

# EGYPT OIL&GAS NEWSPAPER

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STRATEGIES FOR EXPLOITING  
AND OPTIMIZING IN THE WEST-  
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This past month was marked by the Islamic Holy month of Ramadan, with Muslims around the world fasting and reflecting on God. The oil industry has not stood still however, as production agreements are continually being signed and new deals expanded. Significant events included the recent EGAS agreement to pay more for natural gas, the opening up of the east Mediterranean to exploration and seismic surveys, and the Egyptian government allowing private companies to import natural gas through the national grid. The month of July also saw the 9th of Ramadan Soccer Tournament, hosted by our own newspaper, Egypt Oil & Gas.

Our newspaper has covered all of the events above in detail, and we look forward to hearing your feedback on them. In this current issue of

Egypt Oil & Gas, we give you insight into the investment future of the country through our partnership with PricewaterhouseCoopers, an interview with Emad Hamdy—Chairman of Shell JV Bapetco, as well as a closer look at the reasons and methods that private manufacturing in Egypt is importing natural gas through the national grid. And for our Political Review, we give you a deeper look at the little-known country of Angola—a country rich in both oil and corruption.

We hope you enjoy this issue and find it very informative, and as always, we thank you for your readership,

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Editor in Chief

**Nicholas Linn**



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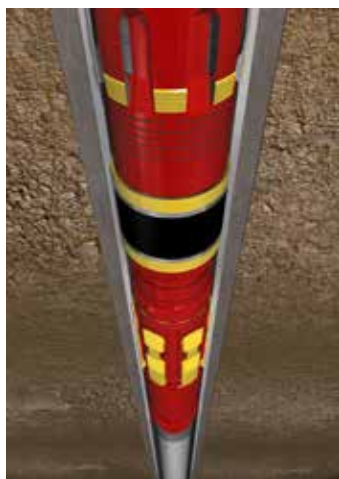


# Well Construction



## Reduce costs by increasing efficiency and improving well design

Our traditional well construction services and technologies are augmented with innovations such as **expandable tubular technology** that mitigates drilling hazards and helps clients remediate mature wells, and with **mechanized rig systems** that improve personnel safety and improve drilling efficiency.



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### The Solid Choice™ solid expandables





### **Saudi Arabia Invests \$350m in Egypt's Renewables**

Al-Jeel Al-Hader Co., a Saudi Arabian firm, has struck a \$350m deal with Egypt to build power plants to generate electricity using alternative energy sources, reported Al Mal. Mohamed Abdel Raheem, Vice Chairman of Al-Jeel Al-Hader said that the 3 Egypt-based companies, with capital of \$15m each, have been created for the implementation of the project. One of the companies will build a wind energy farm with a 50 MW capacity; while each of the other two companies will build a solar power plant with a capacity of 50 MW. The Saudi firm is also working on launching two solar projects in neighboring Jordan.



### **EGAS Suspends Gas Supply to 78% Fertilizer Companies**

The Egyptian Natural Gas Holding Company (EGAS) announced its decision to stop supplying natural gas to 78% of fertilizer factories in Egypt, reported Daily News Egypt. A step that was taken to meet the increasing demand on electricity, due to the high summer temperatures the country is

currently facing. According to a senior official at EGAS, since the beginning of Ramadan, gas supply was suspended to the plants of APEC, Misr Fertilizers Production Company (MOPCO), Helwan, Al-Masriya 1 and Al-Masriya 2, Alexandria, EL-Nasr for Fertilizers and Chemical industries.

### **Egypt Invests EGP 500m in Natural Gas Fueled Buses**

The Public Transport Authority has signed a contract with the Ukrainian City Transport Group for the supply of 290 natural gas-fueled buses with a total investment of EGP 500m, reported Daily News Egypt. Ghabbour Auto Company will assemble the buses locally; the initial batch of which will be delivered in four months, with the remaining quantity delivered within a year of the contract's signing. The move is part of a plan to increase the number of buses currently serving greater Cairo and to develop a more environmentally friendly fleet of public buses. Cairo Governor Galal Mustafa El-Saeed explained that the Ukrainian

company has provided a seven-year guarantee for the buses, regarding the provision of required spare parts and maintenance during the warranty period. El-Saeed also added that all the IPO bids, tenders, procedures, and technical examinations were reviewed with the help of the armed forces, represented in vehicles management. Prime Minister Ibrahim Mehleb, Cairo Governor Galal Mustafa El-Saeed, Public Transport Authority Chairman Rizk Ali, City Transport Group CEO Igor Churkin and the Ukraine's ambassador in Cairo Hennadiy Latte, attended the signing ceremony.

### **Italy's Building Energy to Build \$200m Solar Project in Egypt**

Italian-based Building Energy and the New and Renewable Energy Authority (NREA) signed an agreement to build two 50MW photovoltaic plants in Egypt, reported Trade Arabia. Construction of the \$200m project will begin in the summer of 2016, and will be located in Benban, Upper Egypt. Each plant is expected to generate 143GWh/year. Under a 25-year power purchase agreement, the plants will be connected to the 220 KV high-voltage line linking Aswan to Cairo, meeting the energy needs of a total of 50,000 households. "We are delighted to announce the kick-off of our first two projects in Egypt. The country is bless-

ed with world-class solar and wind resources and has established an extremely well-managed program under which it aims to produce at least 20% of its total power from renewable sources by 2020," said Cornelius Matthes, Building Energy's Managing Director for the MENA Region. Local company SolarShams will participate in the project. Churkin and the Ukraine's ambassador in Cairo Hennadiy Latte, attended the signing ceremony.

### **Egypt Signs Protocol to Establish Nuclear Power Technical School**

The technical education and training ministry signed a protocol with the ministry of electricity to establish a technical school in the field of nuclear power. Electricity Minister Mohamed Shaker said the move is part of the ministry's

strategy to diversify power generation in Egypt. The school will start operating in academic year 2016/2017, with the minister noting that the first batch of students will graduate after five years.

### **EGPC Boosts Petroleum Products by 10%**

The Egyptian General Petroleum Corporation (EGPC) announced an increase in the domestic market supply of petroleum products by 10% to meet the expected increase in demand during the Ramadan feast, reported Al Mal. The increase will take effect starting from the

eve of the feast, with gasoline supplies increasing by 2000 tons to reach a total of 20,000 tons; while diesel supplies will increase by 3000 tons to reach a 38,000 tons, and liquefied petroleum gas (LPG) will increase by 1500 tons to reach a total of 12,500 tons.

### **Ezz Dekhila Losses EGP 116m in Q1, Blames Gas Supply**

Egypt steel producer Ezz El-Dekhila Steel Company registered a loss of EGP 116m in the first quarter (Q1) of 2015, down from an EGP 144m loss in the corresponding Q1 of 2014, reported Daily News Egypt. The company's investor relations issued a statement saying that the company's factories are suffering from unstable natural

gas supplies. In June, Ezz El-Dekhila reported a net loss of EGP 835.5m for the year of 2014, after registering a net profit of EGP 527.8m in 2013. Ezz El-Dekhila announced that it will consider depending on alternative sources of energy to avoid any future declines in its steel production.

### **President Sisi Approves Revised Budget, Revises Public Spending**

In early July, Egyptian President Abdel Fattah El-Sisi signed a new budget into law for FY2015/2016. According to state-run news source Ahram Online, previous versions were scrapped as the president felt the projected budget deficits were too high, at 9.9%. The new budget is expected to reduce the deficit a full point, to 8.9%. The Egyptian government is planning for a 28% increase in revenue over last year, with public funding increasing 17%. Funds set aside for fuel subsidies are around \$8b and based on a \$70 Brent crude prediction. Electricity subsidies will be around half that, at \$4b. The Egyptian government is aggressively pursuing a five-year economic plan to reduce the deficit to 8% by FY2018/2019.



### **Egyptian Government-Run EGAS to Pay Italian Firms More for Natural Gas**

The Egyptian government has raised the prices it will pay Italian firms Eni and Edison for natural gas produced in the country, according to an anonymous source quoted by Reuters. The source also stated that the price paid per million Btu will go up from \$2.65 to a minimum of \$4, with a maximum possibility of \$5.88 depending on

amount produced. The move comes as one of the latest in a wave of more favorable contract terms for energy companies as the Egyptian state searches for solutions to the current deficit of natural gas in the country. This new deal is expected to only apply to new discoveries, and is not retroactive.

### **Egyptian Government Debt Owed to Foreign Oil Companies Edges Upward in June**

The Egyptian government debt to International Oil Companies (IOCs) now stands at \$3.5b, an increase of 6.1% over April, said an official at the state-run EGPC. Reuters reported that this figure was given under the condition of anonymity, as the official is not authorized to speak to the media. Under the direction of Sharif Ismail, Petroleum Minister, and Tarek El-Molla, Chairman of EGPC, the government has paid back nearly \$10b since the ouster of the Muslim Brotherhood administration. The original goal was to

pay back the dues completely by this year, but in March the ministry revised its estimate, pushing back the date to sometime in 2016.



### **3 Local Companies to Build 16 Solar Plants in Upper Egypt**

The Upper Egypt Electricity Distribution Company (UEEDC) is currently studying three proposals made by local Egyptian companies to establish 16 solar energy stations in Upper Egypt with a total capacity of 8MW, reported Daily News Egypt. According to Alaa El-Din Abou El-Wafa, Chairman of the Board of Directors and Managing Director of the UEEDC, the three companies are Al-Fouad, El-Hoda for Agriculture Development, and Sun Infinite Energy; where Al-Fouad

proposed establishing five solar energy stations with a capacity of 500KW per station; El-Hoda for Agriculture Development, on the other hand, proposed building 10 solar energy projects with a capacity of 500KW per project, while Sun Infinite Energy proposed establishing one solar energy station in Abo Tesht with a capacity of 500KW. Once operational, the output of these projects will be directly fed into the national grid.

### **GUPCO Resumes Gas Production at M8 Gas Processing Complex**

Production had been effectively halted at GUPCO's M8 gas processing unit and its attendant platforms after a fire that broke out in one of its connecting pipelines in 2004. Subsequently the company conducted a technical study to resume production with the initiation of repairs at the M8 unit and a number

of its related platforms, such as M85 and M24. The M8 unit itself and its three platforms became operational at the beginning of July. With production resuming about 3,000 b/d of oil have been added, with a redevelopment of crude reserves standing at an estimated 2.5m barrels.

### **IFC to Give Egypt's PICO International Petroleum \$50m**

The International Finance Corporation (IFC), a division of the World Bank, recently announced a \$50m loan would be given to Egypt's PICO International Petroleum, reported The Financial. The loan is intended to allow PICO to extend and their operations in the Gulf of Suez, focusing especially on optimizing production. PICO International Petroleum is one of Egypt's largest non-affiliated oil and gas producers. "Oil and gas are vital components of Egypt's energy mix," said Hesham Elbosaty, treasurer of PICO International Petroleum. This IFC loan is part of a larger package worth \$200m that has been arranged by the World Bank, HSBC, and the European Bank for Reconstruction and Development. IFC has been making significant financial commitments in Egypt since the revolution of 2011, with total investment since that time valued at over \$1b. Last year the bank provided \$130m in assistance.

### **Egypt Imports 520,000 Tons of Diesel Fuel for Ramadan**

The Egyptian government agency EGPC directed the import of an additional 520,000 tons of diesel for the month-long Islamic event of Ramadan. The country sees extreme strain on its power generation during the month as consumers use significantly more electricity, largely for air conditioning in the summer heat. Al-Mal reports that Egypt consumes around 14m tons of diesel each year, with roughly half that number imported from abroad.





## EGAS Signs Deal for 2 and 3D Seismic Surveys in West Mediterranean

The Egyptian government-run natural gas authority, EGAS, has signed a deal for two and three-dimensional seismic surveys in the Western Mediterranean waters controlled by Egypt, Amwal Al Ghad reported. EGAS Chairman Khaled Abdel Badie said that the deal, signed with Norwegian firm PGS, is to try and collect data to attract additional foreign investment in the area. The effort is part of a plan to increase seismic surveying and exploration in areas that have been neglected in the past. Badie stated that 80% of

Egypt's current natural gas reserves are in the central and eastern zones of the territorial Mediterranean waters, and exploration is needed in the west.



## Rosneft to Supply Egypt with LNG, LPG

Russian-owned petroleum firm Rosneft has signed initial deals with Egypt to provide the country with shipments of benzene and bitumen, to be followed by LNG and LPG at later dates, reported official news source Ahram. These agreements, "will allow Rosneft to access the high growth potential Egyptian gas market and deepen broader cooperation between the two companies," Rosneft said in a statement. "In addition, the cooperation with EGAS

will allow Rosneft to strengthen its position in the global LNG trading market." While the company does not currently have the capacity to produce LNG on its own, it is partnering with Exxon Mobil to develop that capability. In its own press release, Rosneft noted that Egypt is the largest importer of LNG in Africa, and that it hopes its relationship with EGAS will strengthen its LNG opportunities globally.

## Egypt's Government to Tackle Tax Evasion by Its Own Agencies

Egypt's EGPC, Suez Canal, and the Central Bank of Egypt all owe the government a combined EGP 35b in taxes, reported Daily News Egypt. These government-run agencies are still required to pay the Ministry of Finance taxes, and the Tax Authority head Abdel Moneim Matar stated that all groups will pay their taxes within this current fiscal year. The Egyptian Tax Authority and Real Estate Tax Authority recently agreed to share information between the

two bodies in an attempt to combat tax evasion. The Egyptian government is currently mounting an ambitious campaign to increase tax revenue to EGP 422b, over 15% higher than last fiscal year. These efforts are part of a broader attempt to reduce the national deficit, currently at around 10% of GDP, and that it hopes its relationship with EGAS will strengthen its LNG opportunities globally.

## New Study Assesses Energy Pricing in Egypt



A year after the government cut energy subsidies, including electricity, fuel oil and natural gas, the Egyptian Center for Economic Studies (ECES) released a study on the effects of the energy subsidy reform. According to the "Energy Security in Egypt" report, petrol and natural gas subsidies were misallocated to the wealthiest 10% of the population until 2013/2014. In addition, only the three bottom income levels benefit from 25% of LPG subsidies, which fill the butane gas cylinders that benefit the poor. The same is the case for electricity subsidies, which the study claims a large portion of it reaches the richest 20% of the population. The study also suggests that petroleum subsidies be

calculated based on the difference between the actual cost incurred by EGPC and the price at which the products are sold on the domestic market. ECES recommends that the energy reforms be carried over a transitional period that accounts for economic, social and political impact. Energy subsidy reforms are expected to save around 10 to 15bn EGP per year, of which "30-50% of the savings realized from the subsidy phasing-out are earmarked to cash transfers, particularly in the health, education and social protection domains," it says. For Egypt to diversify its energy mix, industries should be required to allocate a percentage of their energy use to renewables, reported Al Ahram.

## EGPC in Talks for Extending Magapetco's Concession Agreement

An official source at EGPC revealed that Magawish Petroleum Company (Magapetco) is in plans to extend its oil exploration concession in Hurghada for a 10 year term. The contract will expire in 2019 unless the EGPC renews the agreement. Magapetco Chairman Hamdi Hanafi, stated his investment plans of \$10 to 10.5m for fiscal year 2016/2015. The company's oil production comes from 11 oil wells and plans to drill and connect 5 new development wells, reported Al Mal. He told Al Mal that the company is currently producing from about 11 oil wells, and was planning to drill and connect 5 new development wells. The company's total production in Egypt has reached more than 22m barrels of crude oil. The extension of the contract would allow the company to pump more investments and increase production over the coming years. Magapetco is a joint venture company between EGPC and Trident, working under the supervision of the South Valley Holding Company for Petroleum.

## OGS and Schlumberger Collaborate in Training Efforts Regionally



Oil and Gas Skills (OGS) recently signed an MoU with Schlumberger to establish a joint oil industry training institute. The collaboration comes from the need to develop workers and improve their skills through training and transfer of knowledge. Minister of Petroleum Sherif Ismail stated that Egypt's place as a regional and global leader is only possible through the training of manpower in Egypt. The training institute is located in Amiriya in Alexandria and will train recent petroleum engineer graduates and oil sector workers to rise to global standards. Focus will go to the areas of the properties of petroleum reservoirs, industry drilling, and production, the preparation of technicians and workers and conducting integrated studies that serve exploration, production, and manufacturing. Both companies expect that the institute will help bridge the gap between theoretical study and practical applications.

## CHOICE Words



"We give priority to electricity. The power generation industry is granted 100% of its needs and then we give the rest to factories."

**Khaled Abdel Badie**  
Chairman of EGAS



The government has taken "a sovereign decision that it's more important to generate electricity" for households than provide energy to factories. While that's been true to some extent since 2011, it's "much worse" this year."

**Moataz Al Alfi**  
Chairman of Egypt Kuwait Holding Company



"Egypt's government is working on slashing the budget deficit to eight percent of GDP in the coming four years,"

**Ashraf Salman**  
Minister of Investment





# DRILLING

## KHALDA



KHALDA, a joint venture company between EGPC and Apache, has completed drilling two new oil-development wells and two oil-exploration wells in its concession area in the Western Desert. The production rate of KHALDA was 4,500,455 barrels of oil as of July 2015.

### PTAH-6

The new development well was drilled at a depth of 12,670ft. utilizing the EDC-16 rig. Investments surrounding the project are estimated to be \$1.239 million.

### MEGHAR-11

The new development well was drilled

## SUCO

SUCO, a joint venture between EGPC and RWE, has completed digging a new gas-development well in its concession area in the Delta. The production rate of SUCO was 809,483 barrels of gas as of July 2015.

### NSG 2-1

The new well was drilled at a depth of 6,132ft. utilizing the PDI-94 rig. Investments surrounding the project are estimated to be \$1.362 million.

at a depth of 12,487ft. utilizing the ST-6 rig. Investments surrounding the project are estimated to be \$1.200 million.

### TANGO-1X

The new exploration well was drilled at a depth of 16,630ft. utilizing the EDC-54 rig. Investments surrounding the project are estimated to be \$1.725 million.

### PTAH-5X

The new exploration well was drilled at a depth of 13,085ft. utilizing the EDC-8 rig. Investments surrounding the project are estimated to be \$1.224 million.



## QARUN

QARUN, a joint venture company between EGPC and Apache, has completed drilling three new oil-development wells in its concession area in the Western Desert. The production rate of QARUN was 1,232,155 barrels of oil as of July 2015.

### HAMRA-31

The new well was drilled at a depth of

## AGIBA

AGIBA, a joint venture company between EGPC and IEOC, has completed digging a new oil-development well in its concession area in the Western Desert. The production rate of AGIBA was 2,058,099 barrels of oil as of July 2015.

## BAPETCO

BAPETCO, a joint venture company between EGPC and Shell, has completed drilling three new oil-development wells in its concession area in the Western Desert. The production rate of BAPETCO was 1,291,445 barrels of oil as of July 2015.

### SITRA 8-BE

## PETROSILAH

PETROSILAH, a joint venture between EGPC and MERLON, has recently completed drilling a new oil-developmental well in its concession area in the Western Desert. The production rate of PETROSILAH was 260,766 barrels of oil as of July 2015.

### N.SILAH 2-2

The new well was drilled at the depth of 7,660ft. utilizing the TANMIA-1 rig. Investments surrounding the project are estimated at \$1.240 million.

6,100ft. utilizing the EDC-64 rig. Investments surrounding the project are estimated to be \$761 thousand.

### WON C-302

The new well was drilled at a depth of 7,200ft. utilizing the EDC-63 rig. Investments surrounding the project are estimated to be \$780 thousand.

sert. The production rate of AGIBA was 2,058,099 barrels of oil as of July 2015.

### JASMIN E-4

The new well was drilled at a depth of

The new well was drilled at a depth of 11,089ft. utilizing the EDC-52 rig. Investments surrounding the project are estimated to be \$2.232 million.

### SITRA 8-BH

The new well was drilled at a depth of 11,404ft. utilizing the EDC-52 rig. Investments surrounding the project are estimated to be \$1.651 million.

## RASHPETCO

RASHPETCO, a joint venture between EGPC and BG, has recently completed drilling a new gas-developmental well in their concession area in the Mediterranean. The production rate of RASHPETCO was 422,321 barrels of gas as of July 2015.

### SAPPHIR DMA

The new well was drilled at the depth of 8,586ft. utilizing the SCRABEO-6 rig. Investments surrounding the project are estimated at \$22.220 million.

### MISSADA-8

The new well was drilled at a depth of 7,950ft. utilizing the EDC-64 rig. Investments surrounding the project are estimated to be \$916 thousand.

11,356ft. utilizing the PDI-147 rig. Investments surrounding the project are estimated to be \$1.270 million.

### SITRA 8-BI

The new well was drilled at a depth of 11,296ft. utilizing the EDC-52 rig. Investments surrounding the project are estimated to be \$1.963 million.



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## Italy's ENI Signs \$500M Deal with Kazakhstan

Kazakh state oil and gas company KazMunayGaz (KMG) agreed to transfer 50% of subsoil use rights in the Isatay block in the Caspian Sea to Italian energy giant Eni, reported The Diplomat. Last year, both oil companies agreed to explore the Isatay block and found a large number of oil deposits. Eni owns a 16.8% stake in the

Kashagan oil field and 29.25% in the Karachaganak gas field. The relationship between both countries is strong, as Kazakhstan exports to Italy are worth around \$15b. According to Kazakh President Nursultan Nazarbayev, the bilateral trade reached \$17b last year alone.

## Eni to Sell 1.4M tonnes/year of LNG to Indonesia

Eni agreed to sell 1.4m tonnes per year of liquefied natural gas from an Indonesian deep-water project to state-run company Pertamina, reported Reuters. Production is scheduled to start in 2017 from the Jangkrik Field Development Project off the coast of Indonesia, where Eni holds a 55% operating stake. The gas will then be treated in Indonesia's Bontang LNG plant. GDF Suez Exploration Indonesia

and Saka Energi Muara Bakau are also stakeholders in the joint-venture. Indonesia's oil and gas industry has seen better days as it struggles to attract investment to reverse declining output. Lower LNG production and rising domestic demand have resulted in rising LNG domestic use rather than exports.

## Algeria's Q1 Oil and Gas Output Decreases 6%

Algeria's oil and natural gas output decreased by 6% in the first quarter of 2015 despite increasing investment, the energy ministry said, quoted by Reuters. Lower output combined with financial problems and low crude prices led Algeria to cut gas exports. Energy makes up 95% of the North African country's exports, wrote Reuters, producing 38.1m tonnes of oil in the first quarter. International oil companies

such as BP, Statoil, Anadarko Petroleum, Repsol, and Total are the main foreign energy stakeholders in Algeria. The energy sector is in need of developing its mature fields and last year, Algeria awarded only four of 31 oil and gas blocks to foreign consortiums. By 2019, the Arab country wants to double output by building more refineries and make investment more attractive to international players than exports.

## Brent Crude Slumps Below \$60 as Greece, China Put Demand at Risk

The price of Brent Crude fell to below \$60 a barrel for the first time since April, as the possibility of Greece exiting the eurozone and China's stock market upheaval slowed fuel demand. Futures dropped as much as 2.1% in London, to the lowest in more than 11 weeks, reported Bloomberg. While Europe decides the fate of Greece after the nearly bankrupt country rejected creditors' bailout terms, China is attempting to restore investor confidence after the Shanghai Composite slumped since mid-June and U.S. Secretary of State John Kerry attempts to come to a nuclear agreement with Iran. If sanctions are lifted, Iran claims it will be able to double crude exports within six months, although its current exports are around 500,000 b/d wrote Bloomberg. "We are en-

tering a week in an environment where China is starting to panic about the plunge of its stock market, Brussels is in shock about the results of the Greek referendum and where a breakthrough deal with Iran is likely to be announced," said Olivier Jakob, managing director at Petromatrix GmbH in Zug, Switzerland. The Shanghai Composite had its biggest fall since 1992 and "the impact of the lower economic growth and falling equity markets in China could impact the physical oil demand and the market sentiment stronger than the Greek drama," Eugen Weinberg, head of commodities research at Commerzbank AG in Frankfurt, said to Bloomberg.

## Greece Unveils New Gas Project with Russia



Greek Energy Minister Panayotis Lafazanis unveiled a major gas deal with Russia worth over \$2b. The preliminary plan comes at a time when Greece fights to remain in the EU under its own conditions, at the same time Athens seeks a third bailout, reported Financial Times. The South European Pipeline will deliver 47bcm a year of Gazprom's gas to Europe in upcoming years. Lafazanis said the pipeline will create 20,000 jobs in Greece, al-

though at the expense of Brussels' move to decrease EU dependence on Gazprom and incite southeastern Europe to diversify its supply by importing gas from Azerbaijan. Gazprom is competing with the European backed Trans-Adriatic Pipeline, partially owned by BP, that is expected to bring in 10bcm of Azeri gas from the Turkish-Greek border to southern Italy by 2020.

## Maersk to Buy Greek Ports

A.P. Moeller Maersk A/S is seeking to buy Greece's two largest ports in what is part of Prime Minister Alexis Tripras's plan to implement budget-enhancing measures. "We are interested in the Greek ports of Piraeus and Thessaloniki and are pursuing them as part of our growth plans," Francois-Xavier Delenclos, a vice president at Maersk's the Hague-based

APM Terminals unit, told Bloomberg. The bid for Piraeus and Thessaloniki ports is expected by the end of October. APM Terminals are present in 58 countries and guarantee Greece "expertise in the investment, planning, building, modernizing, and operation of ports," reported Bloomberg.

## TAP gas pipeline project start in Albania

The Trans-Adriatic Pipeline project, or TAP, has begun working on an Albanian pipeline to undergo construction next year. TAP is preparing 100 kilometers of access roads and bridges along the pipeline's route in Albania, reported AP. The project will consist of 870 kilometers of pipeline from the Shah

Deniz II field in Azerbaijan and across Turkey, Greece, Albania, and undersea to Italy. The pipeline is expected to deliver Caspian gas to Europe by 2020. A project of this magnitude is one of the biggest investments in Albanian history.

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The Fugro Navigator is permanently equipped with a wide range of geophysical equipment for deep and shallow-water operations while ROV systems. Geotechnical and environmental equipment are mobilized to the vessel on a project-by-project basis. She has carried out an average of 15 survey projects each year since her introduction in early 2008, in water depths from as shallow as 10m to over 1300m. As a specialist survey vessel, the Navigator offers significant advantages over vessels of opportunity by offering:

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- Reduced turnaround time for reporting



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## **New York State Bans Fracking Due to Environmental, Health Concerns**

As fracking becomes an increasingly controversial practice, New York State recently made the decision to ban the technique, also known as hydraulic fracturing, reported the Globe and Mail. Fracking is a technique used to extract natural gas from the earth and has been the subject of many studies that claim

it causes environmental and health hazards. New York State has long had a de facto ban on the practice, which has been used in the Marcellus and Utica shale fields. The New York Department of Environmental Conservation says that there are “unavoidable adverse environmental impacts” with the use of fracking.

## **China Gas Field Development Plans in Disputed Offshore Zones Enrage Japan**



Japan's Chief Cabinet Secretary Yoshihide Suga announced that Japan has been protesting China's construction of new gas field development facilities in the East China Sea since June 2013, reported The Japan Times. “We have repeatedly protested against China's unilateral gas development and have urged China to stop it,” Suga said. These comments are in reference to the Chinese facilities, which are

near the Japan-proposed boundary between the two countries' exclusive economic zones (EEZs). Japan and China have yet to agree to a boundary in the East China Sea where their respective 200-mile EEZs overlap. A median line in the overlapping zone has been proposed, but China has insisted on a wider EEZ for itself.

## **Ukraine Stops Receiving Russian Gas as Talks Fall Apart**

Ukraine suspended Russian gas purchases on July 1 after both countries failed to come to terms during negotiations on that day. Despite the breakdown in talks, Ukrainian state energy firm Naftogaz said it would continue transferring Russian gas to other European customers. This is the second time Russian gas

has been stopped from running to Ukraine in a year, as the political conflict between the two countries continues to stagnate. The European Union was the mediator in talks between the two countries, and has put in place a series of agreements that must be renewed every three months.

## **Landmark Bill Looks to Ease Pressure on Brazil's Petrobras**

A landmark bill in Brazil's congress would ease financial pressure on state-controlled oil company Petrobras by allowing for more foreign and private investment in the country's offshore oil discoveries. Currently, Petrobras acts as the sole operator of Brazil's oil fields, a burden that would be eased by the bill's passing,

expected in September. The bill refers specifically to Brazil's pre-salt fields, which refers to the layer of the compound that covers them, that were discovered in 2007 and are expected to contain nearly 60b barrels of oil. Royal Dutch Shell has already expressed interest in becoming a field operator if the rule changes.

## **Gas Shortage Could Be Next Woe in Greek Crisis**

Greece's financial crisis is also taking a toll on its gas supplies, as DEPA gas company, along with all other public companies, was forced to put the country's gas reserves under control of the central bank in April. Given the country's current financial state it remains unclear whether Greece will be able to replenish DE-

PA's reserves. In the event DEPA's reserves are not replenished, the company will have to ask Russia's Gazprom, its largest gas seller, to reconsider its gas delivery terms. According to the International Energy Agency, Greece imports 99% of its oil and gas, which makes defaulting on payments a worst case scenario.

## **Foreign Firms Compete in Mexico's First Oil Auction in Years**

Mexico held its first oil auction since reforms reintroduced private investment for the first time in 80 years, reported Reuters. US, European, and Asian energy firms competed for 14 blocks, worth an estimated \$17b in total, located in shallow waters off the Gulf of Mexi-

co coast. Pemex, Mexico's state-run firm, has held a monopoly on drilling since the industry was nationalized in 1938. President Enrique Pena Nieto's reforms hope to increase foreign investment to reverse the tide of declining production and boost the economy.

## **Russia Modifies Border with Georgia to Control Pipeline**

Georgia has accused Russian troops of repositioning part of the border between the two countries, reported AP. According to the Georgian government, Russian troops redrew the border along the breakaway region of South Ossetia so that they could control a section of an international oil pipeline. The border, which is also 500 meters from the highway running from Tbilisi to the Black Sea, was pushed a full kilometer deeper into the territory. The pipeline in question is the BP-operated Baku-Supsa pipe-

line. Russia troops have been based in South Ossetia since the 2008 war between the two countries.



## **Turkmenistan Claims Russia's Gazprom Has Not Paid for Gas**

In early July, Turkmenistan criticized Russia's Gazprom for failing to pay a single gas bill so far this year. Turkmenistan's Oil and Gas Ministry said Russia has not paid the bill on Turkmen natural gas exported to Russia. The ministry ties Russia's defaulting on its payments to the global economic

crisis, and, of course, to Western sanctions. While Turkmenistan has the world's fourth largest natural gas reserves, it does not have any gas export routes. Russia says purchase of natural gas from Turkmenistan is proving unprofitable while Gazprom makes progress in exploring natural gas elsewhere.

## **Making Moves in Asia, Russia Signs Oil Deal with India**

Russia's top oil producer Rosneft announced it signed a preliminary agreement to purchase a 49% stake in Essar Oil, which controls India's third largest refinery, the Vadinar oil refinery. In addition to the preliminary agreement, Rosneft also signed a deal that would supply the refinery with 200,000

b/d for the next 10 years. Rosneft's move is part of its strategy to compete for the Asian market, with Saudi Arabia being its biggest competitor. Rosneft's goal is to send 40% of its oil exports to the Asian market by 2019, following continued Western sanctions due to the Ukraine crisis.

## **Argentina Needs \$1b to Explore Vaca Muerta's Shale Gas Reserves**

In order to fully explore the shale gas in Argentina's Vaca Muerta area in Neuquén, a report by the Oil and Gas Institute (IAPG) says \$1b in investment is needed over the next 20 years. The area will be used to build between 4,300 and 8,000 kilometers of pipelines and should add 5m new clients to Argentina's natural gas network. IAPG head Ernesto López Anadón said that exploration in Vaca Muerta will increase the number of people in the country who have access to natural gas by 63%. Currently 8.19m Argentinians have access, and Vaca Muerta shale gas would increase that number to 13.2m. Vaca Muerta will multiply Argentina's oil reserves

by a factor of 10, and its gas reserves by a factor of 40.



## **BP Expected to Pay \$18.7b in Gulf Oil Spill Claims**

BP reached a record \$18.7b agreement in settlements for all federal and state claims from the 2010 Gulf of Mexico oil spill, also known as the Deepwater Horizon oil spill. While BP attempted to fight claims in court, the U.S. Supreme Court denied BP's claims and a federal judge ruled that the potential

price range for violations of the Clean Water Act would be \$13.7b. The preliminary agreement would see payments spread out over 18 years and payouts given to Louisiana, Mississippi, Alabama, Florida, and Texas.

## **Shell to Begin Drilling in the Arctic**

Royal Dutch Shell announced in early July that the company would soon begin drilling for oil in the Arctic after 30 ships departed from Alaska headed for two Arctic exploratory wells. Despite controversy over potential hazardous environmental damage caused by Arctic drilling, Shell has committed \$7b to the project. The company stated that if their efforts fail they will walk away from the project. Shell was given the green light to move forward after the US Department of the Interior awarded them approval in May. Experts believe the Arctic holds more than 20% of the world's undiscovered oil.



## **Nuclear Deal with Iran May Pose Trouble for US Shale**

After two years of negotiations, a historic deal was reached between Western powers and Iran in mid July that could curtail Iran's nuclear program, reported Fortune Magazine. Iran's gain in the negotiations would be a relief from sanctions, which would mean the country's oil and gas reserves would once again be opened up to the global market. This is good news for Iran, which has

the world's third-largest oil and gas reserves, but may bode ill for other countries and their position in the energy market, including the United States. U.S. shale oil producers have struggled to adapt to a world of lower oil prices. Opening up Iran's resources to the world would further complicate the market.

## **Sanctions to Drop Russian Oil Production**

Oil production in Russia is expected to decrease in 2016 with the lift of economic sanctions imposed by the EU and the US, Fitch Ratings reported. The sanctions were imposed when Russia invaded Ukraine in 2014 and were extended for six months. Other factors such as low oil

prices and limited access to international finance will also result in a reduction in oil extraction. Fitch expects credit profiles of Russian oil and gas companies to remain stable should remain stable due to progressive taxation and the flexibility of the ruble.

## **Eni Oil-Pipeline Explosion Kills 12 in Nigeria**

An explosion in an Eni SpA's crude oil pipeline in Nigeria killed twelve people and injured three. The Tebida-Clough Creek pipeline in the Niger delta was previously “damaged by acts of sabotage,” said Eni in a statement, adding that the company is still investigating the causes for the blast. Nigeria has a history of deadly blasts, where people try to siphon crude from pipelines. Incidents of this nature interrupt the flow of oil and gas and affect the country's energy exports and revenues for IOCs like Eni, Royal Dutch Shell and Chervron. Last May, Eni had 13 incidents related to pipelines and oil wells in Nigeria, including theft, pipelines being cut using a hacksaw and equipment failure, wrote Bloomberg. Seventeen were reported in April and 14 in March. While hundreds have been killed in Nigerian pipeline accidents in the past decade, Africa's biggest oil producer loses an estimated 300,000 b/d to criminal gangs that tap crude from pipelines that criss-cross the southern oil-rich del-

ta for local refining, or sale to tankers waiting offshore, according to state-owned Nigerian National Petroleum Corp.





## India Responds to Iraq and UN Calls, Bans Oil Dealings with ISIS-Linked Entities

India banned trade with ISIS-linked entities, whether in oil or other products, reported Reuters. "In compliance with United Nations Security Council Resolution ..., trade in oil and refined oil products, modular refineries, and related materials, besides items of cultural (including antiquities), scientific, and religious importance is prohibited," announced India's commerce ministry. Previously Iraq's Prime Minister Haider al-Abadi had urged the international community to cut off the Islamic State's revenues from oil trafficking. UN resolutions have also

been passed to prevent dealings with militants in other oil-rich countries like Syria and Libya.



## Gulf Petrochem Moves into East Africa with Kenya Acquisition

The UAE's Gulf Petrochem group announced the official acquisition of Kenya's Essar Petroleum East Africa Ltd, renaming it Aspam Energy Ltd., reported Trade Arabia. The Kenyan company will continue its fuel retailing in East Africa, which includes fuel oil, gas oil, bitumen, and base oil, as well as developing and expanding storage and retail infrastructures. "With the global market for bitumen expected to reach \$95.77b by 2020 according to a new study by Grand View Research, our group has recognized the potential for business growth within the African continent. Through this acquisition, Aspam Energy will allow us to efficiently cater to East African customers and capitalize on a market which we plan to make our East African Hub," said Gulf Petrochem group Managing Director, Sudhir Goyal. Gulf

Petrochem specializes in oil trading and bunkering, oil refining, grease manufacturing, oil storage terminals, bitumen manufacturing, and shipping and logistics. It already has operations in South Asia, the Far East Asia and Europe.



## Oil Recovery, Mature Fields, Water Injection Top Technology Priorities for Collaborative Gulf Projects

Oil and Gas Technology reported that the Industry Technology Facilitator's (ITF) Gulf Cooperation Council (GCC) Members' Summit was held to chart the technology priorities for the Gulf States oil sector in the coming period. This was the first time a GCC member state agreed to take up technological challenges through collaborative joint industry projects (JIPs) planned for later this year. ITF CEO Dr Patrick O'Brien said: "Our GCC members are showing significant appetite for developing new technologies. ITF has done a great deal of work with our Middle East members in building trust and promoting and spearheading collaborative activity in the region." The three topics discussed were mature fields, hybrid enhanced oil recovery, and fluid front/injection water

monitoring and management. The companies in question—Representatives from Kuwait Oil Co., Petroleum Development Oman, and Abu Dhabi National Oil Co.—will work with ITF's subsurface team to define problem statements for these areas and invite calls for proposed solutions. From there, joint projects will be completely funded by the ITF membership. The ITF also updated the GCC companies on its global proposals over EOR in carbonates, production monitoring for highly heterogeneous reservoirs, downhole oil-water separation, triaxial borehole gravity and positioning, and the Fullwave Gamechanger Phase 2. The summit was hosted by the Abu Dhabi National Oil Company (ADNOC).

## Asean's Clean Impact Ends Long-Term Kuwait-Vietnam Diesel Links

Vietnam's top fuel importer, Petrolimex, ended its long-standing diesel term contract with Kuwait Petroleum Corp (KPC), reported Kuwait Daily News. Industry sources explained that this was for two reasons. Vietnam's membership in the Association of Southeast Asian Nations (Asean) makes it cheaper for the country's importers to buy fuel from other Asean countries. The import tax on diesel from Asean members was lowered to

5%, whereas diesel from non-Asean countries is taxed at 10%. Vietnam, moreover, plans to stop using diesel with 0.25% sulphur from January 2016. KPC originally supplied 840,000 cubic meters of diesel a year, with 560,000 cubic meters of this being 0.25% sulphur diesel, along with 280,000 cubic meters was 500 ppm sulphur diesel. The contract with KPC goes back all the way to the 1990s.

## Iran Boosting Oil and Gas Recovery from Shared Offshore Field



Iran has boosted its oil recovery rates from the offshore Salman field, director at the Iranian Offshore Oil Company (IOOC) Abbas Rajabkhani stated to Press TV. Recovery rose by 3,000 b/d after development operations on two wells, he said, adding that drilling operations, repair, and maintenance work continued on a regular basis despite the "sensitive conditions" surrounding the field, shared with the United Arab Emirates. There are also gas recovery facilities in place that are being prepared for production, Rajabkhani explained, adding that the field is expected to yield 500 mcf/d of gas alongside 6,000 barrels of condensates when production begins. The Salman field dates back to 1968 with about 1.6b barrels of recoverable reserves. 70% of the field belongs to Iran, with the country's oil recovery coming from 44 wells, with two more being drilled currently and more planned for the near future.

# UNCONVENTIONAL

## US IEA Report Puts China, Argentina at Top of Global Efforts to Expand Shale Gas and Oil Production

According to Shale Energy Insider, the US Energy Information Administration has identified Argentina and China as the two global leaders in the pursuit of shale gas and tight oil exploration and production. A recently released EIA report said that China had drilled over 200 wells and Argentina had drilled nearly 300 wells and that both countries have the "potential to significant-

ly increase production of shale gas and tight oil." Poland, Algeria, Australia, Colombia, and Russia were also active in the shale sector. Mexico has also signed agreements with Texas to tap into the Mexican portion of the Eagle Ford shale play. As it stands, only the US, Canada, Argentina, and China are producing shale oil or shale gas at a commercial level.

## Another Setback for British Shale Gas Ambitions



The Lancashire County Council development control committee turned down requests filed by Cuadrilla to drill shale gas exploration wells in Preston New Road and Roseacre Wood in northern England, reported ICIS. The Roseacre Wood application was turned down because of the impact of traffic in the local area. Preston New Road was rejected "on the grounds of noise and visual impact." A separate application that would enable Cuadrilla to monitor its operations in Preston New Road was also denied on account of the probable

impact on the landscape. Cuadrilla expressed its disappointment and underlined the fact that they "remain committed to the responsible exploration" of natural gas. They were also looking into a possible appeal of the decision. Steve Elliott, chief executive of UK's Chemical Industries Association (CIA), explained that the country needs new sources of gas to "ensure security of supply, not least for the chemical sector which also uses gas as a feedstock (raw material)" thanks to declining North Sea gas.

## Saudi-OPEC Policy Derailing America's Shale-led Energy Boom, Shell CEO

Royal Dutch Shell CEO Ben van Beurden said that the decision not to cut oil production taken by OPEC and Saudi Arabia has put pressure on US shale gas producers and so dampened America's energy boom, reported Reuters. Such

moves have sent a strong signal that Riyadh would no longer "underwrite the price" of oil by using its ample reserves to balance the global market, he said. Van Beurden did not, however, expect a sharp fall in US output, adding

that cost-cutting and improvements in efficiency would most likely keep production at current levels. These remarks were made in an interview with the Financial Times.

## Refracking Could Give Shale New Lease On Life

A technique meant to extend the life-cycle of shale fields is beginning to gain traction in the US, reported the Washington Post. The stimulation method, called refracking, involves using the same process where water, sand, and other chemicals are pushed down a well but with the intention of reaching previously untapped areas, creating new fissures and re-opening clefts in the rocks that have closed over time. According to a calculation based on Wood Mackenzie and ITG Investment Research data, fields could actually

contain enough reserves to last about 50 years. Bloomberg analysts William Foiles and Peter Pulikkan found that refracked wells in North Dakota's Bakken formation produced more than 30% in the first month after the refrack than they did when they were originally drilled and began producing. Mike Vincent, a well-completion engineer who runs Insight Consulting, argues that it is common to see oil recovery climb 60% or more. There are considerable risks involved, however, warns Robin Mann, global leader of the resource evaluation

and advisory group in Deloitte LLP's Houston office. Refracking is still in its "early days," he said, since the technique could "damage the reservoir or create interference between wells." Oil could also accidentally be siphoned off from a nearby well and studies so far have not relied on large enough samples to conclude what the full range of effects of the process are. Nonetheless, Marathon Oil Corp. and ConocoPhillips are already incorporate refracking into their shale operations.

## Barnett Shale Gas Study Says Methane Leakage 50% Higher than Officials Figures

According to 11 peer-reviewed papers published in the journal Environmental Science and Technology, well pads, compressor stations, processing plants, and other equipment used in shale gas production leak 50% more methane than the Environmental Protection Agency has estimated, reported The Texas Tribune. This survey was conducted for the 5,000-square-mile North Texas' Barnett Shale fields that spans 25 counties. Methane, the main component of natural gas, is a greenhouse gas that is up to 34 times more potent

than carbon dioxide. If true, then these articles would prove that the US government has been vastly underestimating methane emissions. The researchers explained that this was partly because of the dearth of data on all stages of the gas supply chain. "A lot of it is human error. Somebody will leave a hatch open, and nobody goes back to the facility for more than a month, so it's leaking this huge amount of methane out of the top," said one of the scientists involved, Robert Talbot, a University of Houston professor of atmospheric chemistry.

Leaks at the sites ranged from 0.01% to 47.8% of the natural gas they produced with overall leakage at 1.2% of all natural gas produced in the region. Moreover, oil and gas production accounted for 64% of total methane emissions. Barnett is where petroleum companies first combined horizontal drilling and fracking for natural gas. The research received funding from the Alfred P. Sloan Foundation and the Environmental Defense Fund, working with researchers at 20 universities and private firms, gathering from October of 2013 onwards.



## Rosneft Under Investigation Following Pipeline Leak Charges

Russia's environmental watchdog has opened a case against RN Yuganskneftegaz, a subsidiary of Rosneft, the Guardian reported. This came after a leak occurred just outside Nefteyugansk near the Ob river in the Khaty-Mansiysk region of Siberia, contaminating several hectares of water in the area. Residents took photographs of oily water in their gardens and coming out of their taps. The number of homes affected is disputed. Nefteyugansk is a major oil town with a population of 120,000 and the area had been suffering from flooding at the time. The charges leveled against the company are for administrative violations of water protection regulations leading to contamination. A regional prosecutor is now investigating the company's disaster preparedness. The company attributed the leak to the failure of an oil-gathering pipeline at

the Ust Balykskoye field, claiming that oil would most likely not spread to the nearby Yuganskaya branch of the Ob river. According to the Hydrometeorological Center of Russia, the country has suffered from more than 10,000 oil leaks over the past few years, estimating that 4.5m tonnes of oil have been lost each year. This amounts to seven times more than the BP Deepwater Horizon spill in the Gulf of Mexico in 2010.



## China Now Building its Side of Russia's 38bcm "Power of Siberia" Gas Pipeline

China is building its side of the Russian "Power of Siberia" natural gas pipeline, reported Press TV. The pipeline, when complete, will transport up to 38bcm a year of Russian gas to China. Welding on the first joint of the pipeline also began in the northern border province of Heilongjiang. When complete, the pipeline should extend to Shanghai. The announcement was made during a videoconference in which Russian Prime Minister Dmitry Medvedev described the pipeline as the world's biggest infrastructure project. There are also plans in store for a "Power of Siberia 2," meant to deliver

another 30bcm of gas to China, Medvedev said. For his part the Deputy Prime Minister of the State Council of China, Zhang Gaoli, said on video link that such projects were a good basis for the promotion of a strategic partnership between the two countries. The pipeline is scheduled to become operational in 2018 and resulted from a 30-year framework deal signed in May 2014 between Gazprom and the China National Petroleum Corporation (CNPC). Gazprom CEO Aleksey Miller said that the total value of the project could reach \$400b.

## Dutch-Russian LNG Project Targets European Marketplace

Russia's Gazprom, the world's top gas producer, announced that it has entered into an agreement with Dutch gas grid operator Gasunie to cooperate on the small-scale liquefied natural gas (LNG) market in Europe, reported Reuters. This may expand to include joint projects for the construction of LNG-receiving terminals, LNG

filling stations, and other infrastructure facilities, Gazprom added in a statement. A joint pilot project for the construction of a small LNG-receiving terminal in northwest Europe had already been discussed, in fact, but no further details on the cost or volume of possible future projects were provided.

## Total's Singapore Lubricant Plant a 310,000 Tonne Springboard to Asian Market

French Total announced that its new lubricant oil plant in Singapore had begun operations, the largest facility of its kind owned by the company globally, reported Reuters. The plant, with a 310,000 tonne per year capacity, is meant to double Total's volumes in Asia from the current half a million by 2025. The plant will eventually replace two existing facilities that only have a 180,000 tonne capacity. During the plant opening Pai Kok Tan, the company's vice president of lubricants marketing and services in Asia-Pacific,

explained that lubricant demand in Asia was on the rise, growing at 1.7% per year. Total supplies 5% of the 40m tonnes a year that the world consumes, said Philippe Charleux, Vice President of Total's Global Lubricants business. He added, however, that global demand for lubricant oil has gone down in line with economic growth. Total is one of the top five suppliers worldwide and the new plant works by blending base oil with additives. Lubricant oil is used in vehicles, ships, and manufacturing.

## 5 Killed in S. Korean PVC Plant Explosion

An explosion at a South Korean polyvinyl chloride (PVC) plant left five dead and one missing, reported Reuters. The facility was the Number 2 plant of Hanwha Chemical Corp. The incident happened during welding work at the plant, meant to expand a wastewater disposal facility. PVC is a general-purpose plastic used in wide range of products. The plant is in the city of Ulsan, which is about 300 kilometers southeast of the capital Seoul.



## UAE's Anti-Corrosion Fiberglass Pipes Expanding its Global Presence

UAE-based Future Pipe Industries Group announced that one of its member companies, Gulf Eternit Industries, commissioned a 176,720-sq-m manufacturing unit in Dubai for the production of fiberglass pipes, reported Trade Arabia. These are anti-corrosive large diameter fiberglass pipes for the power, oil and gas, petrochemical, infrastructural, municipal, desalination, and marine market industrial sectors. The new plant will be located in Dubai Industrial City (DI) with a production capacity of 50,000 tonnes, or 600 km of pipe every year. Future Pipes estimated that project would cost \$45m and would employ 715 people. "With the world pipe market demand projected to reach \$130b by 2016, Future Pipe Group remains committed to expanding its global footprint throughout the Middle East, Africa, Europe, North America, and Asia," remarked Fouad Makhzoumi, Chairman of Future Group. "Our strengthened presence at DI will particularly help us reinforce Dubai and the UAE as a key manufacturing destination of quality products that are marketed worldwide," he added. The company was established in Dubai in 1984 and now enjoys a clientele of 400 major customers in over 50 countries.

# RENEWABLE ENERGY

## Egyptian Government-Affiliated Company Begins Production of Solar Panels

The Arab Organization for Industrialization (AOI), recently announced it would begin a production line of solar panels to generate electricity. The announcement was given by Egyptian Prime Minister Ibrahim Mehleb, with various high-level state officials in attendance. AOI is a large company with ties to the Egyptian military and government and

is chaired by the President of Egypt, Abdel Fattah El-Sisi. All Africa reported that it was explained AOI plans to inaugurate production by building enough panels for a 100MW electricity facility. The project has received significant funding from foreign sources. The company is currently managing several renewable energy plants, both in Egypt and abroad.

## Saudi Arabian Company to Build Solar and Wind Plants in Egypt

Al-Jeel Al-Hader Company has recently signed an agreement to invest \$350m in alternative energy resources in Egypt, reported Al Mal. Three Egyptian subsidiaries have been formed for the purpose, with two focused on solar power, and the third on wind. All three plants are projected to have a capacity of around 50MW. Al-Hader has already initiated two

separate solar projects in the country of Jordan. Those facilities will have the combined capacity of 33MW. Al-Hader is also currently working on plans to build what it says will be the first solar panel production facility in the Middle East. It is coordinating on the project with the Italian firm MACCAFERRI.

## US Refiners Gain Ground in Dispute Over Renewable Identification Number Dispute

US refiners applauded the recent release of a report detailing how the new market overseen by the EPA has been subject to manipulation by speculators and mass buyers, reported Reuters. These claims have been voiced ever since the EPA set up the system under the framework of the Renewable Fuel Standard. A US company has challenged the process in court, arguing that the process is prone to engineering for gains by specific firms. The new report showed that fuel blenders and related companies comprised nearly 60% of sales. The release

did not break down the size or volume of trading by company, so it is not known how many firms may have had the capacity to change prices as alleged by critics. Still, Geoff Cooper, Senior Vice President for the Renewable Fuels Association, which represents biofuels producers, said more specific data was needed. "Speculative trading is lumped in there somewhere, but we do not know how much." The EPA stated that the report's release was aimed at improving transparency.

## UK Removes Green Energy Tax Exemption

UK Finance Minister George Osborne announced recently that the UK government would revise its practice of exempting renewable energy producers from a climate change tax. The move comes after the government stated publically that the tax practice was outdated, and that much of the benefit was going to overseas electric suppliers who were channeling energy to the UK via undersea connections. The

exemption is now scheduled to end on August 1st. Removing the exemption is projected to raise tax revenues by an additional \$700m this year, rising to nearly \$1.5b by next. Many UK energy suppliers such as Drax Energy—which generates electricity through biomass pellets—saw significant adjustments to their stock prices after the announcement.

## UAE Firm Farnak Installs Biogas Facility in Nepal

UAE firm Farnak just completed the installation of a new biogas facility in Nepal, reported Trade Arabia. The facility was built in cooperation with Swiss-based charity MyClimate. Nepal was chosen by the two groups as an ideal location based on its need for electricity and the concept that Farnak should be giving back to its community. "Over 19% of our employees are Nepalese, and with these isolated rural communities in the country facing ongoing challenges in terms of access to clean, affordable energy, this was a great opportunity for us to contribute towards improving living standards for the families of our team members and advance the sustainability agenda in Nepal at a vital community level," said Markus Oberlin, the CEO of Farnak. The facility is expected to be highly efficient in converting animal waste and other unwanted materials into gas fuel, also reducing the demand of fossil fuels.





A close-up photograph of three industrial drill bits, colored blue and yellow, positioned to strike a target. The target is a circular object with a red center and a green outer ring, set against a grey background with a geometric pattern. The drill bits are angled towards the center of the target, and a small amount of red material is visible where they are making contact.

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## THE BLACK WELL OF ANGOLA: AN OIL-RICH COUNTRY IN DESPAIR

By Kaylan Geiger

Below the equator's belt on the African continent, Angola sits in relative silence. Conflict ridden for years, the country switched from a war of independence that lasted over a decade to a civil war more than double in length. For 26 years, the country was split in two in a bloody civil war—pegged as the last proxy of the Cold War—that it only emerged from a little over a decade ago.

Jose Eduardo dos Santos, Angola's president who has been in power since 1979 and is the continent's second longest ruler, has been referred to as the Machiavelli of Africa. He lays low, shying from attention to his personal and political life, which has kept him and his country off the map. Media attention to Angola is sparse, also due in part to Dos Santos' autocratic hold and the complete absence of press freedom and free speech.

"He is a dictator who is not as flamboyant as the ordinary African dictators and this has misguided many people in Africa," Rafael Marques de Morais, a well-known and outspoken Angolan journalist, told The Guardian. Marques de Morais has been arrested and jailed for his critical reports of dos Santos, as he has attempted to expose the -government corruption that does a disservice to a people in dire need.

### An Oil Industry Drenched in Corruption

Like dos Santos, Angola's booming oil industry has been shrouded in secrecy. Back room deals and closed-door negotiations are the norm in deal making between foreign companies and Angola. There is little transparency in what goes on behind the scenes, and very little information is put out to show the public. Transparency International ranks Angola as 161 out of 175 countries on its Corruption Perceptions Index (2014) with a score of 19 out of a possible 100, making it one of the most corrupt countries in the world.

Oil was first discovered in the country in 1955 in the onshore Kwanza basin near Luanda. Angola is the second largest oil producer in Africa, coming after the continent's frontrunner Nigeria. Angola's oil industry, dominated by an upstream sector, produces oil that is light sweet curde with low volumes of sulphur,

which makes it optimal for producing gasoline, kerosene, and diesel.

Angola's economic growth rate has been hailed as "impressive," with oil carrying most of the weight. According to OPEC, oil contributes to 45% of Angola's gross domestic product and over 95% of exports. Angola's value of exports is \$63,908, the value of petroleum exports is \$57,609, proven crude oil reserves are 8,423m barrels, and crude oil production is 1,654 (1,000 b/d).

After being in war for decades, Angola's growth rate impresses, but it also deceives.

### Angola's Resource Curse

According to 2014 statistics, Angola hosts a population of 24m and ranks 149 out of 187 on the Human Development Index. Further depictions of Angola's low human development rate are depicted in life expectancy, a low 50.25 years (with the country's median age resting at 17.9 years), and one of the highest infant mortality rates in the world (79.9 deaths per 1,000 live births).

Wealth disparity in Angola is almost unrealistic. While most Angolans live on less than \$2 a day and in poor health conditions, Angola's capital Luanda was ranked by Mercer as the most expensive city for expatriates. Average size apartments in the capital can go for thousands of U.S. dollars, while imported products like Coca Cola and prime steaks can run in the hundreds of dollars.

Human rights advocates have claimed that Angola's oil wealth does not benefit the country, except for a rich few at the top who rest under the president. Angola's oil industry has become its resource curse, benefiting a few while hindering full economic and political development. While Dos Santos remains out of the spotlight, his country's politics continue to lack any transparency or openness. "Resource-rich countries are said to be more prone to negative outcomes ranging from slow economic growth, underinvestment in human capital, and environmental degradation to corruption, authoritarian rule, and violent conflict," writes Rod Alence for Southern

Africa Resource Watch.

Angola's state-run oil company Sonangol is the concession grantor and regulator of the industry. Oil deals are made under confidentiality agreements, which makes it difficult to understand exactly how much money the country is gaining from its prized resource. According to the Open Society Initiative for Southern Africa (OSISA), "multinationals that want to do business in Angola must associate with Sonangol in the form of a joint venture or Production Sharing Agreement (PSA). To win contracts, multinationals must pay signature bonuses that can run into billions of dollars and are not publicly disclosed."

The privacy of Sonangol and the lack of disclosure have been a main culprit in Angola's oil corruption. In 2012, the IMF found that \$4.2b linked to Sonangol was missing from public accounts.

According to Angola Program Manager for the OSISA Elias Isaac, Angola has responded to calls for more transparency in its oil sector with some improvements, such as disclosing government receipts on projects from oil extraction. However, the few successes in transparency do not add up to much, according to Isaac, who says, "the Angolan government's reporting of revenue receipts is limited and unreliable."

### The Scramble for Angola's Black Gold

Once the scene of an important Cold War proxy war, Angola is now a playground for the world's largest oil companies. Instead of a political battle, the battle over Angola has become one focused purely on oil. China and the United States remain the biggest consumers of Angolan oil, and big names like ExxonMobil, Chevron, Marathon, BP, Total, Cobalt, Eni, Petrobras, and Vaalco, among others, are digging and drilling away off the country's coast.

China, the world's biggest oil consumer, has made Angola its main market by purchasing nearly two million barrels a day from the African country. Aside from its purchases, China has woven itself into Angola's economy through its oil connections in the country and

sizeable expat population.

OSISA says that multinational oil companies "do not address governance or transparency issues in Angola," which has facilitated patronage problems, rent seeking, and has exacerbated the resource curse.

While transparency about oil in Angola remains blurred, there have been some external attempts to gain perspective on the oil exchanges taking place with foreign countries. In 2010, the U.S. Congress passed the Dodd-Frank Wall Street Reform and Consumer Protection Act, which has a transparency provision (Section 1504) that mandates oil, gas, and mining companies registered with the U.S. Securities and Exchange Commission (SEC) publicly report payments to foreign governments.

With the price of oil falling due to oil glut and excess on the market, industry giants like Halliburton and Schlumberger have had to cut jobs and make adjustments. For Angola, things are still fairing well, for now. "If the United States stops buying Angola's oil, and if China's rate of economic growth continues to slow, major foreign companies would be unable to sustain their current staffing levels and expenditures," writes Michael Specter for The New Yorker. "Within a few years, the United States might not need any Angolan oil. The current price of a barrel of oil is about fifty dollars, but just a few months ago the Angolan government, for the purposes of its 2015 budget, assumed that the average price would be eighty-one dollars."

Despite global price concerns, Angola's oil wealth will continue to serve as the nation's number one moneymaker while the country makes promises to cut its budget. And while oil companies and foreign countries continue to extract oil wealth, most Angolans remain unaware of their nation's wealth. So much of the oil wealth gained by Angola remains in the hands of a few, and poverty-stricken Angolans do not seek oil revenue redistribution because they are either unaware of the wealth that exists or their awareness has led to their suppression.





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## DYNAMIC, CAPABILITIES-DRIVEN STRATEGIES FOR OIL AND GAS COMPANIES

The oil and gas sector is undergoing a profound, once-in-a-lifetime transformation. For international and national oil companies, making investment choices has never been so challenging. In an industry facing increased volatility and intensifying skills shortages, oil and gas companies can no longer win across an ever-broadening spectrum of operating environments. Few companies have the technical, operational, and commercial capabilities required for activities that can range from exploring onshore to ultra-deep-water, all the way through to development and/or production of both conventional and unconventional oil and gas resources.

Therefore, oil and gas companies need to focus on a small number of differentiating capabilities—this is the combination of individual knowledge, skills and behaviors, processes, tools, and systems—that allow them to outcompete their peers. Moreover, they need to reorient their portfolio and investment decisions around these differentiating capabilities. This is PWC's capabilities-driven strategic approach to winning.

Although the right combination of capabilities and assets will vary from one company to another, there is a common thread. Critically, the strategy must be flexible enough to adapt to changes in the operating environment. In the past, oil and gas companies had the luxury of investing in attractive, long-term opportunities, and then focusing on execution. This was a linear and inflexible approach akin to how a railway determines where to "lay the rails" and then moves ahead with little scope for adjustment. Today, by contrast, success lies in flexibility, through a dynamic

strategy in which capabilities set the broad direction of travel, yet companies can still adapt, as sailors do in response to changes in the prevailing wind. In the current environment for oil and gas companies, this approach—sail, not rail—gives them the greatest chances of winning.

### An Uncertain Oil and Gas Landscape

In the past, oil and gas companies developed strategies in response to a predictable world of growing global production and demand, with clear volumetric growth targets and an abundance of conventional opportunities. Consequently, many companies had similar strategies that emphasized common operational elements, such as managing operating costs, exploiting technological advances, and securing access to attractive exploration opportunities.

In recent years, the oil and gas sector has been buffeted by a series of structural changes that has expanded the range of operating environments, particularly for upstream companies. The growing diversity of operations has been accompanied by greater volatility, even by the standards of an industry that is used to managing day-to-day operational uncertainty.

On the supply side, the recent growth in both oil and gas production has been dominated by unconventional plays in the US. Only a small handful of independent companies have been primarily responsible for evaluating these plays and developing the technology required to exploit them, and the rapid rise in both "light, tight oil" and shale gas production caught many established players by surprise, warranting a rapid reevaluation of strategic priorities and a reshaping of

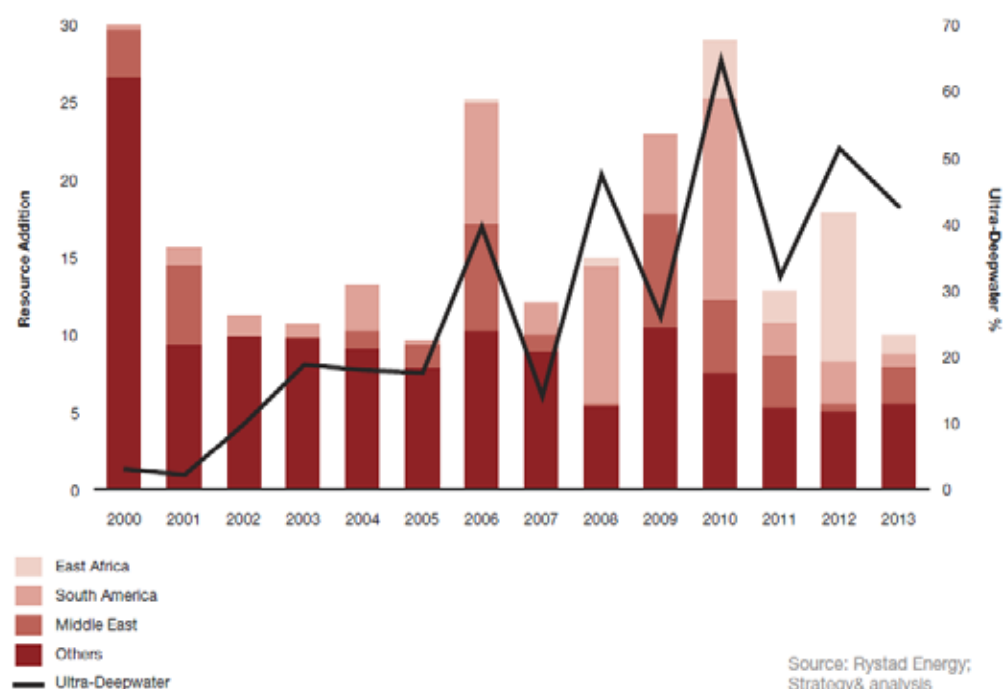
their portfolios.

Recent changes in exploration have been even more dramatic. New resources have come through major discoveries in previously unexplored regions, notably in Brazil and Africa, whereas already discovered volumes in traditional areas outside of these new plays and the Middle East have declined (see Exhibit 1). Ultra-deep-water plays now account for 40-60% of all newly discovered resource volumes. At the same time, the cost of developing and operating such resources has increased sharply in recent years. The full life-cycle break-even costs for bringing such new production on line are often now in the range of \$80 to \$110 per barrel,

making the commercial prospects of future projects highly uncertain given the outlook for oil prices.

The demand side has been equally uncertain. The growth in demand for oil and gas in recent years has come almost entirely from emerging markets, particularly China and India. Demand from Organization for Economic Co-operation and Development (OECD) countries have declined due to a com-

Exhibit 1  
Global exploration oil and gas resource additions, 2000–2013



### THE IMPORTANCE OF A CAPABILITIES-DRIVEN STRATEGY

In today's highly uncertain and volatile environment, the most successful players will focus on a small number of core capabilities that make them distinctive in the market. For example, a company may differentiate itself through excellence in a particular part of the oil and gas value chain, relationship management in an important region, strength in a particular technology, or expertise in certain commercial settings (see Exhibit 2). Successful companies also have a portfolio of assets that mesh with their capabilities, driving stronger operational and financial performance.



Exhibit 2  
Examples of oil and gas capability areas

Capability Area	Description	Example
E&P value chain	Capabilities with respect to a particular part of the E&P value chain	Occidental Enhanced oil recovery
Core region	Capabilities with respect to operating in a particular geographic area	Lundin Norwegian North Sea
Play types	Capabilities regarding exploration in particular geological play types	Tullow Oil Rift basins, stratigraphic traps
Technology	Capabilities in application of a particular specific technology	Statoil Harsh environments
Operational	Capabilities to combine various technologies and operating practices	EOG U.S. shale plays
Product	Capabilities relating primarily to one particular product	BG Gas value chain
Partnerships	Capabilities in establishing and leveraging partnerships	Wintershall Gazprom partnership
Political situation	Capabilities to operate under particular political circumstances	BP Russia
Commercial situation	Capabilities to secure assets in particular commercial situations	Apache Bilateral negotiations

bination of higher prices, increased energy efficiency, and substitution by other energy sources. Instead of closing refineries in the OECD, however, companies have invested in more complex cracking and coking capacities that have exacerbated the surplus of petroleum products in export markets.

Given such heightened levels of uncertainty, on both the supply and demand sides, we can expect increased volatility in oil prices for the medium to long term. Unpredictable extraneous events such as geopolitical disruptions will also increase volatility.

In addition to supply and demand factors, oil and gas companies must address several other challenges—such as the rise of new technologies and approaches, including hydraulic fracturing and enhanced oil recovery—which often have significant uncertainties in their applicability and impact. An increased regulatory burden is also affecting companies at operational levels, while the maturing of the oil and gas workforce has resulted in an intensifying shortage of critical skills.

Against this backdrop, management teams must make strategic choices about the segments in which they will operate, and how they can effectively manage uncertainty in an industry characterized by long investment cycles. The oil and gas sector still depends on generic and non-differentiated strategies that do not position companies to tackle the multiple challenges and uncertainties that lie ahead. Few oil and gas companies are able to articulate their differentiated capabilities beyond general terms. Often, a company expresses its strategy in terms of its existing operations, without fully identifying the specific capabilities that would allow it to extract more value from a given situation than its competitors.

the major oil and gas companies, with an impressive breadth and depth of exploration and production capabilities, struggle to develop and deploy capabilities across the increasingly broad spectrum of operating environments. Despite clear technological expertise and capabilities, Royal Dutch Shell has not kept pace with its more nimble competitors in unconventional operations in the US, requiring the company to take a \$2b writedown on its shale gas operations. ExxonMobil has separated its onshore and unconventional shale operations into a subsidiary, XTO Energy, which it acquired in 2010 specifically for the different skills that XTO brought to

bear in shale oil and gas operations. BP has also recognized that onshore operations in the contiguous U.S. require distinctly different capabilities than those needed for its deep offshore business and is now in the process of carving it out into a separate entity.

The recent trend of integrated companies such as ConocoPhillips, Marathon, and Murphy Oil Corporation separating upstream and downstream operations reflects, in part, this premium that markets place on focus and coherence around a set of differentiated capabilities systems. It is worth noting that this phenomenon occurs in virtually all other industries as well, where strategy and research has shown that coherent companies are usually rewarded with higher valuation multiples.

Differentiated capabilities are also important for downstream operations within oil and gas companies, even though these are typically less differentiated than upstream operations and the overall downstream sector is currently depressed. For downstream operations, this differentiation can come from varied capabilities that range from access to specific process technology to critical midstream assets and leveraging brands or tailored service levels. For example, BP has established capabilities to operate integrated fuel value chains, Shell leverages its brand and premium grades, and Total is renowned for its innovative commercial approach in mature markets and its ability to apply this to smaller, remote geographies.

**The Importance of Flexibility**

National oil companies, even those acting exclusively in their home territories, are not sheltered from the uncertainties and changes sweeping through the energy sector.

Although a strategy aligned with core capabilities is a prerequisite for success, it is not sufficient on its own. In a highly uncertain oil and gas operating environment, companies increasingly need to focus on core capabilities yet need to remain flexible enough to anticipate and respond quickly to unexpected events.

Recent developments at Occidental and Apache, two of the previously mentioned companies that are executing clear, capabilities-driven strategies, illustrate the value of flexibility. After building up a significant portfolio of field developments in the Middle East and North Africa, Occidental has been affected by the recent un-

rest in the region, which has rattled shareholders concerned about the perceived risks of operating in higher-risk countries. As a consequence, Occidental is now seeking to reduce its exposure to the Middle East and North Africa.

Apache, long seen as an industry leader in exploiting mature and underdeveloped fields onshore and in shallow water, entered the deepwater Gulf of Mexico in 2010. This move was seen at the time as requiring different capabilities from those of the company's established business. In May 2014, Apache sold its deepwater position to focus again on assets aligned with its core capabilities. As an Apache executive stated in a press release at that time, these "have quicker cycle times, require less capital, and provide more options to bring oil and gas to the market." Through this deal, Apache showed the flexibility to alter course based on its own experiences in operating in a new environment.

National Oil Companies (NOCs), even those acting exclusively in their home territories, are not sheltered from the uncertainties and changes sweeping through the energy sector. In the past two years, discussions have gone back and forth regarding whether the Organization of the Petroleum Exporting Countries (OPEC) and its NOC members would cut production to sustain oil prices in a world of declining demand, or whether new capacity will be sufficient to meet an expected call on OPEC oil. NOCs also face the dilemma of having to invest in expensive additional production capacity, which may not be required long term, or risk missing out on opportunities to maximize sales in a supply-constrained market characterized by high oil prices. A similar issue is playing out with growing gas demand, particularly in the Middle East, where NOCs face difficult strategic choices. The decision to build gas import infrastructure, secure expensive gas imports, or further develop gas-based chemicals becomes much harder given the uncertain outlook for indigenous conventional and shale gas resources.

In some ways, oil and gas companies have limited flexibility to respond to unexpected events, given the long-term nature of many investments. Decisions on major capital investments have become increasingly challenging, particularly because of persistent project time and cost overruns. Yet companies can still build significant flexibility into their investment programs. For companies active in exploration, this might involve tak-

ing small stakes in emerging basins in case significant discoveries are made, and by actively managing the exploration portfolio of options. For producing assets, a company can actively consider, and plan for, the different activity sets it would need to conduct under different oil price scenarios. Designing modular field developments that can be scaled up in response to changing market conditions also builds flexibility into long-cycle investment projects. This is particularly important for companies in volatile operating environments, such as Iraq.

Downstream operations will increasingly favor facilities with the flexibility to accommodate uncertainties in feedstock supplies and product demand. At the same time, NOCs such as Saudi Aramco and Kuwait Petroleum Corporation have invested in refineries in major demand centers, partly to mitigate uncertainties in future demand for crude. For both upstream and downstream operations, joint ventures are increasingly viewed as a way to manage the risks associated with major investments in an uncertain environment.

**Building a dynamic, capabilities-driven strategy**

To be more effective, strategies should assess which of the company's technologies (or combinations of applied technologies) are truly critical for the company's operations and differentiated from the competition.

Dynamic, capabilities-driven strategies are based on three main elements:

- identifying differentiated capabilities systems critical for success and that are aligned with the existing portfolio
- translating and reinforcing these differentiated capabilities so that they become a coherent "way to play"
- incorporating a dynamic strategy framework

Identifying Differentiated Capabilities Systems

Developing a true capabilities-driven strategy starts with a rigorous review of the company's performance, to determine where it excels—and why. Such a review should consider the capabilities that the company already has—or needs to further develop—to extract maximum value from the existing portfolio, and that can be leveraged to secure new opportunities and manage risks when expanding into new areas.

Critically, the capabilities review should go beyond generalities to uncover the specific elements that contribute to success. For example, many companies cite a generic focus on "technology" as a strategic theme. To be more effective, strategies should assess which of the company's technologies (or combinations of applied technologies) are truly critical for the company's operations and differentiated from the competition, along with its experience in deploying such technologies, and where they might apply to other assets. Importantly, a thorough capabilities review should openly address areas where the company has fallen short of its objectives and seek to understand the root causes.

Building on the performance review

and the core capabilities that the company identifies, management can then strengthen those capabilities critical for extracting maximum value from the current and potential future portfolio, and weave them into a truly differentiated offering. Such an approach should clearly identify future opportunities the company will target (both internally and externally), where it can exploit its capabilities, and a plan to acquire any additional capabilities systems it may need to address critical gaps.

**Translating Core Capabilities Into a Coherent "Way to Play"**

Next, successful capabilities-driven strategies translate the identified core capabilities into a "way to play" in terms of where (geographically) an oil and gas company will operate, what type of assets it will acquire and operate, and how it goes about acquiring those assets. For most companies, the "where" question will involve focusing on core regions to avoid over-extension into too many diverse operating environments. A clear view on core capabilities will help the company determine the right asset mix to generate maximum value from those capabilities.

Having identified the region of interest and type of assets to be targeted, a final element of the "way to play" is to develop an approach to business development to maximize the chances of securing the targeted assets. Certain types of assets may be acquired through a conventional, exploration-led approach, and others may require more focus on acquisitions from other oil companies, or direct negotiations with host governments.

**Incorporating a Dynamic Strategy Framework**

Identifying and leveraging core differentiating capabilities establishes a strategic foundation, but successful oil and gas companies also require flexibility and the ability to manage uncertainties and respond to unexpected occurrences. Many senior managers recognize the limitations of a traditional, static approach to strategy in the face of heightened uncertainty. However, few oil and gas companies can effectively, systematically, and explicitly build flexibility into their investment planning process.

**Scenarios should be plausible, linked to a specific time frame, and internally consistent.**

Implementing a dynamic strategy framework to complement the capabilities-driven strategy comprises a number of key components:

- Scenario development: A truly dynamic strategy considers multiple sources of uncertainties and their impact on current and future operations. To be most effective, the various scenarios clarify and provide boundaries around the most relevant uncertainties; they also push the boundaries of future possibilities through to the consideration of selected "wildcard" developments to ensure the company is thoroughly prepared. Scenarios should be plausible, linked to a specific time frame, and internally consistent. In the current oil and gas



landscape, scenarios might consider factors such as future production levels of unconventional hydrocarbon, the development of capital and operating costs, or the impact of tighter regulations on carbon dioxide emissions.

- **External sensing:** Companies must also have signposts with gauges in place to spot market changes as early as possible. Effective external sensing draws on multiple sources of insight and data from across the organization to identify indications of change in the relevant landscape. Within oil and gas companies, the exploration department will, for example, look for transformational new discoveries, while competitive intelligence and business development organizations typically monitor the behavior, strategies, and actions of

key competitors

- **Scenario management:** Managing scenarios effectively requires clear roles and responsibilities, and a formal process to capture and incorporate the latest information relevant to management decisions. Such processes may include regular signpost reviews throughout the year where management reviews scenarios and, if applicable, changes course or activates contingency plans. Oil and gas companies often have strong experience in contingency planning at certain levels of the organization, such as the reallocation of exploration budgets in response to unexpected well results. Often, however, contingency planning is inadequate in the face of major uncertainties and can result in significant disruption and inefficiency in re-

sponse to material changes in outlooks.

- **Integration with investment planning:** A final step in establishing dynamic strategy capabilities is to fully integrate the framework in investment planning and capital allocation processes that determine the shape of the future portfolio. Typically, company leaders assess key trends and important shifts in the operating environment at the beginning of the investment planning cycle. They then rarely review and adjust investments in progress in light of evolving scenarios and signposts, as is often warranted. Updated scenarios form the basis for setting priorities in the planning cycle and for adjusting investment decisions at any time of year. Moreover, as conditions change, companies

with an integrated framework are able to iterate the entire process, ensuring that they have the right way to play for their particular situation.

#### Conclusion

In an industry beset with increasing volatility and uncertainty, diverse technological and operational environments, and intensifying industry-specific skills shortages, oil and gas companies will need to focus on a few differentiating capabilities required to win in their chosen areas of operations. Yet they must also remain flexible and agile enough to respond to changes in both internal and external factors.

Focusing on an overly narrow defined set of capabilities may lock a company into a niche that does not provide sufficient growth opportunities. In

contrast, insufficient clarity on differentiating capabilities may lead a company to overextend itself and thus underperform. For each company, achieving this balance will be different. Smaller companies may be able to rely on one predominant capabilities system to meet their aspirations. Larger companies may be able to leverage a number of complementary capabilities systems (while remaining aware of how these systems interact). Yet for virtually all oil and gas companies, a dynamic, capabilities-driven strategy will help them win in a turbulent market. The capabilities set the broad direction of travel, and as conditions change, the flexible company will be positioned to respond efficiently, and sail ahead of the competition.



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# A COIN TOSS: ALLOWING FACTORIES TO IMPORT GAS

By Nadine Abou El Atta

Often a solution to one problem is through solving another. The gateway to resolving the infamous energy crisis in Egypt is through the liberalization of the energy market, mainly the feedstock of factories. With priority given to power generation, having enough electricity to feed the local market is definitely the source of the whole issue.

The Egyptian Natural Gas Holding Company (EGAS) alongside the Egyptian General Petroleum Corporation (EGPC) announced during the month of May the decision to allow private companies to use the state-owned national gas grid to import and transfer natural gas to their facilities.

With factories hemorrhaging money due to unstable supply of gas, and with a government importing gas worth billions simply to sustain local demand, the decision to move towards liberalizing the gas market in Egypt is probably a sound one, at least in theory. In reality this decision's effect will go beyond factories and the petroleum industry. The question this article aims to answer is whether the effect of this fundamental change in how the government deals with energy feedstock will enhance the state of the overall economy, or will it simply solve one problem while creating others.

## The Supply Dilemma

Natural gas in Egypt is used for electricity generation, feedstock for factories, processing petroleum products, transportation, and for residential and commercial venues. While needed for several industries, 65% of Egypt's 5.03bcf natural gas production is earmarked by default for electricity generation; however, this significant percentage has been proven insufficient in recent years, leading to frequent power outages. To resolve the situation, the government relies on two short-term solutions, diverting natural gas from energy intensive factories (factories with significant energy needs) to power plants, and importing natural gas. While it is worth noting that the country is working towards long-term solutions such as the recent development of a significant number of solar and wind farms, the current short-term solutions are creating their own list of problems. According to an EGPC official the cost of the LNG imported in 2015 and 2016 is estimated at \$3.55b. A huge cost for a country that has been facing challenges in its foreign currency reserves for the past five years. The decision however to divert gas from factories to electricity generation is a whole other ballgame.

According to a report issued by the Petroleum Ministry in late 2014, the country is now directing 80% of its production of natural gas to electricity generation, putting a severe strain on energy intensive factories that receive most of the remaining quantity of gas. According to the report, 938mcf was cut from the industrial sector's quota, leaving about 519.8mcf per year of

natural gas, of which fertilizers receive approximately 266mcf, cement 99mcf, steel factories 60mcf, and the remaining 94.9mcf going to the Methanex factory located in Damietta. Most factory owners will attest that these quantities are a far cry from the actual amounts factories need to operate at capacity, or at least without losses.

Gamal al-Garhy, Head of the Metallurgical Industries Division at the Federation of Egyptian Industries (FEI) told the Egypt Independent in an interview that factories are losing millions due to lack of sufficient gas, using his Suez Steel Company that loses around EGP 200m monthly, as an example.

Early July, steel maker Ezz el Dekhila reported a loss of 116m for the first quarter of 2015; according to the company, fluctuating and insufficient gas supply is the main reason for its loss.

Mohammed Hanafi, Manager of the Chamber of Metal Industries at the Industrial Development Authority also commented to AL Ahram on the shortage saying, "The repercussions of the natural gas shortages have been evident. The steel factories are losing hundreds of millions of pounds as a result of the shortage of gas supplies."

Ismail Gaber, Head of the Industrial Development Authority, explained the government's side of the story by saying that natural gas had not been completely cut off from factories. Instead, each factory was temporarily receiving a portion of its contracted percentage of gas from EGAS to help resolve the energy situation.

A good example on Gaber's comment is the case with fertilizer factories. Early June, EGAS and the Ministry of Agriculture agreed to give priority to supplying natural gas in the summer months to fertilizer factories that feed the local market. Despite this decision, only 307mcf/day of gas was pumped to fertilizer factories, while their needs amount to approximately 510mcf/day.

EGAS is very forthcoming about prioritizing electricity generation when it comes to allocating gas, despite the significant losses this decision has created for factories; however, in their defense having one problem is better than having two.

## Economic Practicality of the Solution

The energy portfolio in Egypt has shortages in most, if not all types of fuel, from natural gas, to gas oil, fuel oil, and coal. Perhaps that is the main reason the government is currently working towards expanding the energy mix, mainly through the feed-in-tariff and incentive policies to promote renewable energy, as well as allowing factories to import coal and now natural gas.

Unlike other countries, primarily western, where diversifying energy sources is a tactic to decrease dependency on fossil fuel, Egypt's attempt to diversify its energy portfolio is primarily to cover its energy needs and narrow the gap between supply

and demand.

When asked about it, Khaled Abou Bakr, Secretary General of the Egyptian Gas Association (EGA) and Regional Coordinator for Middle East & Africa in the International Gas Union (IGU) commented on the government decision to allow private companies to import their needs of natural gas by saying, "Economic growth and additional foreign direct investment will grow in an environment where reliable and sustainable energy, resources, and infrastructure are in place. As well as a clear role for an independent and strong energy regulator."

To better understand the impact of the government's decision to allow factories, mainly energy intensive ones to import their own feedstock, the entire picture needs to be examined from several angles, as its effect goes far beyond the profit or loss of factory owners.

Energy intensive factories are mainly divided into three types: fertilizers, cement, and steel. They each have separate circumstances, requiring different solutions.

Cement factories for example, can operate with the same efficiency regardless of fuel type. This is why the decision was made to shift cement factories to coal power. They will be phased out from gas and oil consumption. This decision was announced by Gaber in mid-May during Egypt's first coal conference. Quoting Gaber, "90% of cement factories have agreed to use coal in their production, the Industrial Development Authority is facilitating the rehabilitation of factories in that regard and in quantifying the necessary amounts."

Fertilizer plants are a different story, as only about half of the fertilizer produced in Egypt is for local consumption, the rest is for exporting. This is a key point, as earlier this year the government suspended natural gas supplies to fertilizer factories that export their production. According to Mohamed Salem, head of research at Cairo-based investment bank Prime Securities, exports of petrochemicals and building materials, which make up about a third of non-oil sales, fell 28% in the past five months. Additionally, shortage of nitrogen fertilizer supply in the local market has soared to one million months in recent months, according to an unnamed source at the FEI.

While many fertilizer plants now resort to fuel oil to operate at capacity, the effect of using imported natural gas without reforming subsidies would be astounding, significantly affecting the welfare of individual farmers and local agriculture businesses. Prices have already begun increasing locally. According to Omar Al-Degwy, Head of the Association of Fertilizer Traders, the shortage has resulted in the decline of 70% of local supply of fertilizers, increasing the price of a 50kg bag of fertilizers from EGP 90 to EGP 200."

An example of the effect of the increase of gas prices can be seen in the problem of wheat. Maintaining sufficient supply of wheat has long been an issue for Egypt. Egypt produces around 45% of its wheat needs annually, the rest is imported. The high consumption rate is partially to blame; however, due to the elevated cost of production and stagnant purchase price the government pays, local farmers do not prefer to plant wheat; for them it is more profitable to plant berseem (used for feeding livestock). Increasing the cost of fertilizer on regular farmers would exacerbate the wheat shortage problem.

For steel factories the story is different. Uninterrupted gas supply is a must, as the burning unit (burner) cannot be turned off, and its temperature has to be controlled at all times; hence the significant losses the steel industry has been facing. With the government unable to cover their needs and generate sufficient electricity at the same time, allowing the steel industry to import its own gas is likely the only solution. True, steel factories will import natural gas at higher cost that they used to pay locally, in addition to the tariff charged for the use of the national gas grid—the unit price of which is reportedly decided but yet to be announced—the significant losses they have been experiencing due to the switching on and off of burners will essentially end. The other side of the coin will be the transfer of the increase in the cost of gas to the price of the steel. With the 8% import tariff on imported steel, local companies essentially will be able to maintain their market share; however, the rise in steel prices will directly impact the price levels in all industries where steel is used as raw material. A strong example would be the real estate market in Egypt, where any change in steel prices affects even already constructed units.

There are still some unanswered questions regarding the regulatory body, which is yet to be announced, the terms of its contracts and its ability to protect the rights of factories as well as the government; and last but not least, how will this situation affect the factories that will continue to receive natural gas from local production? Will their prices remain the same? Will the tariff charge be added to their existing prices? Will their quantities increase to meet their all their needs instead of simply portions of it? According to a senior EGAS official that requested to remain unnamed, all these points will be decided and shared with the public once the regulatory body is announced towards the end of the current year.

It is no secret that gradual liberalization of energy in Egypt will boost investor confidence in the country's economy, and will eventually help ease the energy crisis that has left state companies drowning in debt; however, it will all boil down to the effectiveness of application.

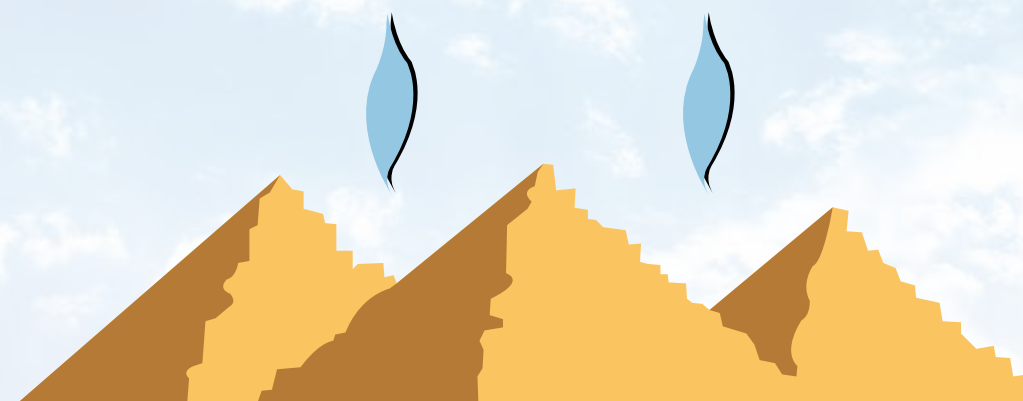


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## BAPETCO INTERVIEW: STRATEGIES FOR EXPLOITING AND OPTIMIZING IN THE WESTERN DESERT

By Nicholas Linn

Recently Egypt Oil & Gas had the opportunity to sit down with the Bapetco's Chairman, Emad Hamdy, and learn a little about the operations and plans of the company. The interview is too detailed to print in full, but selected highlights are below.

### Bapetco

The Badr El Din Petroleum Company (Bapetco)—a joint venture between Royal Dutch Shell and the EGPC—is one of the largest joint ventures in Egypt, operating primarily in the Western Desert. While many of the fields under its control are quickly maturing, the company has been aggressive in pursuing options allowing for secondary and even tertiary recovery, also employing advanced technologies to reach previously unrecoverable resources.

### Reversing the Trend

"We are one of the major companies in the oil and gas production. Production is close to 130,000 boe/d," said Mr. Hamdy. He went on to explain that Bapetco is attempting to counter the trend of the Western Desert—namely declining fields—through the application of technology. "If you look at our production for the last two years, our production is increasing in both oil and gas."

Hamdy noted that before he took over the chief job at Bapetco, production was around 95,000 b/d and declining. A main goal of the new executive was to figure out how to reverse the trend and start increasing production. "If you were just looking at a typical production profile of a company in concessions like ours, production should decrease due to the normal decline in mature wells. But we are actually increasing production," said Hamdy.

One of the main ways the company is increasing production is through more extensive use of water flooding. "Over the past two years our application of water injection was giving us about 20,000 b/d," stated Hamdy, "But now we are producing 45,000 b/d by water injection."

Internal reports show that better application of water injection has minimized the effect of declining wells on production. The production decline was over 30% per year—but through water flooding—this has now been brought down to less than 10%.

"This has improved the reservoir stability and the parameters. It is helping us support our reservoirs and helping us produce for a longer period of time," said Hamdy.

Bapetco is also pushing the envelope in using advanced techniques not previously applied in

the Western Desert, including drilling horizontal wells and using HIWAY hydraulic fracturing on a formation basis.

"For tight formations, such as the Obaiyed, we have improved production by using advanced technology such as HIWAY fracking. We have started to produce from tight formations with this method. For other areas, we have implemented other technologies such as; fracking and reduced tubing size to increase production and efficiency," said Hamdy.

The chairman finished by explaining that despite decreasing returns from Western Desert wells, the company has continued investment in them. "We have tried to drill new wells in addition to intervention activities to combat the natural decline in production and improve our production," finished Hamdy.

### Increasing Efficiency

Under Hamdy's leadership, Bapetco has been making a push for more efficient operations. One of the principal ways this has been achieved is through setting up committees dedicated to specific components such as Electric Submersible Pumps (ESPs).

80% of the company's oil fields are artificially lifted with ESPs, so operating this equipment efficiently is essential for Bapetco. "We have created a committee for ESPs. Most of our oil production comes from ESPs and this team is mainly to discuss and evaluate and to troubleshoot problems with the pumps. We have improved the skills of this team, and we've tried to reduce the loss in production from ESPs. We have done a good job with this too," said Hamdy.

The continuous improvement program has been dedicated to ESP design and operation with the objective of reducing ESP production deferment by 50% in the next two years. Some of the achievements of the program include, improved designs (utilizing shrouds), new technology (allowing the pumps to be operated in wells with a high gas/oil ratio), incentive-based contracting for better performance from partners, and the beginning of having all pumps transferred to centralized power.

The goal of the program is to "minimize production deferment, reduce operating costs, and avoid the loss of well productivity which occurs during work-over operations."

"We are especially increasing production in gas. I think when I arrived we produced about 350m mcf/d, and now we are producing closer to 500m mcf/d," said Hamdy.

### Recent Projects

In November of last year, Bapetco successfully built and began production at the new Assil and Karam gas plant (a CRP plant). This project will add about 150 mcf/d of natural gas and 2000 barrels of condensate per day to Bapetco's production. The project has a budget of at least \$300m, and the main contractors are Enppi and Petrojet.

"This project has been praised by Shell as being the most safe, with high production and a very good quality of work," said Hamdy. "This was awarded the top global project for Shell in 2014." (In recognition of the project's added value for the company.)

In addition to the CRP plant (which operates by sweetening gas by removing CO<sub>2</sub> from gas), the project includes drilling and hook-ups of new three gas wells: Karam 5, 6, and 7, and the construction of two new pipelines (each 12" diameter and 27 km length.) Since the start of the project, cumulative production has reached about 22.7bcf together with 310,000 barrels of condensate.

The Obaiyed field has also been a strong area of growth for the company, as it has allowed engineers to develop expertise in a complicated environment. The geology is extremely complex and the rock quality ranges from "excellent to extremely tight." Vertical wells have previously been used to exploit gas reserves in "sweet spots," but vertical wells cannot be used to commercially develop the gas reserves held in the poorer sands, roughly 40% of total reserves.

In order to better exploit this field, Bapetco is in the process of drilling two horizontal wells to "evaluate the application of the latest hard rock drilling techniques."

### Current Challenges

Low oil prices have affected nearly all oil producers over this past year, but those hardest hit are the companies operating in expensive areas such as the deep Mediterranean. As Bapetco's operations are in the Western Desert, they have not been hit as hard by the prices as others. However, no company is immune.

"The lower prices affect the oil and gas industry not only for Bapetco but for all companies. By implementing the exercise of the low prices you find that the partner tries to reduce his cost in order to cope with the price environment. We did that this year with some water wells, but not for the backbone of the production. (drilling, frack, intervention, and workover). But this effect is shared with others, especially service companies," Hamdy said.

Hamdy continued, "One of the challenges is to reduce the unit cost. We are working hard on that by negotiating with service companies to reduce the cost. They have been flexible to work with. Even with companies affiliated with the government. We have been given some discounts on the extension of the new contracts. We also have to increase the production. We have to continue to support the reservoir pressure for production."

Hamdy said that another of Bapetco's chief ways to combat the problem is to become more efficient and create a culture of safety. "We have started to improve our skills, we've tried to improve production, first of all. We are improving our safety requirements; safety is number one in our company, because without safety, there is no asset integrity. There is no production. There is nothing in the oil industry without safety," said Hamdy.

"We've started to improve our skills in safety, quality, asset integrity, production, loss control, etc. Everything to improve the skills of the company in order to cope with the critical situation we are facing; low oil prices and national demand for natural gas," Hamdy finished.

Some oil companies have mentioned to Egypt Oil & Gas that it can be difficult to get authorization to use advanced techniques. However, Mr. Hamdy said that was not the case with Bapetco, particularly concerning the EGPC.

"The EGPC is encouraging us to use high technology; even if it is expensive. One good example is the HIWAY fracking. It is expensive, it costs us more than \$1m per job and we do it in our company and the EGPC does not complain about it. They encourage us in this. They also support feasibility studies," stated Hamdy.

### Personal History

Egypt Oil & Gas asked Mr. Hamdy a little about his personal career, and how he ended up at Bapetco. "I started with Suco in 1982 as a well-side petroleum engineer." Mr. Hamdy spent about several years at Suco, and was promoted to the rank of petroleum engineer department head. "I got my experience from Suco, Suco was a very big school for engineers during this time," Hamdy said.

Hamdy then left for the GPC, where he was promoted to petroleum engineer sector manager. "I later achieved the rank of petroleum engineering general manager."

The current chairman has been with Bapetco for two years.



# OPTIMIZING PRODUCTION: INJECTING LOW SALINITY FRESH WATER IN WELLS TO INCREASE PRODUCTION.

By Salah Mohamed Tantawy - Chairman Assistant for Projects Suez Petroleum Company, GUPCO.



Injecting fresh water in wells to increase production has been a long-awaited project for GUPCO's stakeholders since the time BP's executives and the EGPC endorsed this method some time ago. The GUPCO LoSal EOR project, will substitute a low-salinity fresh water injection stream in place of the seawater currently utilized for pressure maintenance within the GUPCO Morgan and Badri fields.

Extensive laboratory studies, well tests, and field trials have shown that the injection of low salinity water into clastic reservoirs reduces residual oil saturation relative to seawater injection. This has been demonstrated to be true for rocks in the Gulf of Suez and has significantly enhanced oil recoverability. A detailed study performed using BP's proprietary tools estimates that an incremental 20m barrels of oil, with peak incremental production of 6,000 b/d could be produced from the Morgan and Badri fields alone by implementing BP's proprietary LoSal EOR injection technology.

The scope of the GUPCO LoSal EOR project includes an onshore reverse osmosis (RO) desalination plant processing 40,000 m<sup>3</sup>/day of desalinated water, complete with its standalone power generation facilities with an estimated capacity of 6-8 MW, along with ancillary equipment and upgrades to the existing GUPCO Morgan water flood plant locat-

ed in Ras Shuker.

The project will be tendered based on a Build, Own, and Operate (BOO) arrangement. In the BOO contracting model, GUPCO will invite bids from companies with expertise and experience in desalination and power generation facilities to submit technical and commercial proposals to finance, design, install, operate, and maintain the required desalination facilities and to sell the desalinated water to GUPCO. GUPCO will purchase the desalinated water at a competitively tendered rate under a water purchase agreement for a term of 10 years, as determined from reservoir evaluation studies. ENPPI engineering consultants have been awarded a bid to develop the tender documents and PETROSAFE has been appointed as an environmental advisor.

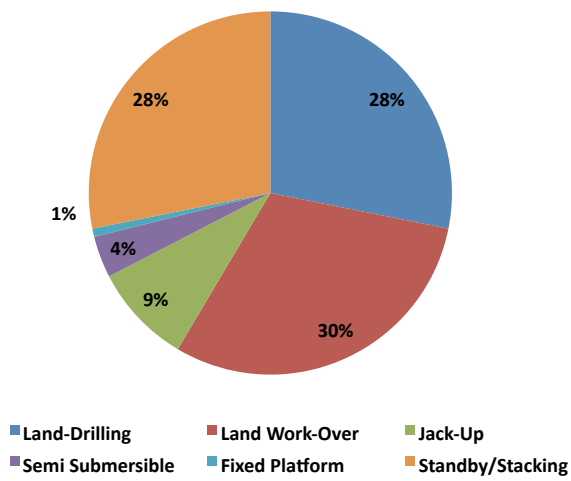
The tender document is due to be released soon. However, an exact timetable has not yet been confirmed. This is expected for the third quarter of 2015, and the RFQ will be issued relatively quickly following the pre-qualification process. Awarding the BOO contract is planned to be signed off on early 2016.

This project is set to be the first application of BP's Proprietary LoSal EOR technology within the region of the Gulf of Suez.





## Rigs per Specification July 2015



## EGYPT STATISTICS

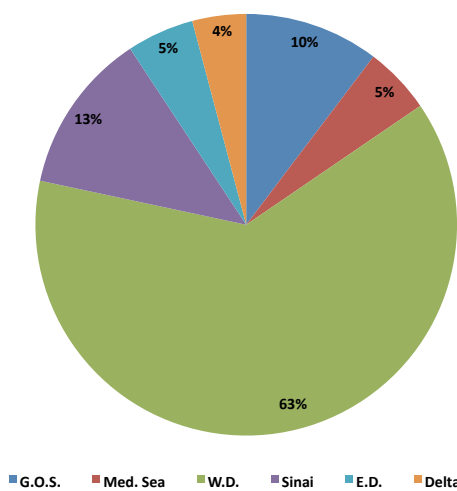
### Egypt Rig Count per Area - July 2015

Area	Total	Percentage of Total Rigs
Gulf of Suez	10	10 %
Mediterranean Sea	5	5 %
Western Desert	61	63 %
Sinai	12	13 %
Eastern Desert	5	5 %
Delta	4	4 %
Ganoub El Wadi	0	0 %
<b>Total</b>	<b>97</b>	<b>100%</b>

EGYPT  
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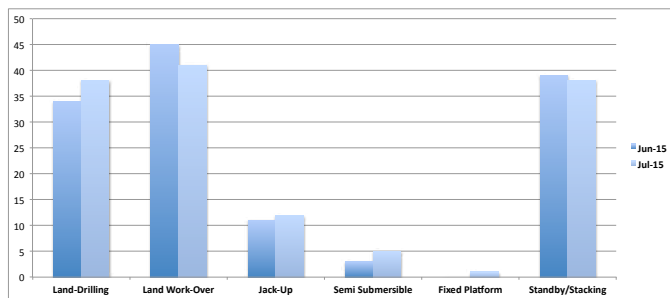


### Rigs per Area July 2015 (Total of 97 Working Rigs)

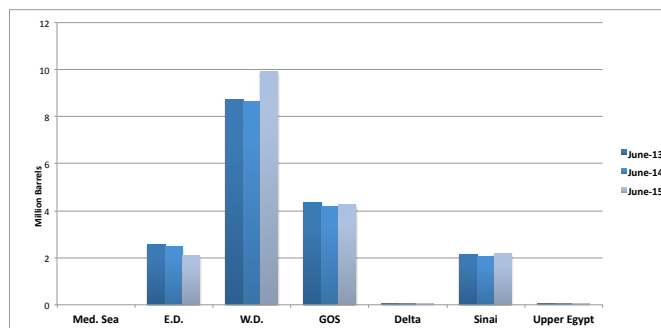


	Oil Barrel			Equivalent Gas Barrel			Condensate Barrel			Liquefied Gas Barrel		
	June-13	June-14	June-15	June-13	June-14	June-15	June-13	June-14	June-15	June-13	June-14	June-15
<b>Med. Sea</b>				20739286	1369767	13072500	1369767	810888	673064	393756	327292	393756
<b>E.D.</b>	2571213	2470486	2088730	62679	3311	22679	3311	2699	770	7778	7786	7778
<b>W.D.</b>	8736332	8661378	9913290	6867500	1341087	7611429	1341087	1453007	1509505	653736	473276	653736
<b>GOS</b>	4358304	4166636	4248476	291786	58938	636429	58938	62628	68117	184232	241176	184232
<b>Delta</b>	70499	59049	34628	1570357	148982	1888571	148982	186996	144117	104217	110753	104217
<b>Sinai</b>	2128982	2062142	2175067	1250	32398	2679	32398	29772	28637	85921	74743	85921
<b>Upper Egypt</b>	17869	16559	9521									
<b>Total</b>	<b>17883199</b>	<b>17436250</b>	<b>18469712</b>	<b>29532858</b>	<b>2954483</b>	<b>23234287</b>	<b>2954483</b>	<b>2545990</b>	<b>2424210</b>	<b>1429640</b>	<b>1235026</b>	<b>1429640</b>

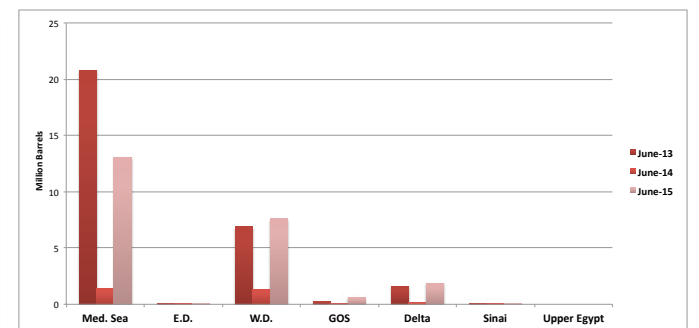
### Rigs per Specification June 2015 - July 2015



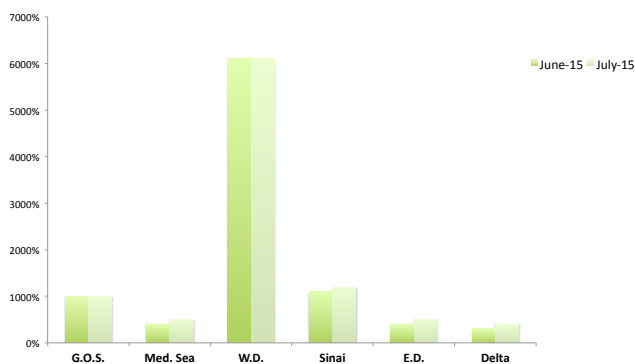
### Oil Production June 2013 - 2015



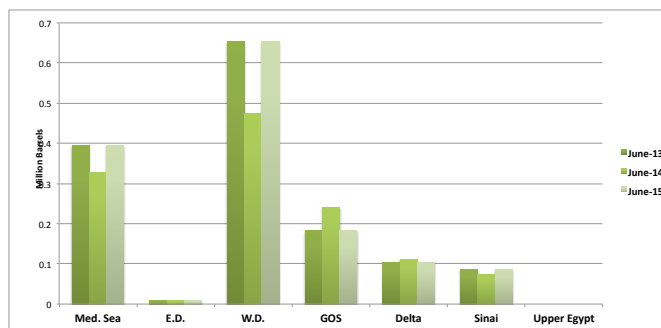
### Equivalent Gas Production June 2013 - 2015



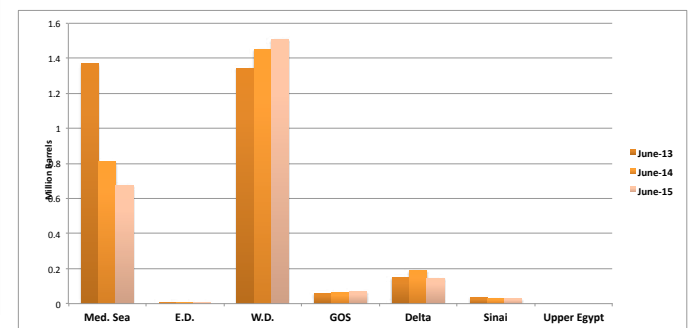
### Rigs per Area June 2015 - July 2015



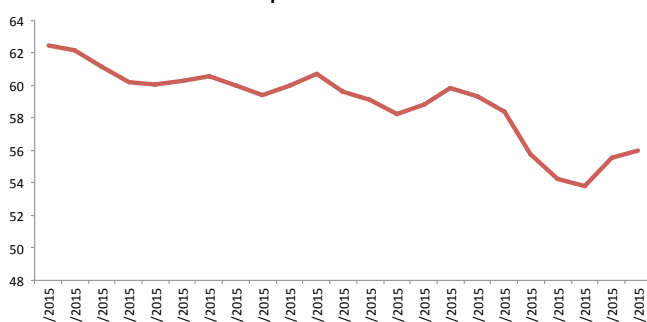
### Liquefied Gas Production June 2013 - 2015



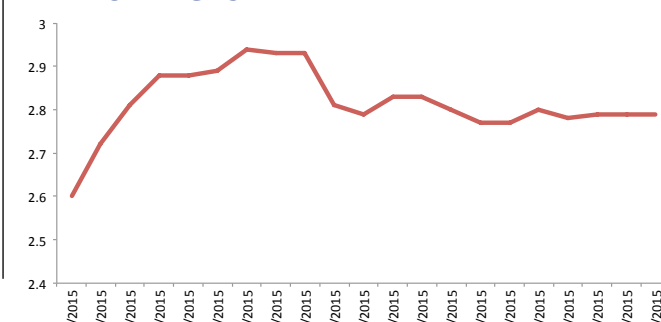
### Condensates Production June 2013 - 2015



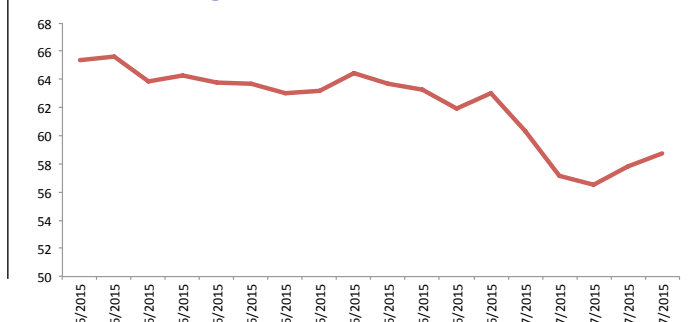
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