production in the next five years. Currently, the Abu Dhabi Marine Operating Company (ADMA-OPCO), a subsidiary of ADNOC, is operating two of the world's largest offshore oil field - Umm Shaif and Lower Zakum west field, with a production level of 120,000 b/d and 345,000 b/d, respectively. Yet, further financial inputs are needed for the country to meet its energy demands and related challenges.

Efforts to boost investments in offshore drilling revolve around elaborated plans to develop the second largest offshore field, Upper Zakum, located approximately 84km off the north-west of Abu Dhabi islands' coasts. At present, production in the Upper Zakum offshore field project, developed by Zakum Development Company (ZADCO) and managed by Amec Foster Wheeler, amounts at 500,000 b/d from the country's total amount of production at 3.09mb/d. There are determined plans to increase output from the field to the level of 750,000 b/d in the near future, as cited by Offshore Technology, for which massive investments are needed.

The UAE is also taking huge steps towards offshore explorations facilitated and enhanced by technology, in efforts to meet its capacity targets. According to the Khaleej Times, it is estimated that the offshore reserves will account for approximately 50% of total oil production in Abu Dhabi by 2018, as a result of these investments.

Similarly, in Iran, a total investment of $762.5 billion has been made for drilling wells of Phase 14 at the South Pars gas field to be operated by the Iranian Offshore Engineering and Construction Company (IOEC) in mid June 2016. Phase 14 is to produce 56.5mcm/d of sour gas, 75,000 b/d of gas condensate, 1 million tons a year of liquefied gas, 1 million tons a year of ethane, and 400 tons a day of sulfur, according to the Iranian news agency, Shana.

Cost Efficiency

A decisive factor that may help materialize ambitious investments plans is that drilling operations have become cost-effective thanks to the increasing technological advancements in offshore equipment used in the recent discoveries in remote areas, as the above-cited study Offshore Drilling Rigs Market compiled by Markets and Markets revealed.

The UAE owned company, ADNOC, has recently developed a new offshore technology called 'technology qualification process,' which is utilized to assess the maturity of offshore fields and measure inherent risks associated with new technology being applied there. President of DMG Global Energy, Christopher Hudson, underpinned the impact of technology on offshore exploration at the Abu Dhabi International Petroleum Conference (ADIPEC) saying that "with about one-third of the world's oil supplies coming from offshore wells, technology and innovation will continue to play a pivotal role in driving efficiency and best practice in the offshore sector."

Similarly, demand for offshore oil services that promise a cost efficient approach has also markedly increased with new deals being signed such as the one between Saudi Aramco and Lamprell, a corporation specialized in the oil rig construction business to develop Ras El Khair maritime yard in the eastern part of the country.

Smart Projections

Estimated rise in the volume of offshore reserves guides many involved players in boosting investments in the exploitation of oil and gas in deep waters from the energy, economic, and geopolitical standpoints. However, there are several other risks related to offshore drilling that remain to be addressed with an enormous urgency.

The negative impact of deep-water drilling on the environment requires our intensive attention, most alarmingly in relation the recent global climate change obligations as defined by the Paris Agreement (COP21). While this poses large restrictions on the companies to invest in offshore drilling with additional commitments in mind, it cannot be a recipe for cutting drilling in deep waters altogether, or ignoring the necessity for preserving the environment.

Instead, new offshore technologies, that would eliminate the environmental risks at a fast pace, alleviate economic burden, and help mitigate other obstacles, should become a part of a smart investment rationale, necessarily with long-term projections.

"With about one-third of the world's oil supplies coming from offshore wells, technology and innovation will continue to play a pivotal role in driving efficiency and best practice in the offshore sector."

Christopher Hudson, President of DMG Global Energy

HOW TO COME OUT A WINNER OF A TROUBLING OIL MARKET

Eng. Shaheen Shaheen, IPR Vice President

Nowadays $50-price for Brent is reasonable, however, it is still not attractive or encouraging for the investors to develop existing oil fields and dig for new discoveries.

As the cost of crude oil contributes to approximately two-third of the cost of a gallon of gasoline in the US, President Obama in his last State of the Union speech took credit for the low gasoline prices which were as low as $1.9 a gallon in some states, compared to almost $4 a gallon in mid 2011, when the oil price was $115. At that time, in January 2016, the oil market price was as low as $27, the lowest since 2009 when the price plunged from $144 to $31 after the financial crisis.

Last year, the growing difference between oil production and market demand kept rising until it reached a peak surplus of 2.3mb/d (2.5% above the world oil consumption). The production worldwide exceeded 96mb/d in Q2 of 2015, which within six months caused an oil market price drop by almost 50%.

As a direct effect of the low oil price, drilling activities have been rescheduled to cut cost. On the other hand, at such time of an aggressive cost cut, freezing of drilling activities, and stopping of major projects, the cost of petroleum services in Egypt drastically reduced by 25-40%. For example, the regular well cost dropped from $2.5m down to only $1m.

We have to make use of this opportunity to complete our development plans and increase production to make up for the low costs. However, due to the associated risk with the exploration activities, the percentage of adding new reserves has been stalled. Accordingly, the "reserve certificate" of companies has suffered as a result.

The majority of companies stopped drilling exploratory wells. They are not willing to take risks now. How to make up for the decreasing booked reserves, which are published in the "reserve certificate" figure, while not take risks?

The solution is to increase the recovery factor (RF) from existing fields. Almost 70% of oil production in Egypt comes from mature fields, which can be developed with modern enhanced oil recovery (EOR) methods, which require huge investments. The average RF in Egypt is 34%, which is not bad but can be a lot better by applying modern EOR.

In order to increase the RF and make EOR projects economically viable, Egypt's oil sector is to undertake legislation reviews and introduce new concession agreement models with better terms and conditions for the production sharing agreement (PSA), profit oil, excess distribution, and reviewing gas price as well. A flexible, non-fixed percentage is the way to go.

Even for the current agreements, legislative amendments may help convert current marginal fields into attractive projects. Because how can it make sense to stick to fixed terms and conditions that date back to several decades ago? These actions will definitely result in a revenue boost for both the government and the investor, satisfying all players.

Midor & Tharwa United in People Development

By Nataša Kubíková

Cost reductions in the oil sector seem to hit hardest human resources (HR) departments. In Egypt, this practice is argued by many to be detrimental to the companies themselves. Others point out that this approach may undermine economic prospects of the entire country as the oil and gas sector is strategic for Egypt and forms a core pillar of its future development.

In response to the recent call for cost reduction in training schemes, announced by the Egyptian Ministry of Petroleum and Mineral Resources, two oil companies, Middle East Oil Refinery (Midor) and Tharwa Petroleum Company, decided to alter parameters of this arrangement. Midor and Tharwa jointly reached a conclusion that in spite of the current economic dynamics, which is greatly discouraging many oil companies from investments in people development, they will revisit the existing leadership development structures.

The two companies embarked upon a massive scale assessment and strategic planning to address the problem and find solutions. They chose to gather their existing resources and amend the training scheme in order to reduce their training budgets, while at the same time secure the continuation of people development program. These steps were taken under the leadership of Dr. Hanan Abd El Moniem, HR Executive General Manager at Midor, who is a certified trainer educated through multiple schemes abroad. Tharwa's Training Manager, Rania Helmy, and two Training Section Heads, Sara El Gamal and Dalia Tawheed, also reviewed their internal training plans. Having assessed company's extensive facilities, Tharwa offered to host joint education sessions for the entire period of the program duration, in addition to the available professional environment, Tharwa has provided logistical management and facilitation. These coordinated measures made it possible for the joint Midor-Tharwa team to apply all envisioned methods in people development program for the benefit of their employees and companies' output.

As Dr. Abd El Moniem and Rania Helmy confirmed, this would not have been possible to realize on a full scale if it was not for the support, enthusiasm, experience, and encouragement that Midor's Chairman and Managing Director, Dr. Mohamed Abdel Aziz, and Tharwa's Chairman and Managing Director, Geol. Adel Mohamed, provided them with.

The two companies thus created an internal, complex Integrated Management Development Program (IMDP) as a high quality education platform that promises significant cost reductions. IMDP cuts across different professional levels, addresses top, middle, and low management employees, seeking to improve people's performance, increasing company's profit, and securing sustainability in volatile periods. It has undoubtedly generated extensive benefits for both companies, as the two HR leaders told Egypt Oil&Gas, adding that this pioneering project was enabled thanks to Dr. Abd El Moniem's broad experience from Egypt and abroad, as well as her unique capability to "think out of the box."

Loyalties Overruning Qualifications

Based on the assessments, Dr. Abd El Moniem identified the scope of deficiencies in HR in the petroleum sector in Egypt. She has observed that there has been no significant modification to the promotion schemes for several decades. Performance efficiency and result oriented evaluation of employees were not the key parameters for selecting suitable managers to run different segments of oil companies. Until now a selection of many oil companies' management posts are based on loyalties as in the number of served years rather than on qualifications. Dr. Abd El Moniem concluded that there is an urgent need to address this issue.

Another problem appeared to be that oil companies' budgets for training was relatively low to satisfy the needs of educating low, middle, and top level management employees in key decision-making tasks. This made it almost impossible for companies to develop relevant skills of their employees, and secure themselves with a pool of qualified representatives, as Sara El Gammal, Training Section Head at Tharwa Petroleum Company noted.

In the case of Midor and Tharwa specifically, appointed managers were fully competent, unlike the routine practices suggest, yet "a lack of skills, knowledge of new techniques, and modern tools was noticeable," added El Gammal.

The outlined IMDP thus aspires to build upon current capabilities of companies' managers and department leaders to expand their repertoire of managerial techniques for them to be able to take over responsibilities as future leaders.

Two Key Modules

The program as designed by Dr. Abd El Moniem has a broad strategic potential. All employees in the middle and top-level management posts are to undergo specifically tailored training scheme entitled 'Leaders for Tomorrow.' The key aim is not only to help expand capacities of current managers and their deputies, but in fact to build up a roster of promising candidates who will be well equipped to take over key positions in the oil companies in the near and far future. The scheme consists of ten modules with different sets of courses, and the most relevant are Strategic Planning, Change Management, and Crisis Management.

The program further develops another set of modules dedicated to young generation of employees. 'Young today, Boss tomorrow' is a platform that attracts new generation of graduates to join oil companies, while guaranteeing their prospects within the companies' hierarchies. The scheme outlines a clear path for their

"If we are moving away from the idea of having a single leader in a company to an idea of having a group of leaders managing different divisions, there will be better performance and more effective and efficient decisions."

Amr Helmi Sallam, Deputy General Manager and Business Development Manager at Team Misr.

professional development that will give them a valuable opportunity to progress.

The complexity of the IMDP is unprecedented in Egypt, according to Dr. Abd El Moniem. It is planned with a clear vision, and elaborated strategy, and implemented through modern methodology.

In addition, the program targets other employees through cross-disciplinary training courses such as knowledge of the legal framework in Egypt, work ethics, communication strategies, and others.

As Dr. Abd El Moniem confidently noted, "we are planning to conduct 121 courses in different modules in 2016 alone divided per month, while each course takes between three to five days." Sara El Gammal added that as of April 2016, Midor and Tharwa conducted more than seven courses within and without the key modules including Effective Report Writing and Etiquette, Strategic Management and Creative Thinking, Leadership Skills, Self-Development Management, Pension Scheme, Creative and Critical Thinking, Change Management, and others.

The modules and taught courses are developed in line with the schemes provided by the Oil&Gas Skills company (OGS), a training center under the Egyptian General Petroleum Corporation (EGPC), with a clear goal to further amend leadership development structures and expand opportunities for skills training in Egypt. Dr. Abd El Moniem explained that the Midor-Tharwa training program is to further "support the OGS, as a sister company, to provide additional courses." Therefore, in cooperation with OGS, Midor and Tharwa started developing Certified Manager (CM) program already last year and to date consumed almost 50% of the overall budget earmarked for the purposes with positive achievements.

Investments in HR

The two companies later decided to involve Team Misr in the process, as an external professional training company with more than 40 years of experience in the region. It was selected to conduct relevant training in the Arabic language. Team Misr shares the approach promoted by Midor and Tharwa. They are jointly alarmed by the fact that training expenses of oil companies in the region is the first item to be reduced in companies' budgets in times of crisis. Investments in HR training are perceived as futile.

"We insist to target the implementation of acquired skills in actual workplaces [while still in training], which is a guarantee of success."

Dr. Hanan Abd El Moniem, HR Executive General Manager at Midor

Yet, "the oil sector in Egypt plays a vital role, one that pulls the economy behind it, [therefore] mistakes being done in oil companies means a lot of wasted resources," emphasized Amr Helmi Sallam, Deputy General Manager and Business Development Manager at Team Misr. He added that "if the mistakes continue and costs of wrong decisions become catastrophic."

"We believe that more efficiency would lead to lower costs, and more efficiency will happen through better training," stated Deputy GM. The IMDP promises to focus on the management capacity development. It is designed to help fill empty gaps on a leadership ladder in oil companies. Limited number of trained succession alternatives may otherwise put oil companies' future at risk. It is therefore imperative to create a focused succession strategy, Amr Sallam stressed. He further claimed that "if we are moving away from the idea of having a single leader in a company to an idea of having a group of leaders managing different divisions, there will be better performance and more effective and efficient decisions."

Seeing through a comparative lens, Deputy GM at Team Misr argued that "during the international financial crisis that took place several years ago, some companies invested more in training as they discovered that many of their managers and leaders were not equipped to handle the crisis efficiently."

Whereas this rise of awareness was witnessed in other countries, in Egypt, an aptitude for changing the ways in which oil companies approach the concept of people development programs remains to be challenging, according to Amr Sallam. However, "in Midor and Tharwa I found a different mentality, believing in the role of training, introducing new techniques in management, and in human resources development," he added.

Focus on Complexity

Coming in with an optimistic vision that is achievable and realistic in a short-term and promises long-term impact, Dr. Abd El Moniem's role is to contribute to the establishment of a viable and sustainable framework. It is therefore necessary to go beyond the training sessions, as she noted.

Firstly, from a short term perspective, "we insist to target the implementation of acquired skills in actual workplaces [while still in training], which is a guarantee of success," explained Dr. Abd El Moniem. This is based on a preliminary assessment, which showed that participants' performance in their respective workplaces improved as to their attitude, behavior, and focus, shortly after the training. This approach promises to boost the use of the existing potential of oil companies hidden in human resources that have been left unnoticed on previous occasions.

Secondly, in a long term projection, "looking for quality and efficiency" in management performance necessarily comes with efforts to prepare new people for leadership in the future, said Dr. Abd El Moniem in the interview with Egypt Oil&Gas. El Gammal further stressed that this complex program will reach beyond improving people's skills. It will majorly enhance overall assets of the companies and their outputs. It is therefore important to amend promotion schemes in oil companies. The goal is to define clear rules for management promotions, and specify criteria for selection of managers based on the value of their deliverables, not loyalty.

In return, setting clear promotion criteria will help to feed in identifying specific needs of people development programs and thus develop a comprehensive HR strategy for the entire sector. The methodology that Midor and Tharwa applied will come with required "cost reduction" for training. As Dr. Abd El Moniem explained, in their case, cost reduction has been achieved thanks to "a purposefully developed synergy between two major oil companies and OGS that allowed a meaningful transfer of knowledge."

Following the Synergy

In the sector, however, "the largest challenge still appears to reside with the top management of oil companies and their commitment to the development for the future. Therefore, the idea is to frame the effort, which produces measurable success, as an agreed set of procedures applicable on the national level," said Dr. Abd El Moniem. Therefore, while highlighting further advantages of the designed Midor-Tharwa program, Dr. Abd El Moniem also added that it may serve as a viable model to be explored further by the Oil Ministry in favor of all industry actors.

Meanwhile, with a commitment to transfer Midor-Tharwa synergy into the entire Egyptian oil & gas sector, Dr. Abd El Moniem reached out to present the program to other companies such as ENPPI, and entities like EGPC as well as Cairo and Suez universities. Dr. Abd El Moniem was also approached by other companies such as SUMED to implement the training program in Alexandria as of July 2016, which she is eager to pursue. Similarly, Tharwa announced that it was open to new cooperation with other companies and to provide them with their training facilities, as the HR department is convinced of the success that the training introduced, according to El Gammal.

"The success of this program rests on a carefully detailed program, positive synergy between Midor and Tharwa, active participation of all trainees, and most importantly the companies' CEOs' commitment to contribute to the development," Dr. Abd El Moniem told Egypt Oil&Gas.

Undoubtedly, the importance of HR investments by oil companies is beyond counting. As Amr Sallam concluded eloquently, "you can invest in equipment, in technology, you can invest in your facilities, but if you do not invest in people working with these equipments, then all your investments have become worthless."

Midor and Tharwa are thus engaged in successfully building a role model that may inspire and instruct other Egyptian firms to follow suit.

EGYPTIAN GAS ASSOCIATION - ANDREWS KURTH: Introducing Legal Training for Oil&Gas Companies

By Gamal Shaban and Salma Essam

The Egyptian Gas Association in collaboration with Andrews Kurth LLP Middle East, and Open Chance & Associates organized a two day training program International Oil and Gas Law and Contracts, held at the Intercontinental City Stars Hotel on the 1st and 2nd June, 2016.

The training program provided an opportunity for engineers, in-house lawyers, finance managers, commercial managers, insurance and risk managers to further expand their knowledge about key legal issues shaping the oil and gas industry. The sessions tackled a variety of themes from the impact of geopolitics and technology on legal and contractual issues to managing commercial and legal risks, claims, and disputes to different government contracts with international oil companies (IOCs).

The legal training was delivered by Hugh Fraser, Mark J. Thurber, and Vera A. Rechsteiner – Partners at Andrews Kurth LLP; Dr. Helal Farghaly, Managing Partner, and Hadir Helal, Partner at Open Chance.

Geopolitics and Technology

In the first session, Hugh Fraser outlined major geopolitical concerns impacting on the oil and gas industry such as rapidly rising long term energy demand in the developing world with respective impact on prices and investment, projected diversification of petro-economies, phasing out of coal-fired power plants under the related structures of climate control, and energy efficiency requirements. In this global context, some key patterns emerge that will likely shape the industry trends towards internationalization of national oil companies (NOCs) as clients, whereas IOCs are predicted to take over a role as technical partners in competition with independent E&P companies.

Reserves, Production, Consumption

The future of oil and gas geopolitics is undoubtedly intertwined with global distribution of natural reserves and consumption patterns that indicate imbalances of world demand and supply. Examining the statistics of oil and gas reserves, production percentages, and consumption levels, Fraser elaborated on some vital statistics.

He noted that "in terms of reserves, the Middle East has, for a long time, dominated these figures [of total percentage of global oil and gas reserves], actually, it has been coming down, it was over 50% not so long ago, but it slipped back below 48% for oil and 43% for gas reserves." The Former Soviet Union comes second with 8.3% of global oil reserves and 29.2% of global gas reserves. Third is Venezuela, which despite its struggles still has 17.5% and 3% of global oil reserves and global gas reserves, respectively. Conversely, "the US, China, and the EU, their percentage of reserves is relatively small, but remember that they are the big consumers. There is a mismatch where the demand is and where the supply is, and this is to continue for some time."

The consumption variable thus demonstrates major global disparities. Fraser explained that "the overall picture is that the supply and demand are irrelatively in the wrong places." On a global scale, the Middle East and Russia produce 31.7% and 12.7% of oil respectively, while consuming as little as 9.3% and 3.5%. In terms of the gas, the Middle East produces 16.7% and Russia 17.3% of global supplies, while consuming merely 12% and 13.7%, respectively.

However, as Fraser pointed out, "not so long ago, China has overtaken the US as the world's largest consumer of energy with 23% of the world's total energy, while the US has slipped back to just under 18% and the EU coming in third with a 12.5% figure." Their production of oil is recorded on the levels of 12.3% for the US, 5% for China, and merely 3.3% for the EU, and similarly, gas production figures show that the US produces slightly higher 21.4%, thanks to its shale gas revival, nonetheless China and the EU contribute to global gas production with some 3.9% and 6.9%, respectively.

Rise of Renewables

According to the presented analysis, future trends will further be defined by recent revolutions in liquefied natural gas (LNG) and shale gas, depend on enhanced oil recovery (EOR) advancements, keep reviving nuclear power, and most importantly witness rise of renewables.

The International Energy Agency (IEA) is currently executing a five-point plan to maintain global warming at the 2% figure, or better to reduce it to the new 1.5% stretch target by 2030. These efforts will revolve around calls for increased energy efficiency, phasing out of inefficient coal-operated power plants and fossil fuel subsidies, reducing methane emissions of oil and gas production, and increasing investments in renewable technologies. "We can all see, in the last two-three years, the renewables energy really take-off in a way that have not been witnessed in the past," stressed Fraser. He further expressed his belief that Egypt is a leader when it comes to investing in renewables and targets to get 20% of its production mix from renewables by 2022.

One of the attendants at the training program, Mahmoud Shawkat, Sales & Marketing Director at Baker Hughes, posed a vital question on how the dropping price of oil and gas may lead to halting renewable projects. Mark Thurber said that renewables are increasingly accelerating their position into a full-fledged partner in the energy mix. "Renewables are in the game to stay, they have political support and emotional support from most people who like the fact of being able to generate electricity from the sun," thus, for the foreseeable future, there will be

balanced mix between depending on renewables and fossil fuels to generate electricity, as "renewables are poised to completely take over," according to Thurber.

Geopolitics' Impact on Oil&Gas Contracts

These factors will considerably influence both the regulatory processes and the contract procedures in the oil and gas industry. Fraser drew his trainees' attention towards the importance of becoming aware that contracts, law, court-system, policy issues, power issues, currency risks and politics, all come mixed together in this industry globally. He added that one should first consider managing the international dimensions of a contract before proceeding with finalizing it. Various aspects like the intellectual property rights that the technology brings in, the courses of legislation followed, the ways disputes are solved, and the governing laws of the contract, need to be carefully studied and discussed before reaching an international agreement.

Taxation as an Incentive

Session two discussed as series of critical issues that define the relation between local governments and IOCs pertaining to the question of sovereignty and ownership of oil and gas, legal systems and the rule of law, taxation and customs duties, as well as transfer of technology with involved intellectual property rights.

The focus was on how governments regulate their oil and gas industries and control the players operating within them. "The application of currency rules, exchange controls, and the ability to repatriate profits as well has a major impact on the attractiveness of a country to investments," emphasized Fraser.

Further, he made it clear that an oil and gas company does not necessarily need to be present within a country to abide by its rules and regulations. For example, an external supplier that provides a specific service or product in a foreign country and in return takes money out of the country will have to deal with customs and import duties. The supplier might also be subject to withholding taxes. Fraser explained that "taxation can be a burden, but also in some limited occasions, may be deployed as an incentive."

Local Legal Environments

When IOCs want to expand their businesses and get into agreements with foreign countries and their local companies, they will end up dealing with governmental entities on an extensive level. Therefore, it is important to be aware of relations dynamics, when "governments can be clients, can be contactors, can be licensees, they can be tax collectors, they can be enforcement agencies, and they can be playing a major role in dispute resolution processes," as Fraser explained.

Similarly, every single employer that wants to come in a new territory will have to go through the employment and the immigration laws that the targeted country imposes Fraser stressed that these expert expat and local workforce hiring dynamics need to addressed upfront and properly in order to avoid possible serious mistakes that can rise up between governments and IOCs as a consequence of failing to understand how relevant local laws function.

The Principal Contracts

Fraser also provided an overview of the principal types of contracts that are existent in the Oil and Gas industry, elaborating on their function that shapes the relation of the involved parties. Drafting legal contracts between two or more parties is crucial for validating the agreed upon deal as a legitimate, official, and binding agreement, as he noted.

The principal contracts in the oil and gas industry revolve around the industry's three major sectors - the upstream, midstream and downstream. "By and large, you can probably segment contracts, which governments place in the industry into three different types," said Fraser. The Exploration and Production (E&P) Licenses, the oldest form of contract that the industry has applied, tends to be more of a "laissez-faire" type of contract as it gives the most freehand and the most attractive commercial terms to operate the licenses, which are commonly known as concession agreements, further explained Fraser.

The Exploration and Production Sharing Agreements (EPSAs / PSCs / PSAs) that were first introduced by Indonesia in the early 1960s and laid foundation for "a new mechanism for contracting within the oil and gas industry, said Fraser. This type of contracts tends to "rebalance the commercial situation more in favor of the producing nations" rather than IOCs, he pointed out. PSCs mechanisms often tend to come in the form of JV agreements as the contracting entities usually share their costs, risks, and profits. Fraser believes that this type of contracts is more common in the Middle East, than in the North Sea, US, and Australia where typically there are more E&P licenses.

The Enhanced Technical Services Agreements (ETSAs) are very appealing for governments, according to Fraser, as they want to move away from the interests of IOCs, JV agreements, and profit sharing arrangements. "Effectively, instead of a profit-sharing mechanism, here [in ETSAs] it is a fees-for-services mechanism; sometimes on a peer basis, sometimes on a risk-reward basis for the fees are enhanced performance."

Contracts Negotiations

In addition to the terminology of the principal contracts, Mark J. Thurber at Andrews Kurth LLP, elaborated on Licenses/Concessions, PSAs, ETSAs, and joint operational agreements (JOAs) in another session that examined the processes of drafting and negotiating agreements between governments and IOCs.

Licenses/Concessions grant exclusive rights to IOC to explore, develop, and produce hydrocarbons, while management, control of operation, and facilities rest in the hands of IOCs. In addition, title to hydrocarbons is vested in IOCs, while state financial interest is constrained to a signature bonus, or royalties and taxation of profits, which depends on the clauses concluded in this type of a contract.

"Production sharing contracts started out 60 - 70 years ago with extremely generous rates to the oil companies to the extent that they owned and controlled large reservoirs of oil with no particular obligations to ever return

"The US, China, and the EU, their percentage of reserves is relatively small, but remember that they are the big consumers. There is a mismatch where the demand is and where the supply is, and this is to continue for some time."

Hugh Fraser, Partner at Andrews Kurth LLP

it or develop it; very favorable royalty provisions," noted Thurber. "Today, we do not have any of those types of contracts left, but we still do have different degrees of ownership," he added. Currently, PSAs are formed through Joint Ventures between governments and IOCs to explore, develop and produce hydrocarbons, whereas title to hydrocarbons remains with state. Thurber stressed that this issue should be analyzed carefully by companies in order not to end up in contracts where it controls reserves, but it is not allowed to report them for financial accounting purposes.

On the other hand, technical services contracts (ETSAs) are designed on the scheme where technology / know-how are the key driver and title to hydrocarbons remains with state. Under this type of agreements, IOC receives fees based on production revenues, while state financial interest is production revenues and taxation of IOC fees.

As Thurber pointed out, all contracts have minimum commitments that partners are bound to undertake including geological works, drilling of exploration wells, letters of credit, that governments consider as a guarantee for contractors to fulfill their operational, financial, and other contractual obligations.

Additionally, he highlighted the importance of termination/expiry contracts especially when the operation fails to bring production, and the contractor seeks compensation for the high cost of the investment he had made. "As a contractor you want to make sure that you are in a position to have established your economics by the time you get to that point," stated Thurber. Further, an exit from a concession in the form of relinquishment can be thought of as a partial termination of a contract, when "most of the acreage in the original exploration block that is won through a bid round goes back to the sovereign after the contractor decided which parts it wants to keep," as he explained.

In the discussion on JOAs, Country Manager of Beach Energy, Samir Abdel-Moaty, addressed a major issue "if one party at default did not pay cash calls during the exploration phase, which has a minimum work program commitment with better guarantees to the EGPC." He described this scenario saying that "it is not in favor of other parties in default as it would lead to distributing working interest to other parties, and that means that other parties have to pay more and get more cash calls." The question remains if JOAs can handle these cases to avoid these scenarios from occurring. In this case, Fraser stressed on the importance of cash backing and extra guarantees, including the need to resort to bonding from banks.

Joint Ventures

The rationale and processes behind the formation of JVs was further discussed and Partners enlightened the audience as to the types of joint ventures, the players, joint operating agreements, and other types of deals, as well as commercial logic for contracts.

Hugh Fraser shed lights on joint ventures companies (JVs) dividing them into three types including co-operation / collaboration agreements / alliances; consortium & agreements; and standard joint venture companies. As he explained, "the collaboration agreements do not involve necessarily a single project or do not involve necessarily setting up a new JV company to put some shape and legal substance as in [standard] JVs; they can be relatively short-term or short-term collaboration arrangements, usually purely contractual signed up between parties for whatever scope or duration."

In addition, there are three major categories of deals between governments, NOCs and IOCs: farm-in/farm-out; acquisition and disposal of assets; and corporate takeovers. "Farm-ins and farm-outs typically apply when there is a partial change of the ownership of the venture," said Hugh. In asset deals "there are no corporate structures involved [instead] the assets are being acquired," he elaborated. And the third type is with corporate structures and groups where assets are being acquired and corporate entities and corporate groups" are coming in, concluded Fraser.

Types of agreements to pull joint ventures together, as Fraser elaborated, revolve around study and bid agreements, memoranda of understanding, joint operating agreements, accounting procedure schedule, lifting agreements, and balancing agreements.

Managing Risks, Settling Disputes

The training also covered the issues of managing and solving legal risks and claims that can be easily transformed to greater disputes if they are not handled properly. Hugh Fraser discussed a variety of subjects from dangerous and risky businesses to commercial risks to liability and indemnities to limitations and exclusions. The partners proposed an approach according to which the risks are to be mapped in line with a so called 'grid system.'

When it comes to settling controversies, there are five options to choose from: litigation, the ultimate legal method for resolving disputes that is publicly done through a state opened process; arbitration, a private process that is usually less expensive than litigation; expert decision, "particularly in regions where arbitration and litigation can be very time consuming, very costly, and producing results which are uncertain;" mediation, a non-binding process that does not involve brining in a third party; and finally, negotiation, "the best of all, no need to involve third parties [as] it is private, informal; the timeline is entirely driven by the parties and there is no or limited external costs involved," as Fraser concluded.

At the end of the session, Fraser pointed out some advice for the audience to keep in mind for coming up with an effective problem solving process. The top five tips that the attendants were advised to follow suggested to conduct proper cost-benefit economic assessments of how to handle a dispute, prepare a professional analysis on the substantive and procedural matters from a legal point of view, review all the evidence independently and objectively, tell 'the whole story' to the officials involved with the case, and finally, to de-personalize the process.

Service Contracts

The last session disclosed the interface between oil companies and the service sector. It mainly addressed the oil and gas upstream service agreements with specific reference to rig hire and drilling services contracts and engineering, procurement, and construction contracts (EPC).

EPC contracts involve often understudied, yet inevitably present elements such as planning, design, engineering, land rights, procurement, construction, installation, pre-commissioning, inspection, testing, and commissioning. In addition, according to Fraser, EPCs are "very dangerous animals to deal with, because the scale of the contract of EPC is very likely to [have] a whole raft for subcontractors," which "is one of the major pivot points of the industry" as some operators try to simplify their interfaces with supply chains and large number of involved service companies, noted Andrews Kurth Partner Fraser.

The training program concluded with the collaborative partners from Open Chance - Dr. Helal Farghaly and Hadir Helal - taking an active part in responding to participants' questions and issues they raised in particular with regard to the practical conundrums that the Egyptian oil and gas companies are facing in the existing environment. They provided a plethora of solutions that unveiled some useful tips to navigate through the Egyptian legal framework.

"The collaboration agreements do not involve necessarily a single project or do not involve necessarily setting up a new JV company to put some shape and legal substance as in [standard] JVs; they can be relatively short-term or short-term collaboration arrangements, usually purely contractual signed up between parties for whatever scope or duration."

Hugh Fraser, Partner at Andrews Kurth LLP

ANDREWS KURTH MIDDLE EAST

RE-ASSESSING RISK AVOIDANCE STRATEGIES IN LNG CONTRACTING

By Mark Thurber, Partner, Andrews Kurth LLP

Despite the tsunami of power generation development that is currently underway throughout the world and dependent upon renewable energy technologies, more traditional thermal electricity generation strategies are still in play for a number of reasons.

The first is familiarity of technology. When total reliability and short development curves are required, governments are reluctant to move too far off of the main fairway. Some experimentation is acceptable, but there is a comfort zone of proven technology and development methods that is currently occupied only by the traditional fossil-fuel technologies. Accordingly, most governments, even in the current post-COP21 environment, are satisfied to maintain a base of traditional fossil-based generation capacity.

The second is grid reliability. In Egypt at the moment, for instance, there are discussions just underway to improve the breadth, reach, and flexibility of the national grid, and to make it more stable to accept higher proportions of non-base load generation such as wind and solar. These efforts are important to Egypt's future, but there remains the need to bridge the gap as renewable energy continues to develop prior to taking a more prominent foothold, thus ensuring that electricity quantity and reliability is maintained, if not improved.

The third reason is cost. Under a fully base-loaded analysis, fossil fuels are cheaper than renewables, and are expected to remain so for at least in the short and medium terms. Indeed, even in the current environmental emphasis on renewable energy, the most common model for efficiency and reliability is to combine renewables with fossil-based base load technologies; accordingly, there remains a significant role for thermal generation for the foreseeable future.

The most inexpensive and politically neutral fossil-based technology is gas, which though abundant, is not universally available in all markets – it must be transported through pipelines or as LNG to reach the burner tip. Despite these transportation inefficiencies, several countries throughout the world are dependent on LNG as a primary source of fuel for electricity generation.

In some cases, LNG purchasing strategies are a permanent part of a country's fuel acquisition strategy. Japan comes to mind, where there is no reasonable prospect of fossil fuel independence at any point in the foreseeable future. In other countries, LNG forms a bridging strategy to an eventual heavy reliance on renewable and nuclear generation, some GCC countries being prime examples. Other countries simply see fossil fuel as their long-term base load strategy and consider LNG as their fuel of preference, even though many renewable alternatives are available; Brazil is an eloquent example. In other selected cases where gas reserves are available but not fully developed, including Egypt and Pakistan, LNG purchasing arises out of a bridging strategy, a way to supply gas-fired generation assets while awaiting domestic supplies to be commercialized.

Economies, which are awaiting their own supply of gas, are frequently also concurrently contending with shortages of foreign reserves with which to purchase dollar-based fuel from abroad. In other words, price is king. In such countries, every dollar that can be saved on an LNG cargo is a precious resource that can be deployed elsewhere.

How to maximize this opportunity and minimize the cost? As is well known, LNG pricing and terms of delivery are currently at a historically soft level. Nevertheless, LNG suppliers are invariably large, sophisticated enterprises, well-equipped to continue and even expand their businesses in a down market. That said, such suppliers are being found increasingly flexible and creative, to arrive at new contracting strategies that benefit both sides. Whereas in the recent past it could be difficult or impossible for a buyer with lower sovereign ratings than the East Asian monoliths to even get a return phone call or otherwise seriously engage entrenched suppliers, most such suppliers are not only willing to sell LNG to less traditional buyers, but are willing and able to discuss certain terms in the agreements that have traditionally been assumed as inflexible and axiomatic within a gas supply contract.

Buyers, by showing flexibility on their side as well, can leverage this situation to obtain levels of price discounts that are potentially out of proportion even in the current soft market. To the extent a buyer is able to show flexibility in some of the key contract terms, recent experience has shown that there is room in the current market to further shave the purchase price for LNG. More than some competing buyers, sovereign purchasers with their access to alternate fuel supplies, lack of counter-party contract penalties or financing restrictions, and ability on the national grid to absorb swings in dispatch response, can find themselves in a favored

position to offer flexible terms to LNG sellers.

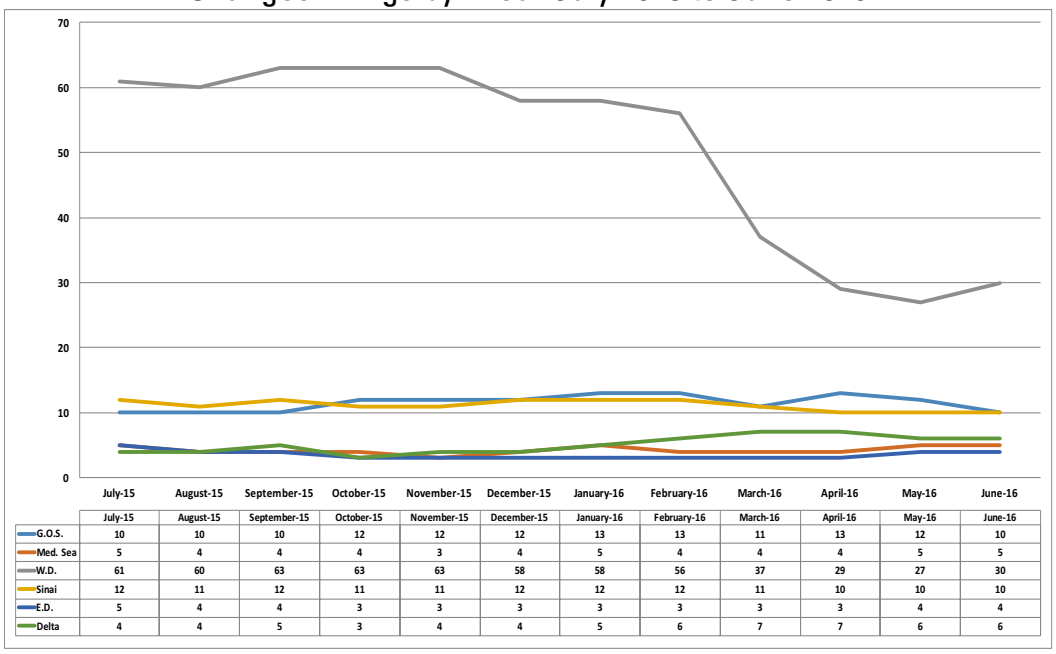
Any material term in an LNG contract is open for negotiation, but special attention should be directed to the following clauses as key candidates for buyer flexibility in exchange for lower LNG pricing:

- Supply Penalties -- Most LNG purchase and sale agreements require the seller to provide cargoes in accordance with a delivery program that is established annually in advance of the contract year. This obligation includes timing and quantity components, and in the past has been invariably paired with penalties against the seller for default. As to timing, it is worthwhile to suppliers, who more and more are conducting business on a worldwide portfolio basis, managing a fleet of tankers, having multiple points of origin, destination, and varying schedules, to possess the flexibility to delay a cargo delivery. If the purchaser can absorb a late cargo then pricing flexibility will usually follow. Perhaps even more importantly, if a purchaser has the ability to either forego a cargo or to accept an extra cargo, this optionality can be valuable to a supplier and it is also likely to be reflected in lower purchase prices. One such structure allows a combined put/call option in favor of the supplier, i.e. the ability to "put," or sell, one or more extra cargoes in a contract year to the purchaser, combined with the ability to "call," or fail to deliver to the contracted purchaser one or more contracted cargoes. Another variant is providing the supplier with the optionality of early departure from the unloading berth, prior to filling the FSRU or onshore storage capacities. This allows the supplier either to mitigate risk under more restrictive contracts with other LNG buyers, or to take advantage of temporary and fluctuating market conditions in other delivery destinations. Often a supplier will offer to return with additional cargoes prior to depletion of the buyer's inventory, making this a risk that a sovereign buyer can assume with few operating consequences.
- Force Majeure -- It is a basic tenet of LNG supply contracts that buyers and sellers are excused from performance under contingencies that are beyond their control, particularly as relating to natural disasters such as storms, earthquakes, and fires. A buyer that is able to offer continued fixed payments to its supplier, despite experiencing force majeure events that prevent or delay its performance, would be expected to realize price savings on the purchase of LNG, particularly if the same buyer is able, for similar reasons, to accept force majeure interruption on the seller side. In reality, the delivery of LNG cargoes is more susceptible to force majeure interruption than is the on-shore receipt of such cargoes, putting most buyers in a position to accept a greater degree of force majeure exposure. Particularly if an FSRU is deployed, force majeure on the receiving side is less likely to express in an extensive or extended footprint. For instance, pipeline ruptures are normally of temporary duration, and infrastructure failure in one part of a country, while inconvenient, does not typically imply widespread failure of the grid. There are usually workarounds, and buyers willing to assume this degree of flexibility can trade it for consideration in the pricing clause.
- Term -- Although the concept is still under debate, the weight of opinion is that a longer-term contract will be priced lower than a shorter-term sale, referred to in the commodities markets as a "contango" forward pricing curve. Notwithstanding currently low LNG prices, which some see as expressing a tendency toward a lower price in short-term rather than long term sales, the better opinion seems to be that (i) there is a lot of gas currently available but still shut in due to demand constraints, with much more still available to come on line, and (ii) a seller can plan its business more effectively if it has locked in a significant customer for 20 years instead of 5, even if pricing is not optimum. Thus, a buyer that is able to offer long-term purchases will likely see more flexibility in the pricing clause than a buyer bound by shorter-term considerations.
- Quality -- Some buyers are able to offer flexibility on the quality of LNG they are able to accept. For instance, some types of gas engines, particularly reciprocating engines, can burn fuel over a wide range of specifications, both as relating to heat content and as to contaminants. If most of the gas from a particular LNG transaction is being targeted to power plants, having flexible fuel requirements, then sellers are able to supply that particular contract from a wider range of supply sources, reserving their contracted supply sources, which meet more stringent quality requirements for other buyers that have not granted the same flexibility. Conversely, if a buyer occupies a niche in terms of its required specifications, even if narrow, it may be able to nevertheless identify a seller having access to that particular tranche of LNG supply, which is not able to readily sell it to other markets without preliminary treating. In either case, the seller saves money, resulting in pricing flexibility in the LNG supply negotiation.

The foregoing comprise a few of the terms that can be put into play by a flexible buyer and seller to reach an optimum result for both sides. Not all of the terms are available to every buyer to offer as concessions, and not all of the buyer's flexibility represents equivalent value to every seller. But by candidly and realistically re-assessing the risk avoidance strategies traditionally assumed by most buyers and sellers as being foundational to their risk management, innovative parties can achieve many of their objectives in a modern LNG supply negotiation.

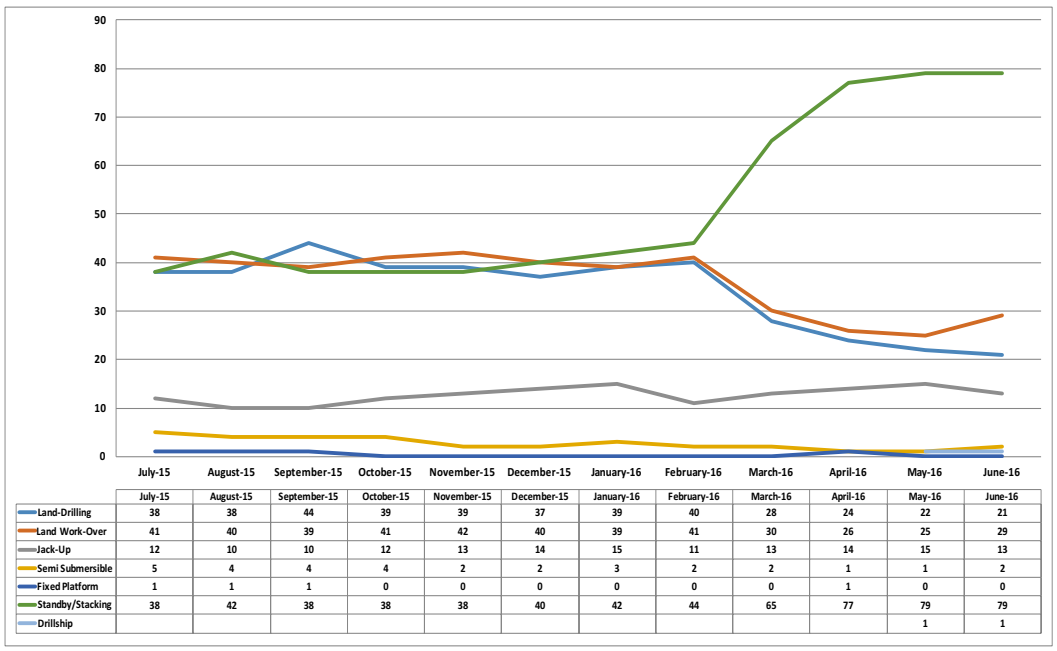
STATISTICS

Changes in Rigs by Area- July 2015 to June 2016



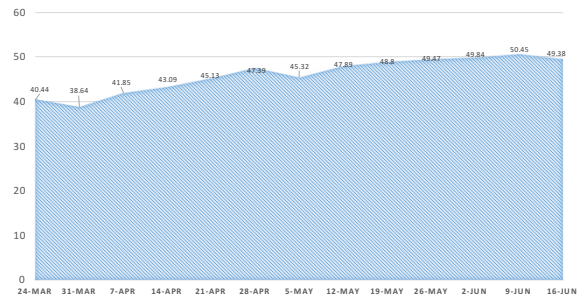
	July-15	August-15	September-15	October-15	November-15	December-15	January-16	February-16	March-16	April-16	May-16	June-16
G.O.S.	10	10	10	12	12	12	13	13	11	13	12	10
Med. Sea	5	4	4	4	3	4	5	4	4	4	5	5
W.D.	61	60	63	63	63	58	58	56	37	29	27	30
Sinai	12	11	12	11	11	12	12	12	11	10	10	10
E.D.	5	4	4	3	3	3	3	3	3	3	4	4
Delta	4	4	5	3	4	4	5	6	7	7	6	6

Changes in Rigs by Type - July 2015 to June 2016

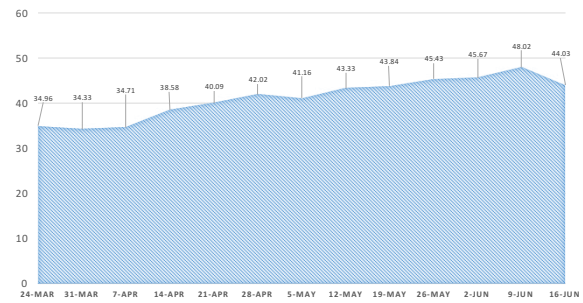


	July-15	August-15	September-15	October-15	November-15	December-15	January-16	February-16	March-16	April-16	May-16	June-16
Land-Drilling	38	38	44	39	39	37	39	40	28	24	22	21
Land Work-Over	41	40	39	41	42	40	39	41	30	26	25	29
Jack-Up	12	10	10	12	13	14	15	11	13	14	15	13
Semi Submersible	5	4	4	4	2	2	3	2	2	1	1	2
Fixed Platform	1	1	1	0	0	0	0	0	0	1	0	0
Standby/Stacking	38	42	38	38	38	40	42	44	65	77	79	79
Drillship											1	1

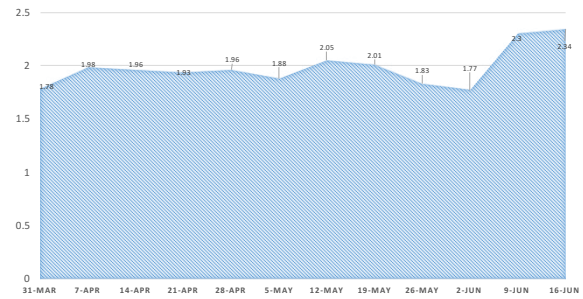
BRENT PRICES



OPEC BASKET PRICES



NATURAL GAS PRICES

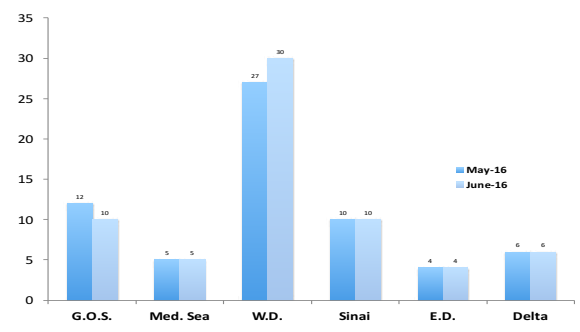


Production - May 2016

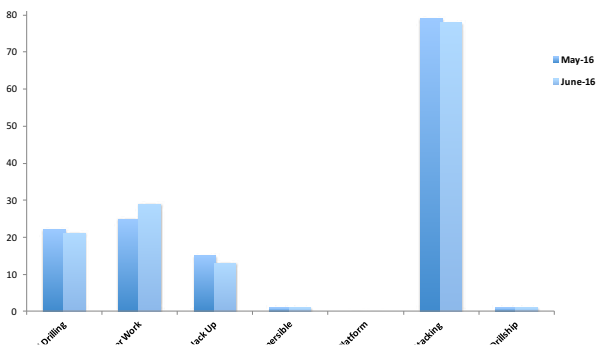
	Crude Oil	Equivalent Gas	Liquified Gas	Condensate
Med. Sea		9870000	192713	617322
E.D.	1946010	19107	3153	1368
W.D.	9856481	7441429	544689	1430050
GOS	4187754	628036	265123	66762
Delta	37790	3581429	155857	268342
Sinai	1985591		45830	225051
Total	18013626	21540001	1207365	2608895

Unit: Barrel

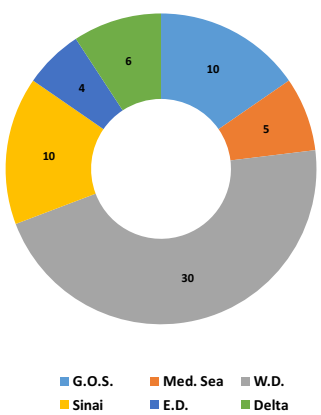
Rigs per Area - May - June 2016



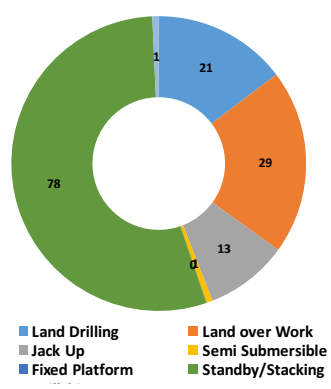
Rigs per Specification - May - June 2016



Rig Count per Area - June 2016



Rigs per Specification - June 2016



Rigs per Specification - May - June 2016

Location	May-16	June-16
Land Drilling	22	21
Land over Work	25	29
Jack Up	15	13
Semi Submersible	1	1
Fixed Platform	0	0
Standby/Stacking	79	78
Drillship	1	1
Total	143	143

Rig Count per Area - May - June 2016

Location	May-16	June-16
G.O.S.	12	10
Med. Sea	5	5
W.D.	27	30
Sinai	10	10
E.D.	4	4
Delta	6	6
Total	64	65

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