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EGYPT OIL&GAS NEWSPAPER

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The Future of Unconventional

Oil and Gas in Egypt

Editor's Note

This month Egypt Oil and Gas hosted our Roundtable Debate on Unconventional Resources in Egypt. Our In Focus feature is devoted to the event coverage and highlights the exchange of ideas and information amongst government officials and the private sector seeking to facilitate unconventional exploration and development in Egypt. I would like to thank our event sponsors Dana Gas, Transglobe Energy, Sipetrol, and Baker Hughes for their continual support. I would also like to personally thank our speakers for their time and effort, notably Moustafa Oraby of Halliburton, Joe Versfelt of Apache, and Lisandro Rojas of Sipetrol. I would also like to thank EGPC Chairman Tarek Molla and Ahmed Fattah for their attendance.

In addition to our roundtable coverage, our In Review section delves into the controversy surrounding the environment consequences of fracking. The article is timely, as this month a grassroots movement based in Dreden, New York has effectively banned the technique claiming that the environmental consequences of the technique are not fully understood. Our feature takes an in-depth look at both sides of the debate. Our Political Review addresses the ongoing political saga surrounding the creation of an Egyptian constitution while our Environment feature is devoted to the utilization of wind energy in Egypt. We have interviewed a variety of experts in order to assess the current status and potential of wind energy.

In preparation for the coming New Year, Egypt Oil and Gas is currently preparing a variety of events including our Winter Cup Soccer Tournament and a workshop devoted to brownfield development. We would very much appreciate any feedback or insight into the planning of future events or editorial content. Please don't hesitate to contact our team at **JHerrick@egyptoil-gas.com.**

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Prices

Bullion Market		Oil Prices	
GOLD	SILVER	BRENT	NYMEX Crude
1345.84	22.47	110.87	106.24
		USD/BBL	USD/BBL
-0.50%	2.00%	0.61%	-0.28%

Qarun Drills Four Wells

Qarun Company, a joint venture between EGPC and Apache, recently completed drilling four new developmental wells in its concession area in the Western Desert. Qarun's production rate of crude oil reached 1,357,399 barrels in September 2013.

SAMRA-89
The SAMRA-89 oil producing well was drilled to a depth of 5,820 ft utilizing the EDC-63 rig. Investments surrounding the drilling process are estimated at USD 918,000.

KARAMA-20
The KARAMA-20 oil producing developmental well was drilled to a depth of 7,900 ft utilizing the EDC-74 rig. Investments surrounding the drilling process are estimated at USD 1.33 million.

YOMNA-28
The YOMNA-28 oil producing developmental well was drilled to a depth of 4,850 ft utilizing the EDC-63 rig. Investments surrounding the drilling process are estimated at USD 850,000.

WON A-2X
The WON A-2X oil producing new exploratory well was drilled to a depth of 8,940 ft utilizing the EDC-17 rig. Investments surrounding the drilling process are estimated at USD 1.187 million.

PETRODARA Drills Two Wells

PETRODARA Company, a joint venture between EGPC and Dublin, recently drilled two new developmental wells in its concession area in the Eastern Desert. PETRODARA's production rate of crude oil reached 374,726 barrels in September 2013.

E.ARTA-48
The E.ARTA-48 oil producing well was drilled to a depth of 4,872 ft utilizing the ST-7 rig. Investments surrounding the drilling process are estimated at USD 700,000.

E.ARTA-49
The E.ARTA-49 oil producing well was drilled to a depth of 4,440 ft utilizing the ST-7 rig. Investments surrounding the drilling process are estimated at USD 700,000.

GPC/SCIMITAR Drills Four Wells

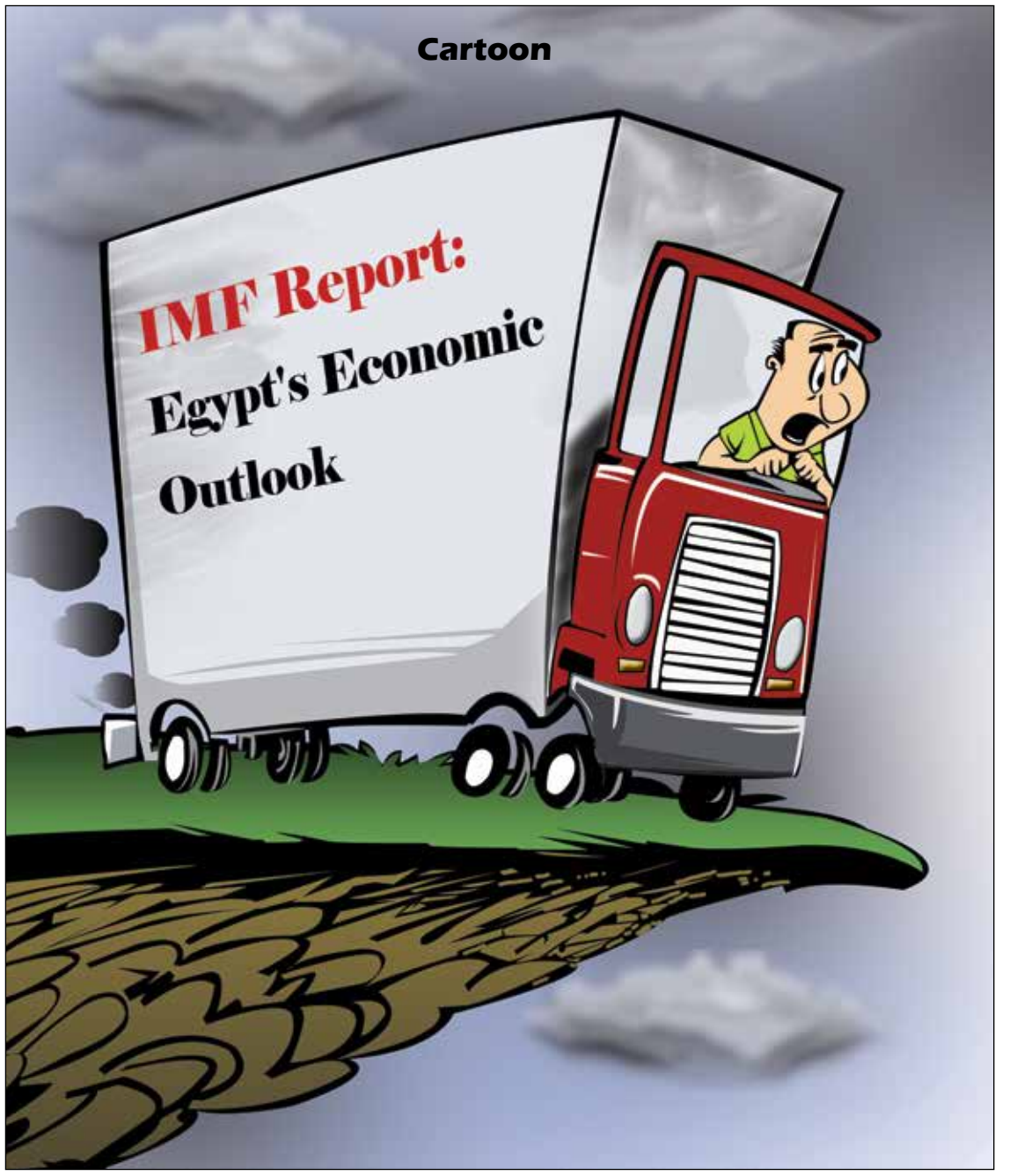
GPC/SCIMITAR Company recently completed drilling four developmental wells in its concession area in the Eastern Desert.

ISS-128
The ISS-128 oil producing well was drilled to a depth of 1,575 ft utilizing the SHAMS-1 rig. Investments surrounding the drilling process are estimated at USD 356,000.

ISS-126
The ISS-126 oil producing developmental well was drilled to a depth of 1,595 ft utilizing the SHAMS-1 rig. Investments surrounding the drilling process are estimated at USD 135,000.

ISS-131
The ISS-131 oil producing developmental well was drilled to a depth of 1,983 ft utilizing the SHAMS-1 rig. Investments surrounding the drilling process are estimated at USD 630,000.

ISS-132
The ISS-132 oil producing developmental well was drilled to a depth of 1,990 ft utilizing the SHAMS-1 rig. Investments surrounding the drilling process are estimated at USD 500,000.



PETROSANNAN Drills New Well

PETROSANNAN Company, a joint venture between EGPC and Naftogaz, recently completed drilling a new developmental well in its concession area in the Western Desert. The AESE 3 1/3 oil producing well was drilled to a depth of 11,444 ft utilizing the SHAMS-2 rig. Investments surrounding the drilling process are estimated at USD 3.482 million. PETROSANNAN's production rate of crude oil reached 150,710 barrels in September 2013.

PETROBEL Drills Two Wells

PETROBEL Company, a joint venture between EGPC and Eni, recently completed drilling two new developmental wells, one offshore and another onshore. PETROBEL's production rate of crude oil reached 3,569,842 barrels in September 2013.

TUNA-5
The TUNA-5 oil producing well was drilled in the Mediterranean Sea to a depth of 4,117 utilizing the K.MEDST rig. Investments surrounding the drilling process are estimated at USD16.754 million.

112-156
The 112-156 oil producing well was drilled in Sinai, to a depth of 7,858 ft utilizing the ST-12 rig. Investments surrounding the drilling process are estimated at USD 2.146 million.

Story Board

Egypt Seeks LNG Supplies from Qatar

Chairman of EGPC Tarek El Molla told Reuters that Egypt would continue to seek LNG supplies from Qatar despite tensions between the countries following the ouster of President Mohamed Morsi. Qatar and Egypt were expected to negotiate for at least 13 LNG cargoes but negotiations stalled after the overthrow of former President Morsi. El Molla informed that Egypt is also considering alternative sources including Yemen and Algeria.

Methanex Sells a 10 Percent Stake in Egyptian Venture

Canada's Methanex agreed to sell a 10 percent stake in EMethanex to Arab Petroleum Investments Corporation (APICORP) for USD 110 million. APICORP already held a 7 percent interest in the methanol production company. Methanex will retain a 50 percent share and will continue to oversee company operations, reports Reuters. The Egyptian government holds the remaining 33 percent of the shares. EMethanex produces 1.3 million tons of methanol a year.

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Khlada Drills Seven Wells

Khalda Company, a joint venture between EGPC and Apache, recently drilled seven new wells in its concession area in the Western Desert. Khalda's production rate of crude oil reached 4,147,751 barrels in September 2013.

UMB-226 ST-1
The UMB-226 ST-1 oil producing developmental well was drilled to a depth of 12,256 ft utilizing the EDC-18 rig. Investments surrounding the drilling process are estimated at USD 2.241 million.

SIWA E-1X
The SIWA E-1X oil producing exploratory well was drilled to a depth of 16,070 ft utilizing the EDC-16 rig. Investments surrounding the drilling process are estimated at USD 1.456 million.

TUT-106
The TUT-106 oil producing developmental well was drilled to a depth of 13,600 ft utilizing the EDC-54 rig. Investments surrounding the drilling process are estimated at USD 2.545 million.

AMOUN NE-2
The AMOUN NE-2 oil producing developmental well was drilled to a depth of 14,100 ft utilizing the EDC-40 rig. Investments surrounding the drilling process are estimated at USD 3.246 million.

W.KAL A-8
The W.KALA-8 oil producing developmental well was drilled to a depth of 12,500 ft utilizing the EDC-48 rig. Investments surrounding the drilling process are estimated at USD 1.204 million.

SHAMS-15X
The SHAMS-15X oil producing new exploratory well was drilled to a depth of 13,800 ft utilizing the EDC-8 rig. Investments surrounding the drilling process are estimated at USD 2.383 million.

SHADOW E-1X
The SHADOW E-1X oil producing exploratory well was drilled to a depth of 12,950 ft utilizing the ST-10 rig. Investments surrounding the drilling process are estimated at USD 3.394 million.

Kuwait Energy Drills New Well

Kuwait Energy Company recently drilled a new developmental well in its concession area in the Western Desert during the fiscal year 2013-2014. The Al AHMADI-2 oil producing well was drilled to a depth of 12,070 ft utilizing the ZJ-46 rig. Investments surrounding the drilling process are estimated at USD 2.905 million.

Kuwait Energy

Agiba Drills Three Wells

Agiba Company, a joint venture between EGPC, IEOC (40 percent) and Mitsui (10 percent), recently drilled three new developmental wells in its concession area in the Western Desert. Agiba's production rate of crude oil reached 1,872,504 barrels in September 2013.

E-AGHAR-19
The E-AGHAR-19 oil producing developmental well was drilled to a depth of 6,500 ft utilizing the WF-161 rig. Investments surrounding the drilling process are estimated at USD 1 million.

FARAS-47
The FARAS-47 oil producing developmental well was drilled to a depth of 3,300 ft utilizing the W. F-147rig. Investments surrounding the drilling process are estimated at USD 1.185 million.

ARCADIA-7
The ARCADIA-7 new developmental well was drilled to a depth of 10,380 ft utilizing the ST-8 rig. The well was permanently abandoned. Investments surrounding the drilling process are estimated at USD 1.571 million.

GSPC Drills New Well

GSPC Company recently drilled a new exploratory well in its concession area in the Western Desert during the fiscal year 2013-2014. The SD ST-2 oil producing well was drilled to a depth of 9,225 ft utilizing the EMESCO-602 rig. The well was temporarily abandoned. Investments surrounding the drilling process are estimated at USD 3.964 million.

Apache Drills New Well

Apache Corporation recently drilled a new exploratory well in its concession area in the Western Desert during the fiscal year 2013-2014. The KAV-1X.W well was drilled to a depth of 14,605 ft utilizing the EDC-57 rig. The well was permanently abandoned. Investments surrounding the drilling process are estimated at USD 3.033 million.

Rashid Drills New Well

Rashid Company, a joint venture between EGPC and BG, recently completed drilling a new offshore developmental well in its concession area in the Mediterranean Sea. The SEQUOIA-D7 oil producing well was drilled to a depth of 5,266 ft utilizing the AMIRANTE rig. The well was temporarily abandoned. Investments surrounding the drilling process are estimated at USD 17.946 million. Rashid's production rate of crude oil reached 4,792 barrels in September 2013.

PETRO AMIR Drills New Well

PETRO AMIR Company, a joint venture between EGPC and Vegas, recently completed drilling a new developmental well in its concession area in the Eastern Desert. The AL AMIR SE-18 oil producing well was drilled to a depth of 10,400 utilizing the ST-9 rig. Investments surrounding the drilling process are estimated at USD 500,000. The company's production rate of crude oil reached 354,310 barrels in September 2013.

GPC Drills New Well

GPC Company, a joint venture between EGPC and BP, recently drilled a new developmental well in its concession area in Gulf of Suez. The ALHAMD-8 ST-1 oil producing well was drilled to a depth of 4,708 ft utilizing the ADMRINE-3 rig. Investments surrounding the drilling process are estimated at USD 17.946 million. GPC's production rate of crude oil reached 1,330,560 barrels in September 2013.

Saudi Arabia Sends Egypt USD 400 million in Petroleum Products

Tarak el Molla EGPC Chairman recently announced the impending arrival of USD 400 million worth of petroleum products. Supplies will arrive in November. Regarding the announcement Molla stated, "This new shipment brings the total quantity of oil sent by Saudi Arabia to Egypt to about USD1.6 billion of petroleum products." The move is the most recent aid sent from the Gulf States. In the wake of June 30th estimated at Egypt an aid package that worth in which USD 2 billion would be as cash deposits to the Egyptian Central Bank, USD 2 billion in oil and gas and USD1 billion as a cash allowance.

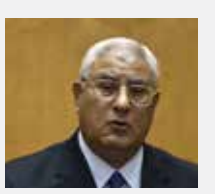
Choice Words

"I want to tell you that not everything about the first transitional period is being said, not now or in the coming years. What concerns us, of course, is that the Armed Forces base its estimations on visions that have a strategic and scientific depth. There is a lot that cannot be said at this point in time.

Abdel-Fattah Al-Sisi, Egypt's Defence Minister

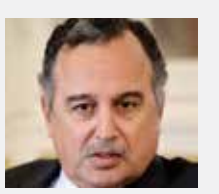
"The Egyptian revolution had a clear motto: "Bread, Freedom, and Social Justice." Our current efforts are being guided by these three principles. We are advancing towards freedom by establishing a new constitutional system that guarantees that the nascent democracy will not be hijacked once again and transformed into a tool used to serve the interests of a small group within Egyptian society.

Adly Mansour, Egypt's Interim President



"We are now in a delicate state reflecting the turmoil in the relationship (between Egypt and the US) and anyone who says otherwise is not speaking honestly. At the same time, I am not very worried about this unrest in relations. The Egyptian people will not hesitate to bear the consequences of such a situation in order to preserve their freedom of choice after two revolutions.

Nabil Fahmy, Egypt's Foreign Minister



"The interim government understands very well our commitment to the success of this government... and by no means is this (the US decision to halt some aid to Egypt) a withdrawal from our relationship or a severing of our serious commitment to helping the government. ... We will continue to make certain the roadmap remains a primary goal for the interim government because I believe they do want to continue the relationship in a positive way with the United States.

John Kerry, US Secretary of State

TransGlobe's Four New Egyptian Concessions

TransGlobe Energy Corporation is a growth-oriented oil and gas exploration and development company which focuses on the Middle East and North Africa regions with production operations in the Arab Republic of Egypt and the Republic of Yemen. TransGlobe recently announced its treaty signature on four new production-sharing concessions (PSCs) in Egypt. The Company's President and CEO, Mr. Ross Clarkson stated, "Approving the four new PSCs displays a significant mile stone in the company's continued growth and commitment to Egypt. They are also encouraged that the current Egyptian Government is demonstrating its commitment to follow through on its stated objective to facilitate increased investment in oil and gas exploration and development in Egypt." According to the Egyptian government's written notice submitted to TransGlobe, the four production-sharing concessions, which were won in the 2011/2012 EGPC bid round, have been accepted. The aim from these concessions is to effectively follow the customary document associated with work program guarantees, settlement of signature bonuses and official signing ceremony, which is expected to take place in October.

The Four Concessions:
North West Gharib, Egypt
Drilling is expected in the first half of 2014. The company has identified more than 79 drilling locations based on existing well and seismic data for this concession area. The company plans to identify additional exploration targets by acquiring 3-D seismic data on portions of the lands not currently covered by 3-D seismic.

South West Gharib, Egypt
The 195 square kilometer (48,000 acre) is located south of the North West Gharib concession. The company will acquire 3-D seismic over the entire concession before drilling exploration wells in the first exploration phase.

South East Gharib, Egypt
The 508 square kilometer (125,000 acre) South East Gharib concession is located south of the South West Gharib concession. The company will acquire extensive 2-D and 3-D seismic over this area before drilling exploration wells in the first exploration phase.

South Ghazalat, Egypt
The 1,883 square kilometer (465,000 acre) South Ghazalat concession is located to the west of TransGlobe's recently announced Jurassic gas/condensate and Cretaceous oil discovery at North Dabaa 1X in the East Ghazalat concession. The company will acquire extensive 3D seismic over this area before drilling exploration wells in the first exploration phase.

Egypt Proposals for Floating LNG Terminal

Egypt state-owned Egyptian Natural Gas Holding Company (EGAS) had submitted a proposal for a floating storage and regasification unit (FSRU). The FSRU would be utilized in importing liquefied natural gas (LNG), informs Trade Arabia. EGAS Deputy Chairman Khaled Abdel Badie announced that the tender started last week, but did not provide further details. He said that they are renting the unit and expect it to be operational by next April based on the offers.

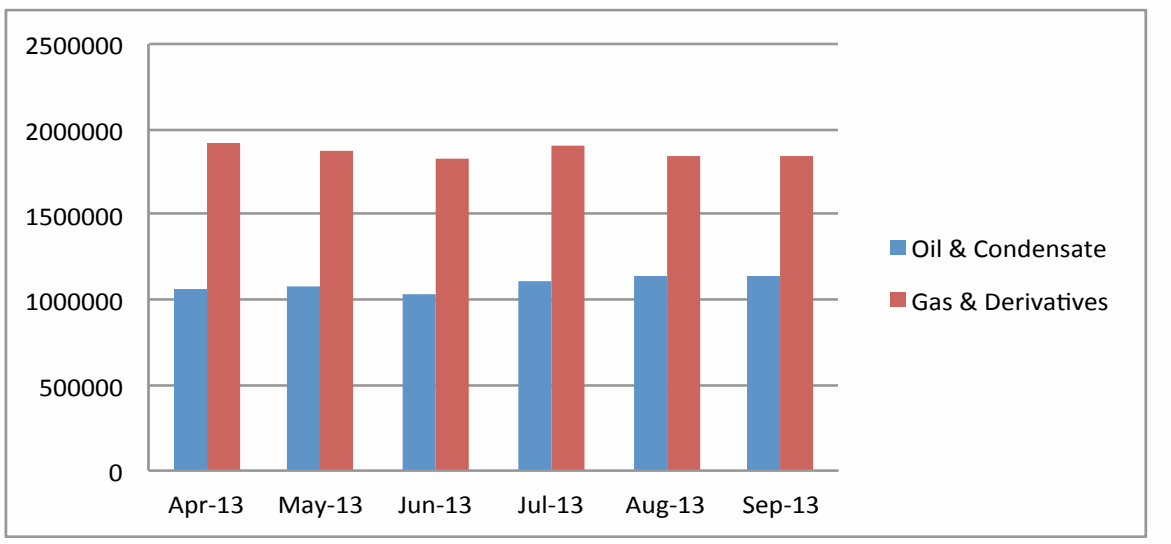
Qatar National Bank Might Sell NSGB

A year ago Qatar National Bank (QNB) decided to invest in Egypt by acquiring the National Societe Generale Bank- Egypt (NSGB). However after the June 30, 2013 revolution that took place and ouster of Mohamed Morsi from office, the Qatar National bank (QNB) started to negotiate the sale of their recently acquired National Societe Generale Bank Egypt (NSGB). This decision has raised concerns in QNB as it's considered the banking arm of the Qatari government. Qatar has received two offers one from Germany and another from a Gulf Country. QNB acquired 100 percent of NSGB's Egypt shares for a total value of EGP 16.142 billion at the end of March. The price of shares was set at EGP 35.65 per share. Finally, the share closed at EGP 27.64 on October 14. According to Al Ahram, relations between Qatar and Egypt have further deteriorated due to this decision.

Militant Al Fuqan Brigade Attacks Maadi Satellite Dishes

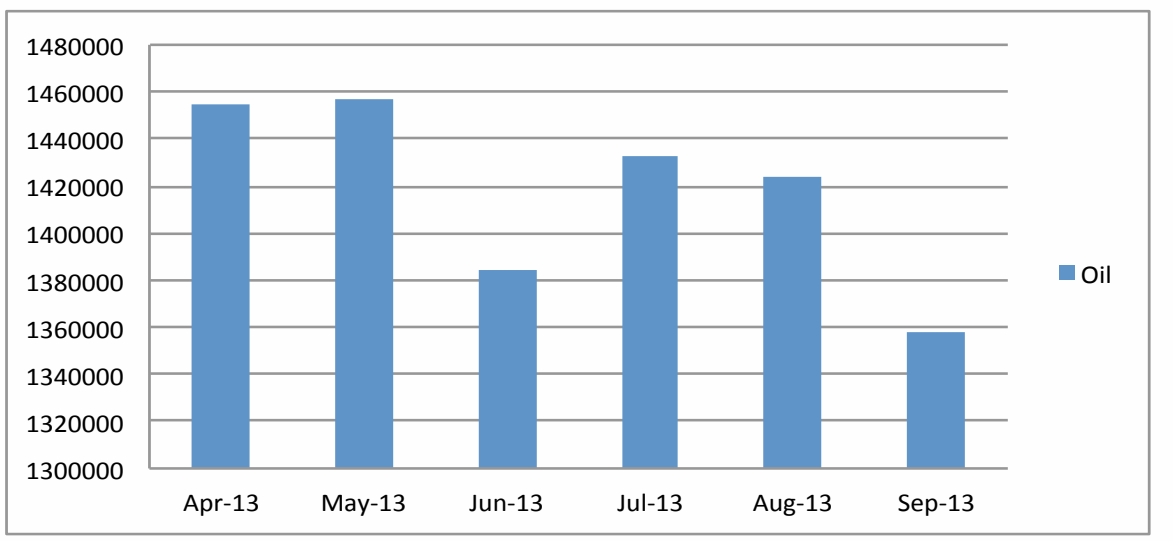
The Al Furqan Brigade claimed responsibility for an attack on a telecommunications satellite field in the Cairo suburb of Maadi on October 8th, reports the Long War Journal. According to a statement on a video of the attack the group released, the station was targeted to "make the media of disbelief know that we are coming and we are about to end them." The un-verified video released by the militants depicts them shooting RPGs at the satellites. The militant group previously claimed responsibility for two attacks on vessels in the Suez Canal, which the group also filmed and utilized RPGs in. Thus far the group appears to be targeting government infrastructure and economic assets. However, Al Nusrah, a group claiming to be a unit of al Furqan, has claimed responsibility for shooting individuals in the Sinai.

BAPETCO's Oil and Gas Production Steady



Oil and condensates production of Badr El Din Petroleum Company (BAPETCO) has been steady in the past six months, although there are signs of a small upward trend. From April to June, the output was in the range of 1.0-1.1 million barrels, whereas from July to September it ranged from 1.1 to 1.2 million barrels. The output was the lowest in June and the highest in August. In September, the company produced 1,136,118 barrels, up 7% compared to April. BAPTECO's production of gas and derivatives has also been stable in recent months, ranging from 1.8 to 2.0 barrels equivalent. The output was the highest in April and the lowest in June. In September, the company produced 1,838,750 barrels, 5% less compared to April.

QPC's Oil Production Decreasing



The oil production of Qarun Petroleum Company (QPC) has been fluctuating and seen a downward trend in the past six months. The output was about 1.46 million barrels in April and May, but then decreased to 1,384,194 barrels in June. In the following two months, the production was higher again, about 1.42-1.43 million barrels. However, then it fell to 1,357,399 barrels in September, which is the lowest output in six months and 7% less compared to April

Note: Japan Oil, Gas and Metals National Corporation (JOGMEC), formerly Japan National Oil Corporation (JNOC), and Schlumberger collaborated on a research project to develop sourceless LWD technology that reduces the need for traditional chemical sources. Designed around the pulsed neutron generator (PNG), NeoScope service uses technology that resulted from this collaboration. The PNG and the comprehensive suite of measurements in a single collar are key components of the NeoScope service that deliver game-changing LWD technology.

Shemen Finds no Oil in the Yam 3 Well

Despite favorable seismic reports and a USD 175 million investment, production tests indicated that the Yam 3 well in the Mediterranean Sea contains no oil, according to Israeli drilling company Shemen Oil and Gas Resources. Previously, an independent seismic study had found that there was "a best estimate of 120 million barrels of oil in the license prospect, and a 36 percent chance of finding 1.8 trillion cubic feet of natural gas", reports the Times of Israel. Yam 3 is owned by Shemen (78 percent), Caspian Drilling Company of Azerbaijan (10 percent), Zerah Oil and Gas Explorations of Israel (7 percent) and Zmiha Investment House of Israel (5 percent).

Tel Aviv and Athens Deal to Strengthen Energy Cooperation

In October, Israel and Greece signed an agreement to improve their cooperation in the energy sector, informs Ekathimerini. According to Kathimerini, who read the confidential agreement, both countries "will study ways for better development of natural resources in the Eastern Mediterranean and their transfer to the energy market". The agreement includes plans for the construction of an underwater gas pipeline from Israel to Greece through Cyprus, going around Turkey. The agreement signed by both countries Energy Ministers, Yiannis Maniatis of Greece and his Israeli partner Silvan Shalom, calls for more collaboration in the fields of both natural gas and renewable energy sources from the international and European organizations perspective.

Lebanon's Oil Resources Give Rise to Populism

The possibilities of oil and gas reserves have sparked political infighting over potential revenues. However, it is not yet clear the 1.9 billion barrels of oil and 122 tcf of gas offshore will be commercially viable. The energy minister Gebran Bassil is pushing for cabinet approval of a new drilling contract. The Free Patriotic Movement is seeking to take credit for securing energy reserves and revenues for the country. Its ally Hizbollah has pledged to defend the country's oil and gas fields, reports the National.

Pipeline Could Benefit Cyprus

Israel's energy envoy, Michael Lotem announced a gas pipeline project that would include a facility to export Israeli gas to Cyprus and Turkey. An Israeli official proposed that 4 to 5 billion cubic meters of gas could go to Cyprus and 8 to 10 billion cubic meters to Turkey once a pipeline is constructed, reports Eurasia Review. Many people have expressed optimism that the pipeline would promote co-operation in Cyprus, which has been divided between Turkey and Cyprus since 1974.

Libya Producing between 600,000 to 700, 000 bpd

On October 13, Libya's Prime Minister, Ali Zeidan said that Libya is producing an average of 600,000 to 700,000 barrels of oil per day. The country's oil production was reduced to 200,000 bpd in September due to striking workers, militias and political activists, reports Reuters. Libya resumed its output from some fields in the west in mid-September after reaching a deal with some protests. On October 2 Libya's oil minister said that they can restore the full output within days.

Gaza Strip's Gas Prospects Improve

A BG Group USD 1 billion gas project is currently under negotiation by Israeli and Palestinian authorities. The project seeks to supply gas from the offshore Gaza Marine field through Israeli territory to the Gaza Strip and occupied West Bank. The field holds approximately 1 million cubic feet of gas, enough to supply Palestinians for 10 to 12 years. The project could be operational by 2017, if an agreement is reached. Former British Prime Minister Tony Blair said, "For the first time in over a decade, there is a serious prospect Gaza gas will actually happen." The project would be a drastic boost to the Palestinian economy, reports UPI. Israel currently supplied 95 percent of the West Bank's electricity.

Offshore Drilling Triggers Earthquakes off Spain's Coast

Small earthquakes were reported off Spain's Mediterranean coast following the injection of natural gas at the offshore Castor field. Work on the field has since been suspended until seismic studies are completed, reports Reuters. The field lies on top of the Amposta fault line, approximately 22 kilometers from the town of Vinaros. Local residents have called for the closure of the field. If the project is permanently suspended it is unclear what would happen to EUR 1.4 billion worth of EU bonds that were issued in conjunction with the European Investment Bank.

Mediterranean Diesel to Gasoline Spread at Three-year Low

The price difference between ultra low sulfur diesel and 0.1 percent gas oil have fell to USD 5.50 in the Mediterranean basin. According to Platts this is the lowest it has been since July 2010. Traders reported pressure on diesel prices due to a high volume of imports projected for the new few weeks. Europe is expected to receive diesel imports from the US, Russia and India. In contrast, gasoil is strengthening as winter approaches. Mediterranean refiners are decreasing diesel production, as one trader told Platts, "we are producing very little diesel… at this price we are essentially losing money." According to another trader the fall in the spread derived from the increase in diesel production capacity which resulted in lowering prices.

Israel Corp. is Considering Injecting Cash into Oil Refiners Ltd

The Israel Corporation is considering a plan to revitalize it's Oil Refiners Limited (ORL) division through injecting millions of shekels into the unit. The company has recently experienced the bankruptcy of an electric-car startup and a bailout of its Zim unit, reports Haaretz. The ORL unit has experienced financial problems after a drop in refining profits during the second and third quarters. The division owes USD 1.46 billion to banks and bondholders.

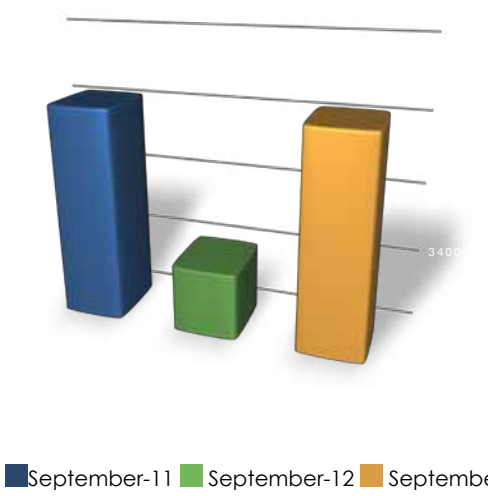
IDF Tweet Sparks Rise in Oil Prices

Oil prices rose by over USD 2.00 on October 10th, following a tweet by the Israel Defense Forces. The tweet, marking the Yom Kippur War, sparked speculation over an attack on Syria. The rumors and speculation among traders quickly drove oil prices up, reports Reuters.

Algeria's Energy Minister Deems Oil Prices "Reasonable"

Algeria's Energy Minister Youcef Yousfi said that current oil prices were "reasonable." Algeria is expected to double its gas production within seven to ten years, following recent oil and gas discoveries, informs Reuters. According to Yousfi, Algeria will launch a bid round soon for onshore blocks. In regards to OPEC's production goals, Yousfi stated, "We will see when we meet early in December. We will study the market and we will decide."

Mediterranean Statistics



Equivalent Gas		
September-11	September-12	September-13
19,509,464	22,574,464	19,509,464

Oil		
September-11	September-12	September-13
N/A	N/A	N/A

Liquefied Gas		
September-11	September-12	September-13
360,500	339,575	360,500

Condensate		
September-11	September-12	September-13
1,146,947	1,115,749	1,146,947

Mediterranean Rig Count 2013	Total	Percentage of Total Rigs
	8	7 %

Drilling Offshore Indonesia in Hopes of Abundant Oil

Lundin Petroleum and Nido Petroleum will start on a two-well drilling program Indonesia in November. The project seeks to confirm the existence of up to 126 million barrels of oil offshore. The drilling, which will be conducted by the Swedish-listed Lundin, tests the potential of reservoirs, reports Proactive Investors Australia.

Nido is earning a 10 percent participating interest in each production sharing contract by paying a disproportionate share of the exploration expenses related to the drilling and by covering 10 percent of past costs. The company can raise its participating interest in each contract up to a maximum of 20 percent.

Energy Data Gap in the US due to EIA Shutdown

The US Energy Information Administration (EIA) stopped its operations on October 11th due to the US government shutdown caused by an impasse over raising the country's debt limit. Since the partial government closure began on October 1st, the agency was forced to operate on its savings, but it had to close down once these ran out, reports Reuters.

The agency asked oil and gas companies to continue submitting the required data, even though it is not clear when the data reports will be published. This means that for the first time since it was launched in 1979, the EIA's weekly report on the production, use and inventory of fuel and crude – the most closely watched set of data in the global oil market – was not released. Also, the publishing of several monthly reports is likely to be delayed, even though the Republicans and the Democrats reached an agreement on October 16th that enables the government to start functioning normally again.

Alternatively, data on oil sector can be obtained from the industry-funded American Petroleum Institute, but its report is based on voluntary data submissions and hence less accurate. There is no such an alternative for gas data. Therefore, traders are increasingly turning to private data providers. David Francoeur, the Chief Marketing Officer of energy intelligence provider Genscape said that the demand for their products has experienced a sharp increase.

Europe Threatened by Massive Power Outages

Europe's energy security is under threat and the continent may soon experience massive power outages during the winter, warns a recent study. According to the study that appeared on October 10th in a publication of the multinational consulting company Cap Gemini, the profitability of Europe's gas plants is falling due to renewable subsidies and competition by cheap coal, which is a result of increased coal imports from the US, caused by its shale boom. Consequently, 60 percent of Europe's gas plants could be shut down by 2016. They are being replaced by renewable facilities, but the production from the latter is much more volatile, reports Eurasia Review.

The study points out that a higher price of carbon emission credits would favor gas over coal. Therefore, it is a good idea to introduce a carbon price floor like the UK has recently done. The study also said that the increase of renewable subsidies should be limited and a reasonable rate of growth of renewable energy should be defined.

European Utilities Call for End of Renewable Subsidies

The CEOs of ten utilities, which own half of Europe's power generating capacity, have called for an end of wind and solar energy subsidies. "Energy security of supply is no longer guaranteed, CO2 emissions are currently on the rise, investments in the sector are not happening and energy bills are rising sharply," criticized the group, reports World Nuclear News.

According to the CEOs who gave a joint press conference on October 11th, investment in the energy sector has been "hampered by the uncertainty of the return on investment, in part due to the lack of a clear, foreseeable and objective energy policy framework based on stable and predictable regulation." They also pointed out that over the past four years, energy bills have risen by 17 percent for domestic customers and by 21 percent for industrial users.

The CEOs said that existing power capacity should be utilized rather than subsidizing the construction of new capacity. They also stressed that customer prices should better reflect the cost of producing energy. Accordingly, wind and solar energy should not receive subsidies whereas less mature renewable technologies should only be supported through enhanced R&D efforts.

USA Surpassing Russia in Oil Production

According to the Reuters, shale oil which reshaped the global energy landscape is thriving in the United States. The International Energy Agency (IEA) reported "with output of more than 10 million bpd for the last two quarters…the nation is set to become the largest non-OPEC liquids producers by the second quarter of 2014, overtaking Russia." The IEA also lowered the call on OPEC's oil by an average of 100,000 bpd to 29 million bpd for the 2014. The increased production in the US will lead to a growth in non-OPEC liquid next year by an average of 1.7 million bpd, reaching the highest annual growth of 1.9 million. Following large decreases in oil production in Libya and Iraq, OPEC crude supplies fell below 30 million bpd for the first time in two years.

Kenya's Oil Debut

Kenya is expected to begin commercial output within the next five months, surpassing Uganda. Oil was first discovered in Kenya a year ago by Tullow, in partnership with Africa Oil. Over 300 million barrels of oil equivalent has been found in the Lokichar Basin, reports CNBC. In September the companies announced a new discovery at Kales, located between the Ngamia-1 and Twiga South-1 wells. Further discoveries are expected as exploration continues. The country is expected to begin exporting in 2016.

RWE DEA's Production Begins at Breagh Field

During the 22nd Seaward licensing round in 2004, Sterling was awarded licenses as the operator at Breagh with a stake of 100 percent, reports Rigzone. An interest of 70 percent in the Breagh gas field has been gained by RWE DEA UK, which became an operator with Sterling who maintains the remaining 30 percent. The Breagh field is located in UKCS blocks 42/12a and 42/13a of the Southern North Sea with a water depth of 203 feet approximately 62 miles east of Teesside. Gas is exported through a 20-inch pipeline from the Breagh Alpha Platform to Coatham Sands, Redcar on the UK mainland, and then to a seven-mile onshore pipeline for processing at the Teesside Gas Processing Plant (TGPP) at Seal Sands, which is owned by North Sea Midstream Partners. According to John Rapach, the COO of Sterling, "The Breagh field is one of the largest natural gas discoveries under development in the UK Southern North Sea in addition to the first large scale production for Sterling. The aim out of this field is to bring in further gas through this major new infrastructure in the Southern North Sea with their own equity gas in Breagh phase 2 and Crosgan, and from other potential developments surrounding the Breagh field area."

Russia and China Sign New Oil Deal

Russia and China signed 21 new trade agreements, including a 100 million ton oil supply deal. Under the agreement, Rosneft will supply China's Sinopec with approximately 100 million tons of crude oil over the next 10 years. China will prepay for up to 30 percent of the shipment, reports RT. According to Prime Minister Dmitry Medvedev, "The collaboration in the energy field is key to bilateral cooperation. I hope the deals we signed today can be implemented in an orderly way and those deals that are still under negotiation, such as natural gas deals, can reach an agreement very soon."

Nigeria's Interest in Agriculture, Manufacturing and Power

Based on the data gathered by the Energy Information Administration (EIA) in February this year, US imports from Nigeria reached a record low, reports Business Day. Andrew Nevin, partner and West Africa strategy-consulting leader at Pricewaterhousecoopers (PWC), stated, "US imports of crude oil from Nigeria have dropped to the lowest level in the last ten years and month by month the trend is accelerating." Nigeria's foreign exchange revenue and budgetary revenue from crude oil accounts for 90 percent and 70 percent respectively. Thus, Nigeria's government and stakeholders should diversify the economy by devoting more time and attention to developing the agricultural, manufacturing and power, said Nevin. PWC recommended, "Nigeria should be a manufacturing hub." However, power shortages are considered to be the main obstacle hindering manufacturing in Nigeria. PWC Africa oil and gas leader Uyi Akpata said, "Realistically, I think the government recognized the need for diversification of the economy."

Coal Overtakes Oil as Top Global Fuel by 2020

Wood Mackenzie, reported that regardless of the efforts in dropping carbon emissions by 2020 coal will push past oil as the key fuel for the global economy. According to Reuters, the demand of coal in the United States, Europe and the rest of Asia will stand still while China and India's demand for the comparatively cheaper resource will result in i consumption growth of coal. According to William Durbin, the President of global markets at Woodmac, the demand of coal in China will boost the growth of coal as the leading global fuel, noting, "Unlike alternatives it is plentiful and affordable."

Woodmac reported, by the end of the decade the spending on coal globally will increase by 25 percent to 4,500 tons of oil equivalent, beating oil at 4,400 million tons. Giles Dickson, a Vice President at Alston said that, "Coal prices are low, adding that coal is about one-third of the LNG price in Asia and half of the gas price in Europe." In early October the International Energy Agency reported, "Coal will be the highest winner in Southeast Asia and by year 2035 it will generate half of Southeast Asia's electricity, up from less than a third now."

Train Carrying Oil and Gas Causes Explosion in Canada

On October 18th, a train carrying crude oil and liquefied petroleum gas derailed, causing an explosion and fire. According to Reuters, the accident occurred west of Edmonton, Alberta. The Canadian National Railway reported that there were no injuries. Local residents were evacuated from the area as emergency crews worked to contain the fire and avoid more explosions. The Canadian National Railway has experienced three derailments in the past few weeks, sparking concern of transporting crude by rail.

Gulf News

Iran's Neighbors Seek its Expertise to Build Refineries

According to the Managing Director of National Iranian Oil Engineering and Construction Company, Farhad Ahmadi, the country has received several requests from its neighbors to help build refineries on their territory, reports the Middle East and North Africa Financial Network. Iran's oil industry has achieved such a capability that it can construct refineries both inside and outside the country, Ahmadi added. The country's self-sufficiency has reached 90 percent in engineering, 70 percent in goods procurement and 100 percent in implementation. In May, the chairman of the union of Iranian exporters of oil derivatives, Hassan Khosrojerdi, informed that the country has agreed to help six African countries set up oil refineries on their territories. The refineries are intended to have a 20,000 bpd capacity, he added.

Gulf Trying to Replace Foreign Oil Workers with Nationals

Saudi Arabia, the UAE, Kuwait, Qatar, Bahrain and Oman have set targets for limiting the number of expatriate workers in order to increase employment of nationals. Their attempts to stop the growth of youth unemployment have gained urgency because of the Arab Spring, writes the New York Times. According to the energy industry recruiting firm Hays, 86 percent of the energy industry work force in the Middle East are expatriates. However, the majority of the youth in the Gulf countries do not have the necessary qualifications in order to replace foreigners in the energy sector.

The governments are trying to tackle the problem by establishing new universities and scholarship programs, but critics say that the skills taught often do correspond to the skills needed. Therefore, national oil companies have set up in-house training centers, established partnerships with specialized oil service firms and sent students abroad for education and training. Besides, they increasingly request expatriates not just to work on projects, but also to coach the local youth. However, some expatriates do not want to do this, anticipating that this will help replace them with the locals in the future. Youth in the Gulf countries often do not want to choose a career in the energy sector at all, considering other industries such as banking more prestigious, which is another obstacle hindering the plans of the governments.

UAE Investing in Nuclear Power and Gas

The energy minister of the United Arab Emirates, which is OPEC's fourth-largest crude producer, stated that the country is reducing its dependence on oil by investing in renewable energy, liquefied natural gas terminals, and nuclear power. According to Business Week, the second-largest emirates Abu Dhabi and Dubai are investing in renewable energy. According to Suhail Mohamed Al-Mazrouei, on Monday October 14 said in Daegu, South Korea that "They are making their energy supply portfolio more robust in addition to their commitment to being a reliable supplier of hydrocarbons to the world". In 2017 Abu Dhabi, which holds most of the UAE's crude reserves increased its oil-production capacity to 3 million bpd and is still planning to elevate its output capacity to 3.5 million bpd to meet the export demand and supply an expanded local refinery. Matar Hamed Al Neyadi, an energy minister undersecretary, mentioned that by 2030 the UAE will have a capacity of more than 35,000 megawatts, adding that renewable energy will account for 7 percent of the nation's generation.

US Considers Easing Iran Sanctions

The administration of US President Barack Obama is considering easing sanctions on Iran after the country's Foreign Minister Javad Zarif presented a roadmap for concluding a deal on its nuclear program, according to International Business Times. The plan under consideration is to release Iran's frozen overseas assets in installments, instead of withdrawing sanctions altogether since the latter could create tensions domestically as well as internationally, said a senior US official. US officials also informed that they would urge the senate to postpone a voting on a bill that aims to limit Iran's oil exports further until after the next round of nuclear talks with Teheran has taken place in Generva on November 7-8th, writes the New York Times. There is a new hope for reaching an agreement on Iran's nuclear program after Obama and the new Iranian President Hassan Rouhani held a historic phone call on September 27th. It was the highest-level contact between the two countries in three decades.

New Pipeline to Aggravate Kurdish-Baghdad Relations

Thanks to a new pipeline, Iraqi Kurdistan can increase oil exports sharply and will soon earn more from its oil than it receives from Baghdad. By exporting its oil to world markets through Turkey, Kurdistan has already earned almost USD 1 billion. Once the new pipeline is operational, nearly that amount could be earned from the exports each month, reports Reuters. The pipeline, which runs from the Taq Taq oilfield to an area where the borders of Iraq, Syria and Turkey meet, will initially transport about 150,000 bpd. This amount is expected to increase to 1 million bpd by 2015 and 2 million bpd by 2019. The current production capacity of Kurdistan is estimated at around 350,000 bpd, of which 140,000 is consumed locally. Most of the production comes from three fields operated by Norway's DNO, the Anglo-Turkish Genel and Kurdistan-based KAR Group. Exxon Mobil, Chevron Corp and Total are in the exploration stage.

Kurdistan's oil used to flow through a Baghdad-controlled pipeline, but exports via that dried up last year due to a dispute between the central and the regional governments. Baghdad is threatening to slash the 17 percent share of Kurdistan in the state budget if exports via the new pipeline go ahead. It fears that the pipeline sets a precedent that will lead to the partition of Iraq. There are already signs of that as the local authorities of Nineveh recently followed Kurdistan's lead by giving their governor right to sign contracts with oil companies.

Unconventional News

Saudi Arabia Plans to Produce Shale in a Few Years

Since gas demand in Saudi Arabia is expected to double by 2030, the country is eager to make use of its unconventional resources. The country's shale gas resources amount to an estimated 600 tcf, more than double of its proven conventional reserves, according to Saudi Oil Minister Ali al-Naimi. Saudi Aramco has conducted appraisal drilling and piloting of three prospective areas for unconventional gas so far, reports Reuters. Saudi Arabia is ready to start producing shale gas within the next few years, said Saudi Aramco's Chief Executive Khalid al-Falih at the World Energy Congress.

"We are ready to start producing our own shale gas and unconventional resources in various types in the next few years and deliver them to consumers," said al-Falih. "Only two years after launching our own unconventional gas program, in the northern region of Saudi Arabia, we are ready to commit gas for the development of a 1,000 megawatt power plant which will feed a massive phosphate mining and manufacturing sector," he noted.

Saudi Aramco hopes to finalize the project by early 2017, although according to industry sources the completion could be delayed by up to a year since work on infrastructure is running behind schedule. Nevertheless, Saudi Arabia is unlikely to produce much shale gas in this decade, considering its scarce water resources and prices fixed far below production costs.

North Africa May be the Next Big Shale Prospect

North Africa may be "the next big opportunity" after North America for shale oil and gas production if drilling costs can be reduced, said the Geological Studies Director of the Spanish company Repsol, Eduardo Negri. "Repsol has conducted a regional study covering the whole Saharan Platform in order to identify prospective areas for shale gas and oil from a geological point of view," Negri informed, according to Bloomberg.

"The current drilling and completion costs are still high in North Africa," he admitted, adding that, "This is something that can be worked on if service companies take special effort in preliminary evaluation steps in order to show how they can reduce costs, thinking about massive operations in the future."

Court: Fracking Ban in France Constitutional

France's constitutional court announced on October 11th that the fracking ban imposed in the country in 2011 is legal. The ban had been challenged by the US company Schuepbach Energy, whose two exploration licenses in France were cancelled due to the ban, reports BBC. "It's a judicial victory but also an environmental and political victory," said the French Environment Minister Philippe Martin about the ruling, according to Bloomberg. "With this decision the ban on hydraulic fracturing is absolute." The US Energy Information Administration estimates that France has 177 trillion cf of recoverable shale gas reserves.

Chevron Halts Shale Search in Romania after Protests

Chevron suspended its search for shale gas it the Pungesti town of Romania a few days after the residents blocked access to the site. "Chevron can today confirm it has suspended activities in Silistea, Pungesti commune, Vaslui County," the company announced on October 17th, according to Reuters. "Chevron is committed to building constructive and positive relationships with the communities where we operate and we will continue our dialogue with the public, local communities and authorities on our projects," the firm added.

On the same day, the Pungesti local council decided to hold a referendum on whether to allow Chevron to explore for shale. However, the referendum, expected to take place on November 24th, would not be binding. Chevron says it has all the permits needed for shale drilling. The US Energy Information Administration estimates that Romania has 51 tcf of recoverable shale gas reserves.

In recent months, thousands of people have rallied across Romania against the government's backing for shale gas exploration and the plans to set up Europe's largest open cast gold mine in the country.

Shell Abandons Shale Extracting Efforts in Colorado

Shell recently announced that it was abandoning the attempts to commercially extract shale oil in Colorado, after having invested millions of dollars during dozens of years in the project. "The energy market has evolved since we first started this research in 1981," said Shell's spokeswoman Kelly op de Weegh, according to FuelFix.com. "Shell has a large portfolio of opportunities, and each one competes for capital. Managing the portfolio means decisions will be taken to ensure the right balance of both near-term and long-term opportunities." Chevron Corp made a similar decision in February 2012 when it announced that it would abandon its federal oil shale lease in Colorado's Piceance Basin.

South Korea's GS Caltex Leaves Brazilian Refinery Project

GS Caltex, South Korea's second-largest oil refiner announced that it has abandoned plans to construct a refinery with GS Energy and Brazil's Petroleo Brasileiro SA, reports Reuters. Hur Dong-Soo Chairman of GS Caltex said that the company was dropping the project due to uncertainty over the profitability of the refinery. Hur informed that CS Caltex should focus on its domestic operations.

In March GS Caltex announced the completion of a 53,000 bpd heavy oil-upgrading unit, boosting the heavy-oil refining capacity to 268,000 bpd. Hur stated, "Currently gasoline exports are the number one item amongst petroleum products but we will change from it to more middle distillates such as diesel." Hur also noted that China will remain the company's primary export market.

Iraq Signs a USD 6 Billion Refinery Contract

Iraq's government signed a USD 6 billion contract with Swiss company Satarem for the construction and operation of a 150,000 bpd oil refinery in the southern province of Maysan, which borders Iran, reports AFP. "Today, we sign a contract for an important investment project ... which will contribute (to) filling the country's need for petroleum products," said a statement on the website of Iraq's prime minister. Iraq has the world's fourth largest proven reserves of conventional crude and the government collects 95 percent of its budget revenues from oil, according to Downstream Today. However, the country still needs to import refined petroleum products for billions of dollars every year since it lacks its own refining capacity.

Canada's Oil Sands Production Cut Following Rupture in Natural-Gas Line

Oil sands producers in Canada cut back production on October 17 following a pipeline rupture, reports Reuters. The pipeline break occurred on TransCanada Corps' North Central Corridor pipeline 140 kilometers west of Fort McMurray, Alberta. The rupture hurts oil sands operators in the region who rely on gas supplies. Suncor Energy Inc and Canadian Natural Resources Ltd have slower production, while Syncrude Canada Ltd suspended shipments. Other operators in the region, including Shell, reported normal operations. Crude prices in the country strengthened after the rupture was reported.

European Refiners Suffer as Nigeria Halts Imports

Nigeria's Pipelines and Product Marketing Co (PPMC), a branch of the state oil company, halted gasoline imports on October 17th due to a gasoline glut. According to Reuters, PPMC is struggling to deal with a 10.2 million barrel surplus of gasoline which is being held offshore. PPMC spokesperson Nasir Imodagbe claimed to be unaware of any cancellations of previous orders. The Petroleum Product Pricing Regulator Agency (PPRA) also denied any cancellation. However based on ship tracking reports, Reuters reports that 45 petroleum cargo ships are anchored offshore.

According to analysts European oil refiners will be hit by Nigeria's glut as new buyers must be found for an estimated 3.8 million barrels of gasoline which was destined for Nigeria. While this is not the first surplus scandal in Nigeria, the scale is believed to be enormous, with the suspension possibly extending through the end of the year, hitting the European suppliers.

Essar Energy Blames Kenya for Partial Refinery Shutdown

India's Essar Energy said the government was responsible for the partial shutdown at the Mombasa refinery, informs Reuters. According to Essar, the government failed to make local suppliers purchase from the plant. Essar holds a 50 percent stake in the refinery through a joint-venture company with the government called Kenya Petroleum Refiners Ltd.

In June Essar dropped plans to upgrade the refinery due to economic uncertainty surrounding the project. Now Essar has announced it's plans to sell its stake in the joint venture. The government reportedly failed to meet its price protection obligation. Fuel suppliers criticize the quality of the refinery's products, leaving the plant with 10,000 tons of unsold products in the past two months. Most of the plant has been shut down but the government has stated that the refinery will not be closed.

Niger's Refinery on Track

Niger's SORAZ refinery is expected to stay on track to meet its production target of 800,000 tons of crude oil for this year. In the first half of the year the company refined 397,000 tons of crude, informs Reuters. SORAZ is a joint venture between the government of Niger with 40 percent and China National Petroleum Corporation, which holds 60 percent. According to a statement by the company, they gained USD 292 million in revenue. Niger began producing oil in 2011 from its Agadem fields. The fields supply the 20,000 bpd SORAZ refinery. The refinery failed to meet its target in 2012, as production from Agadem fell below expectation.

Ghana Reopens Oil Refinery

The state owned Tema Oil Refinery was restarted on October 15, following the purchase of 600,000 bbl of crude oil from Nigeria. The supply was given on consignment and will allow the refinery to produce 28,000 bpd for three weeks, reports Bloomberg. The refinery has closed three times since reopening in April 2013. The refinery has faced challenges in maintaining and replacing machinery and is now looking for private investors.

Renewable Energy

Chile Doubles Renewable Energy Target

Chile signed a new law that increases its renewable energy goal to 20 percent of utilities by 2025, informed Bloomberg. According to the Director of Chile's Renewable Energy Center Maria Paz de la Cruz, the goal means that solar farms and hydroelectric dams will be responsible for producing 6,5000 megawatts. Last year Chile produced approximately 8 percent of its energy from renewable resources.

Chile is currently dependent on imported fuels for 80 percent of the country's energy so renewables provide an attractive local alternative. If utility companies do not meet the quotas they must buy credits from developers or power producers. Cruz explained that if utilities do not meet the new goals, Chile might hold an auction in 2015 to sell power from the renewable plants. She noted, "with the change in the law we have secured an amount of demand for this type of technology.

Standard Bank Group to Build Wind Farm in Kenya

Standard Bank Group announced in a press release, an agreement with Aeolus Kenya (AKL) to construct a USD 150 million wind farm in Kenya. The Kinangop Wind Park is expected to produce 60.8 megawatts, enough to meet the needs of 150,000 households. The project will be the largest wind farm outside of South Africa in sub-Saharan Africa. The wind plant is expected to be complete by mid-2015. Kwame Parker, Standard Bank Group's East Africa Head of Debt Solutions and Infrastructure Finance, "With the rising demand for electricity in Kenya, this project will go a long way in providing cost-effective power to the economy."

The Renewable Energy Sector in Ghana Receives Euros 1.8 million

Germany provided the Ghanaian government with EUR 1.8 million in order to implement the Renewable Energy Act during the next two years. The finance will be utilized for assessing renewable energy potential in the country, as well as being used towards other aspects of the Renewable Energy Act, reports Spy Ghana. The Ghanaian government has a goal of achieving a 10 percent utilization of renewable energy by 2020. Renewable resources currently being considered include solar, wind and thermal. The Renewable Energy Act seeks to provide a strategy, as well as framework and guidelines for attracting investors into the country's sector. According to the Minister of Energy, Emmanuel Armah-Kofi Buah, "there are still gaps which need to be addressed for the smooth implementation of renewable energy law."

By EOG

WHEN VERSATILITY COUNTS...

MV FUGRO NAVIGATOR

The Fugro Navigator is the only specialist geoscience survey vessel dedicated to the Egyptian market. The Navigator's multi-role capability allows her to undertake a wide range of survey activities, such as geophysical and geotechnical surveys for drill sites and pipelines, ROV surveys and inspections, and high resolution seismic surveys and environmental surveys.

As a specialist survey vessel, the Navigator offers significant advantages over vessels of opportunity by offering:

- Greater versatility
- Improved safety performance
- Reduced weather standby costs
- The ability to respond quicker to requests for projects
- Hull-mounted sensors produce that higher quality data
- Reduced turnaround time for reporting

The Navigator is permanently equipped with a wide range of geophysical equipment for deep and shallow-water operations while ROV systems and 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.

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Unconventional Resources and Hydraulic Fracturing:
Assessing the Environmental Impact

By Maya Moseley

Shale Gas Production

Recent technological advances have allowed for economically viable extraction of unconventional forms of gas. Unconventional forms of natural gas including shale, tight gas, and coalbed methane, generally occur in lower concentrations over larger areas compared to conventional gas reservoirs, making it difficult to extract. Currently, shale gas production is predominately limited to the United States, where it continues to grow rapidly. Shale gas was primarily responsible for the increase in gas production in the United States between 2010-2011. Noting the success of shale in the US, many other countries, including Egypt, are now considering the possibilities of tapping their own unconventional resources.

Technological advances in drilling have allowed for the economically viable production of shale gas. In order to access shale gas reservoirs, producers generally utilize horizontal drilling, as well as, slick-water hydraulic fracturing. Horizontal wells are constructed so that wells have as much contact as possible with the shale matrix, while at the same time limiting surface disturbance. The vertical section of wells may reach hundreds to thousands of feet below the surface and horizontal sections can extend 1,000 to 6,000 feet[i].

Hydraulic fracturing, commonly referred to as fracking, is the process of injecting highly pressurized fracturing fluids into wells. Fracturing fluids generally consist of water, a proppant (often sand), and chemicals. The pressurized fluids stimulate the reservoir by creating fissures in the shale. The proppant particles then hold these fractures open, allowing for the release and flow of natural gas. Slick-water refers to the chemical additives in the fracturing fluid that allow for faster pumping of fluids into wells and produces a higher-pressure shale fracture.

Environmental Impacts

As shale gas production continues to grow its environmental impacts have drawn both praise and criticism. Due to hydraulic fracturing's high water usage, concerns have been raised over water scarcity. In the US, water scarcity does not present a serious threat at the national level, as water consumption by shale gas production is lower than that of other fossil fuels. According to a report by Erik Mielke, Laura Diaz Anadon and Venkatech Narayanamurti of Harvard's Belfer Center, water consumption for shale gas production ranges from 0.6 to 1.8 gal/MMBtu. The report states that increased production of shale gas in the US may reduce water consumption by the energy sector as a whole.

Despite consuming less water than other fossil fuels, water consumption during hydraulic fracturing for shale gas can be problematic at the local level. Shale gas production generally accounts for less than 2% of a state's water consumption; however, at the local level in drilling areas it is often significantly more. According to a recent report by CERES, 47% of shale gas and tight oil wells are in regions with high to extremely high water stress, meaning that over 80% of the water available annually is being consumed within the region. Increased water consumption in areas with extremely high water stress may create tensions between gas companies and agricultural producers over water resources.

Shale producers are actively seeking solutions to limit their freshwater consumption. Alternatives including saline water, wastewater, seawater, and recycled water are being explored. Advances have been made in places like Eagle Ford, Texas where saline water is being utilized for approximately 20% and the Marcellus region in Pennsylvania which has achieved a 40% recycling rate of fracturing fluids. Recycling refers to the reuse of recovered fracturing fluids, known as flowback fluids. However, recycling has its limits, as 20% to 80% of fracturing fluids remain in the ground, unable to be recycled. Due to the chemicals and toxins in flowback fluids, they must be sent to specialized facilities for recycling, as average wastewater facilities are unequipped to process the fluids.

One of the most contentious issues of shale production is the risk of groundwater contamination. According to Thomas Merrill and David Schizer of Columbia University, shale production risks contaminating groundwater in four potential ways: leaking of fracturing fluids from the shale seam into water wells and aquifers; natural gas released by fracturing may migrate to wells and aquifers; drilling vibrations may cause contaminants lying at the bottom of a water well to mix into the water; fracturing fluids and other waste maybe disposed of in ways that pollute water sources.

Under the premise of trade secret protection, shale gas producers are not required to disclose the chemicals in fracturing fluids in most states within the US. According to environmentalists, disclosure is necessary for scientists to know what chemicals to test for to determine groundwater contamination. The possibility of fracturing fluids leaking into water wells and aquifers from the fissures they create is considered to be extremely unlikely due to the thousands of feet between shale reservoirs and water tables. However, it is possible that fracturing fluids could reach water sources if they are accidentally spilled on the ground surface or if flowback fluids are not properly contained when brought back to the surface. There is also the potential risk of fracturing fluids leaking from a crack in the well casing.

Contamination of ground water by methane gas presents a greater risk than fracturing fluids migrating from shale to the water table. While conventional gas wells risk methane contamination due to leaks and cracks in in pipes, fracturing presents an additional risk of methane migrating through the fractures in the shale into aquifers. Methane contamination does occur naturally, making it difficult to determine the risk level fracturing presents. Water contamination may also occur due to the vibrations during fracturing which may cause pre-existing contaminants dormant at the bottom of the water table to stir up and mix into the water.

The disposal of flowback fluids also poses risks of water contamination. Sending flowback fluids to a regular water treatment facility where they would be diluted and released into a body of water risks contaminating local water. The land application disposal method of dumping fluids onto the ground is also generally banned as fluids may seep into groundwater. Producers have developed recycling methods to treat flowback fluids allowing for their reuse in other hydraulic fracturing projects.

Another method for disposing of flowback fluids is disposal wells, where flowback fluids are injected thousands of feet underground. Disposal wells remain controversial, as leaky pumps, storage pits, and tanks are all potential sources for contamination. In places like Texas, where old-abandoned wells are prevalent, there is the risk that flowback fluids injected into disposal wells will shoot up into nearby abandoned wells. In an effort to mitigate such risks, regulators in Texas are working on tightening requirements for disposal wells.

The use of disposal wells has been linked to small earthquakes in the US states of Ohio, Texas, Arkansas, Oklahoma, and the United Kingdom. A two-year study of earthquake activity in the Barnett Shale, Texas by Cliff Frohlich found that small triggered earthquakes occur more often than reported. Frohlich concluded, "It is possible that some of these earthquakes have a natural origin, but it is implausible that all are natural." Despite being small, below 3.0 on the Richter scale, the impact of such earthquakes remains in question.

One notable environmental impact of shale gas is its contribution to cleaner air due to low carbon dioxide emissions. Burning natural gas, such as shale, for electricity only emits about half as much carbon dioxide per kilowatt-hour as coal. As natural gas begins to replace coal in electricity production reductions in greenhouse gas emissions may be made. Despite its low carbon dioxide emissions, shale gas may still be linked to greenhouse gas emissions due to methane leaks. Methane leaks present a significant threat to climate change, as methane is 72 times more potent than carbon dioxide over a 20-year period.

The rate of methane leaks by shale gas producers is debated. According to Gabrielle Petron who led a study in northeastern Colorado conducted by the National Oceanic and Atmospheric Administration (NOAA), "gas operations in the region leak about twice as much methane into the atmosphere as previously estimated… and the oil and gas infrastructures was leaking other air pollutants, too, including benzene, which is regulated because of its toxicity." In contrast to NOAA's findings, in April 2013 the US Environmental Protection Agency (EPA) significantly lowered its previous estimates of methane gas leaks during natural gas production by 20%. The EPA's revisions were based on new data and expert reviews. The revisions have been criticized for lacking independent field tests and reviews. Both sides of the emissions debate do agree that maintenance, monitoring, and the use of pollution control equipment reduce leaks and are cost-effective.

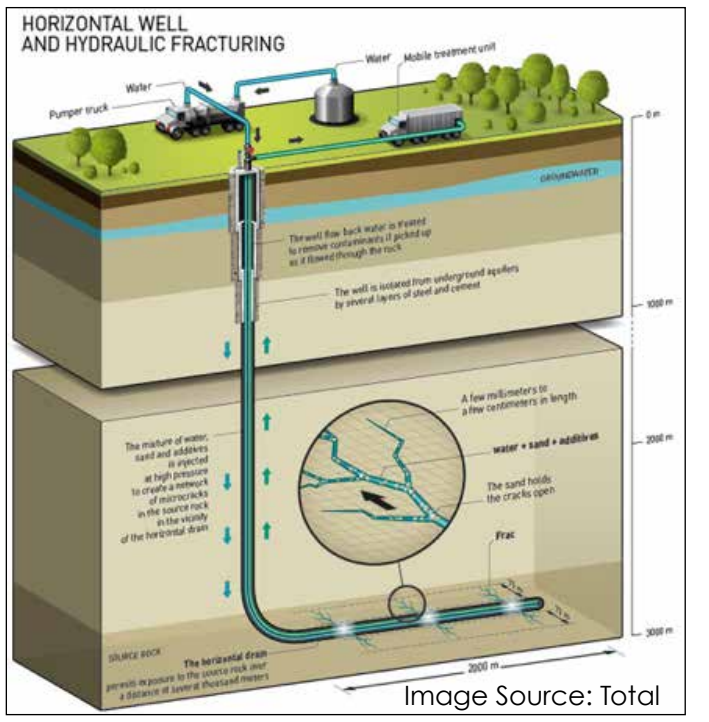


Image Source: Total

Lessons for Egypt

While Egypt has yet to tap its unconventional resources, hydraulic fracturing has been utilized to reinvigorate old wells in the country. The environmental risks posed by fracturing are overarching, but local conditions and regulations factor into each country's individual risks. Reem Labib, an environmental researcher at the Egyptian Initiative for Personal Rights, explained the local risks in Egypt, "The main concern is always groundwater contamination…The Western Desert, where fracking activities are taking place, houses a number of aquifers which constitute the main part of Egypt's strategic groundwater reservoir; in the Nile Valley and Delta, where fracking is also taking place, the risk of groundwater contamination is compounded by the potential runoff of these contaminated waters into the Nile, threatening Egypt's main freshwater source."

While in the US fracturing is closely monitored by government agencies and environmental groups which hold companies accountable, fracturing in Egypt by and large lacks government scrutiny. As Labib explained, "The Egyptian Environmental Affairs Agency (EEAA) does not put forth any special regulations or monitoring procedures specific to different fossil fuel exploration and development processes, but rather 'objectively' assesses and evaluates each environmental impact assessment (EIA)…This indiscriminate 'objective' project-by-project assessment does not take into account the special (and controversial) nature of certain processes, and the need for special, process-specific regulations."

Thus far shale gas producers in the US have taken steps to mitigate negative environmental effects but remain reluctant to disclose chemical additives in fracturing fluids. Without transparency and specialized regulations for hydraulic fracturing in Egypt, it is left to the companies to avoid groundwater contamination and other environmental risks. Ultimately, in the US government regulations, as well as scrutiny from the public and environmental organizations pushed companies to develop strategies and technologies to minimize the environmental risks of hydraulic fracturing. In Egypt companies lack such scrutiny despite the high risks to the country's primary water sources. If Egypt continues to pursue unconventional resources, government agencies need to develop regulations to mitigate the unique environmental risks associated with hydraulic fracturing. Otherwise, the country risks it's most vital resource, water.

i EPA, Hydraulic Fracturing Background Information. May 9, 2012.

The Future of Unconventional
Oil and Gas in Egypt

By Maya Moseley & Salma Selim

Egypt Oil & Gas Newspaper hosted its third roundtable discussion on October 3, 2013. The event was held at the Katameya Heights Clubhouse. The roundtable sought to promote dialogue between governmental officials and industry executives on the possibilities of developing Egypt's unconventional resources. Twenty-two delegates participated in the discussion, which was attended by approximately 100 members of the sector as well as local and international media outlets. Esteemed experts on the panel included Jean-Pascal Clemencon Managing Director of Total E&P Egypt, Amr Essawi Vice President and General Manager of Schlumberger, Ahmed Abu Zeid General Manager at Weatherford Egypt, Jerome Jammal Vice President and Managing Director of Baker Hughes Egypt, Hesham Ishmail of Halliburton, Hany El Sharkawi CEO of Cheiron Holdings Ltd., Taher Abd El Reheem Chairman of EGAS, Atef Mohamed Hassan of EGAS, and Dia Kassen of EGPC, just to name a few. Dr. Ahmed Abdel-Fattah, Vice Chairman for Exploration at Egyptian General Petroleum Corporation (EGPC) moderated the discussion that covered the geophysical, technical, contractual, and economic aspects of exploring and developing unconventional resources.

Does Egypt have Unconventional Reserves?

Chairman of EGPC Tarek El Molla provided welcoming remarks for the roundtable, during which he identified shale gas as "a great prospect for our [Egypt's] future energy supply," noting shale as, "one of the most attractive investment opportunities." Molla highlighted the potential role that shale could play in diversifying and securing Egypt's energy future. He remained realistic, conceding that there will be enormous challenges in developing unconventional resources.

A 2010 evaluation by the US Energy Information Administration (EIA) and Advanced Resources International (ARI) reported that Egypt had negligible shale resources. However Mostafa Orabi, Halliburton's North Africa Technology Manager, asserted that the EIA/ARI evaluations were inaccurate as they evaluated Egypt's shale potential by geological ages where source rock is common in the Mediterranean region, even though Egypt's source rock is in the Jurassic and Cretaceous. According to Orabi the methodology was flawed, as "Egypt does not fit in the same framework as the rest of the Mediterranean region."

A team of geoscientists in Egypt, including Orabi, is carrying out a new evaluation of Egypt's shale potential. Khatatba, Abu Rawash, and Alam El Bueib have been identified as potential shale source rock in Egypt, with the most notable being Khatatba. Khataba is considered to be of excellent quality based on it's TOC, S1, and S2. According to Orabi, "Khatatba is on the border, as it can be liquid and it can be gas…which gives a lot of good value." Within the Khatatba, tight sand is located in-between the shale, which indicates good potential, explained Orabi, as it allows you to produce tight gas and gas out of the shale. In addition to TOC, brittleness is a key factor in source rock, as it allows for effective fracturing. Orabi informed that a TOC of 2% and a brittleness of 40% should be used as cutoffs when assessing shale.

In 2013, the EIA re-evaluated Egypt's potential and determined it to be 535 TCF of shale in place, 100 TCF of which was deemed technically recoverable, and over 114 BB of shale oil in-place. Orabi asserted that he believes the revised EIA figures are still underestimated, as they only examined the Western Desert. Similarly, Fattah expressed his belief that there is enormous potential across Egypt, from the Gulf of Suez to Upper Egypt and the Delta region. Dr. Patrick Allman, General Manager of Dana Gas, informed that studies in the Eastern Desert also indicate potential in the upper Cretaceous and lower Tertiary for kerogen in the region.

While much of the discussion focused on shale reserves, delegates highlighted the possibility of other unconventional resources. The First Undersecretary for Exploration at the Ministry of Petroleum Ismail Mohamed Ismail stated, "That while we are all concentrated on shale gas, I think there is a lot of potential in other unconventional resources here." Vice President and Managing Director of IPR Egypt, James Work suggested that brown limestone in the Gulf of Suez region could be a potential source for unconventional reserves. Additionally, Rashed Mohamed, Senior Exploration Advisor for Total E&P Egypt asserted that there could be coalbed methane reservoirs in the Sinai. Fattah noted that an EGPC team was exploring potential tar sands reserves in one area.

Tapping Egypt's Unconventional Reservoirs

Joe Versfelt, Exploration Manager for Apache Egypt spoke on the company's current efforts to explore unconventional reservoirs in the Western Desert. Apache's exploration for unconventional resources in Egypt fits into the company's global strategy of "deploying technology to existing properties, primarily deploying horizontal and multi-stage fracking technology and commercializing oil and gas reserves in tight reservoirs." Speaking on projects here in Egypt, Versfelt informed the panel that Apache, in collaboration with EGPC, plans to drill seven horizontal wells within the next six to eight months and already has completed one. According to Versfelt, "That is essentially the start of the deployment of horizontal drilling technology here." Orabi added that there is also a multi-fracked well located in the upper Bahria that is producing at a rate comparable to five or six vertical wells.

Versfelt drew on the geological similarities between Egypt's Western Desert and the Permian Basin in Texas, where Apache has been successful in tapping tight reservoirs utilizing horizontal wells and multi fractures. Versfelt explained that the Western Desert is target rich for horizontals in tight reservoirs and potentially unconventionals. Khalda, Apache's joint venture with EGPC, is planning on assessing further shale potential in the Syrah and Amoun areas. Additional technical evaluations are underway, assessing the TOCs, S2 and RO elements in potential plays, according to Versfelt.

Versfelt explained the necessary steps to assessing and exploring for unconventionals, "The first steps are deploying this technology in existing fields and their surroundings and acquiring more data with regard to unconventionals which Apache has been doing. There is a range of steps that an industry or society must undertake and those are starting. But first it takes action and collaboration and listening and acting upon recognition of key fundamental commercial drivers that need to be addressed." Versfelt highlighted some of the key technical drivers for Egypt's unconventional such as geomechanics and petrophysics. Additionally commercial drivers including oil and gas prices, drilling and fracturing costs, land, time periods for unconventional exploration, contractual regime, economies of scale and infrastructure were discussed. Versfelt emphasized, "Land is key to every unconventional play worldwide." Another challenge Apache has encountered thus far "is a learning curve at all levels" as training personnel on horizontal drilling and multi-stage fracturing takes time, informed Versfelt.

Lessons from Abroad

Many of the panel members drew from their past experiences on unconventional projects in other parts of the world, providing insight on challenges as well as strategies to overcome such hurdles. General Manager of Enap Sipetrol, Lisandro Rojas provided an informative presentation based on the company's experience in tapping unconventional reservoirs in Chile. The country began looking at its potential in unconventional reservoirs when it experienced an energy crisis three years ago and began

Eng. Tarek El Molla
Chairman of EGPC

"The era of exploration is finished and what we have now is a great challenge for geoscientist and geoengineers to study, explore and develop new areas and concepts. At the top of this great hope stands unconventional play concepts in Egypt.

Dr. Ahmed Abdel-Fattah
Vice Chairman for Exploration at Egyptian General Petroleum Corporation (EGPC)

"There is enormous potential for unconventionals across Egypt...from the Gulf of Suez to Upper Egypt and the Delta region.

Hesham Ishmail
North Africa Vice President of Halliburton

"Unconventionals will be the topic in our industry in Egypt throughout the next five years...I believe the numbers will be changing and changing for the best.

Mostafa Orabi
Halliburton's North Africa Technology Manager

"We found that the EIA report was wrong…Egypt does not fit in the same framework as the rest of the Mediterranean region.

Joe Verfelt
Exploration Manager for Apache Egypt

"The first steps are deploying this technology in existing fields and their surroundings and acquiring more data with regard to unconventional, which Apache had been doing.

unconventional production this September with five tight gas wells. Rojas explained that Chile recognized it was impossible to replicate the success of the US or Canada so Sipetrol avoided that comparison, instead focusing on other countries such as Argentina, Mexico, China, and Poland.

Rojas explained that similar to Egypt, Chile also suffered from a lack of geological data as "unconventional reservoirs are usually overlooked" so data had not been collected. To overcome this information gap, Chile implemented a data collection campaign, which entailed resampling many of the old wells and drilling a new pilot program of new wells to collect. Sipetrol found that the distribution varied so they opted to focus on small projects that had supporting data.

Additionally, they faced challenges with technology in terms of availability and costs. Rojas informed that due to the country's location "when we jumped into unconventional and tried to bring large fracking crews into Chile it was very expensive as we had to import the fracking crew." Rojas explained, "An unconventional project is a well factory where drilling and fracking costs define 80 to 90 percent of CAPEX. The well costs and fracking costs are crucial." He went on to caution that initial costs will be very expensive and you have to work to lower the costs. Sipetrol managed some of the drilling costs by purchasing their own rigs which they utilize on conventional wells. However, for unconventional wells they continue to rely on more advanced rigs from service providers.

The price and contract also posed challenges to Chile. Again Rojas stressed the importance of not using the US or Canada as models due to the difficulties in replicating the infrastructure and technology, which led Sipetrol to use Argentinean wells as analogues. Unconventional reservoir production was uneconomic in Chile due to the market price of gas so Sipetrol negotiated with the Chilean government to increase gas prices in order to achieve a breakeven gas price. Despite the government's increase in price, they have not yet been able to achieve commercially viable production but Rojas remains confident that they will be able to do so by reducing well costs and increasing production. Other contractual challenges also emerged, as Rojas noted, "In spite of having good commercial terms the contract was not good enough in terms of time frame, similarly with early relinquishment."

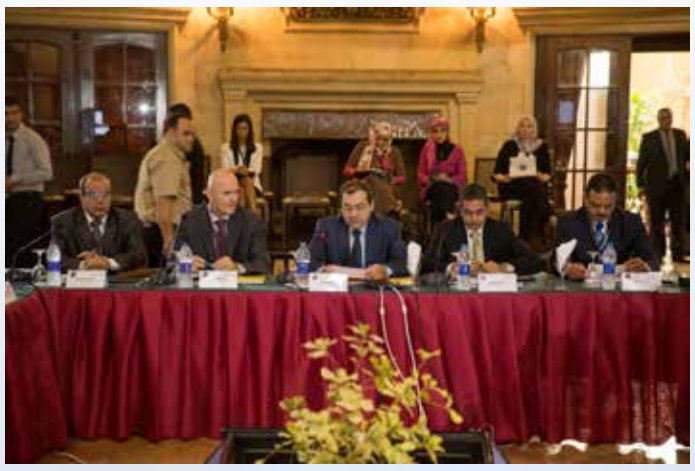
Sipetrol has tight gas and shale gas fields in Chile that will be fracked soon. In Chile, shale gas is often deeper than tight fields therefore Sipetrol is exploring liquid rich shale gas, because condensates are more economic. As Rojas asserted, "Liquid can make much more money than gas, that must be taken into account." Based on Chiles early success, Rojas recommended Egypt start with tight gas production rather than shale. Rojas cautioned that production declines very rapidly during the first month, advocating that first month averages are a more reliable indication than first day production rates.

Egypt can certainly learn a lot from Chile's experiences, particularly in terms of practicality. While many panelist praised the success of the US and Canada, Rojas' cautioned against trying to replicate their models. In all likelihood Egypt would face difficulties in importing the technology and drilling rigs, as well as finding a breakeven gas price. Allman also raised a very pertinent question on infrastructure gaps. Throughout the discussion Orabi often drew on Algeria's experiences as they seek to tap their unconventional reservoirs. Looking to countries such as Algeria and other neighboring countries facing similar challenges would likely prove more beneficial in developing models and strategies than comparing Egypt to the US or Canada.

Challenges and Solutions

One of the most recurring topics throughout the roundtable was the need for a database. Orabi explained how the Algerian government tackled the issue of data by requesting all operators drilling below the source rock to log the data, regardless if the data was necessary for the company. Versfelt asserted, "the data model distribution and availability should be one that is compatible with the contractual regime for unconventional and the bid round structure." Brian Twaddle the Country Manager & Director of TransGlobe Energy suggested that the government take the responsibility for gathering data and operating the database.

The importance of fiscal terms and contractual models are imperative in building Egypt's unconventional resources. At present EGPC appears to be handling unconventional exploration on a case-by-case basis. Throughout the panel's discussion, Fattah repeatedly told companies to bring their proposals for unconventional exploration



to EGPC for consideration. Twaddle questioned if production-sharing agreements are the right format for unconventionals in Egypt, given government tendencies to shy away from risks. Other delegates mentioned models implemented in countries such as India and China. According to Fattah, these models for production sharing of unconventional resources are currently being studied.

Refaat Zaki, General Manager of Wasco pointed out, "One of the main obstacles to investment is delayed payment, so why does the government not find solutions to this?" Fattah declined to discuss the matter, responding, "I do not like to hear about the payments." Another key fiscal factor that delegates discussed was commercial viability and gas prices. Given that unconventional exploration is in its early infancy here in Egypt it is impossible to know the exact drilling costs but as Versfelt explained, "the horizontal reach will depend on the objective and depth which will dictate the economics… there is ultimately an economical floor which the current gas prices are a key driver of…and that will be a fundamental constraint." Thus in Egypt gas subsidies will likely be a factor in the economic feasibility of developing unconventional resources. Moharem El Gamal, Technical Advisor to Kuwait Energy Egypt's President bluntly stated, "As long as we have price controls on gas [here in Egypt], shale gas will not be developed."

Another challenge that was discussed was the issue of water resources, given that hydraulic fracturing is a water intense process and wells will require multiple fracks. Versfelt noted that the US has the same concerns and the industry responded by "recycling

Ismail Mohamed Ismail
First Undersecretary for Exploration at the Ministry of Petroleum

"While we are all concentertated on shale gas, I think there is a lot of potential in other unconventional resources here.

Brian Twaddle
Country Manager & Director of TransGlobe Energy

"I think the IOCs and service companies have the money, appetite for risk and the incentives to make this happen as quickly as possible.

Ashraf Zeid
Baker Hughes' Vice President of Middle East Region Reservoir

"Other industries can benefit from the success of unconventional resources. We need to garner support, funding, and capital which will allow us to expedite the development of Egypt's unconventional resources.

Lisandro Rojas
General Manage of Enap-Sipetrol

"An unconventional project is a well factor where drilling and fracking costs define 80 to 90 percent of CAPEX. The well costs and fracking costs are crucial.

Moharem El Gamal
Technical Advisor to Kuwait Energy Egypt's President

"As long as we have price controls on the gas, shale gas will not be developed in Egypt. Unless gas prices are deregulated to meet international prices, free-economy could be an issue.

and reconditioning waste water and various other unconventional solutions" to mitigate water usage. Rojas proposed publishing the chemicals utilized in fracturing to the public and if concerns over a specific chemical are raised then an alternative can be used. Rojas also recommended implementing an educational campaign for environmental authorities, as they lack knowledge and experience in unconventional drilling. Twaddle advocated that more consideration be given to the regulation of unconventional explaining, "the EEAA is struggling to understand what we do and they need help understanding unconventionals."

Moving Forward

Fattah's plan for moving forward consists of monthly meetings and reviewing case-by-case proposals. Harry Saul, President of Kuwait Energy Egypt suggested the formation of a steering committee comprised of representatives from EGPC and the industry to set the agenda and targets for unconventional exploration and development. Saul added that "the risks and costs are not insignificant" and this must be taken into consideration when determining a fiscal regime. Samir Abdelmoaty the General Manager of Technical Petroleum Services Egypt, emphasized collaboration in going forward, explaining, "we need to involve every stakeholder in this… as it will ultimately reduce dispute in the end." He proposed a series of three workshops to cover the geoscience, challenges and lessons learned, and the agreements model.

Twaddle, on the other hand, cautioned against committees as they are often more time consuming. Twaddle suggested the government put forward a fiscal model and bid opportunities then review the industry's response and make modifications if necessary. Versfelt raised the issue of program level approvals, arguing, "if we approach this on a well-by-well basis the pace will not be sufficient to achieve materiality." Which was also echoed by an audience member who brought up the cumbersome process of attaining all the necessary permissions.

Ashraf Zeid, Baker Hughes' Vice President of Middle East Region Reservoir Development proposed a session on Egypt's unconventional development that would not only include industry representatives but also "other industries who would benefit from the success of unconventional resources" to garner "support, funding, and capital which will allow us to expedite" the development of Egypt's unconventional resources. Zeid noted that the success of unconventional resources would have a direct impact on Egypt's fiscal regime.

Egypt holds unconventional resources and 'new laws' will certainly serve as a starting place for Egypt's journey into this frontier. However, we must remain realistic as we go forward. If operators overcome the technical challenges and manage to tap these reserves, the economics will be a true determinate of success. As Egypt's appetite for energy continues to grow, unconventional reservoirs could play a major role in the country's energy future but serious considerations must be given to energy prices, as they will ultimately dictate the commercial viability

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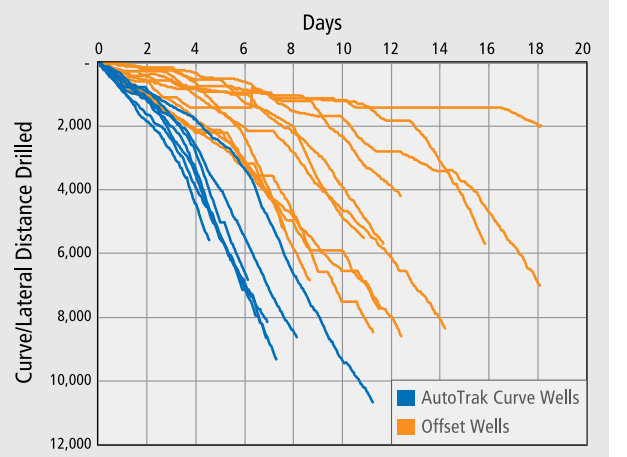

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Insight on Unconventional Resource Development:

An Interview with Harry Saul President of Kuwait Energy Egypt

Egypt Oil and Gas had the opportunity to interview President of Kuwait Energy Egypt Harry Saul. Mr. Saul shared his thoughts on Egypt's potential development of unconventional resources.

> **"make sure that these shale projects are economically viable and competitive with other projects in each company's inventory."**

Harry Saul
President of Kuwait Energy Egypt

Q Do you feel Egypt has the potential to develop unconventional resources?

"Yes, there is potential but it needs to be proven. We need more data to prove it and then see if it's commercially viable. There are rocks here that could be candidates we just need to study them. The key element is that you need to get core samples on some of the shale plays to determine how brittle they are. If they are soft and not very brittle it will not work when you fracture them. Therefore, basic information needs to be collected and examined. Then you need to have the infrastructure in place. I think Egypt has the water and has some fracturing equipment but there is not enough equipment if more than a few operators start drilling and completing shale gas wells."

Q Do you think Egypt could replicate the US shale boom?

"I think part of the rapid success achieved in the US was attributed to the infrastructure that is vastly available within the US. The unusual thing about the US oil and gas infrastructure is that it is so enormous. In the US you can get supplies and equipment in days, which could arguably take a lot longer here. Historically, two million wells have been approximately drilled in the US; significantly more than the number of wells drilled in most other single countries in the world. This obviously can only happen during a similar time frame when the reach for massive infrastructure is readily available. With that being said, you cannot take what happened in the US and extrapolate it somewhere else, you have to look at the existing infrastructure and its capacity for rapid expansion.

Shale gas capital requirement can be significant. In the US they may spend millions on the fracas and results in elevated production levels initially followed by a rapid decline. However, there is still some discussion among reserve certification engineers in the US as to what the ultimate recovery is going to be…The shale gas plays in the US that are doing well are the ones with liquids because the gas prices are currently suppressed due to the oversupply of gas in the US gas market. A lot of companies have actually backed away from some of the dry gas plays. The gas price in the US fluctuates in the range of USD 3 to 4+, similar to the prices in Egypt, so I think it would be challenging to develop dry gas here but if you had some plays that have liquids in them there could be a potential. Fiscal regimes in the US and Egypt vary greatly but there is still room for enhancement in pricing and cost recovery in Egypt as the way to incentivize companies to move toward developing unconventional resources."

Q How are operators in Egypt approaching potential shale resources here?

"Obviously, a lot of companies are probably looking at getting cores from the shale source rock and evaluating the potential. I think people are starting to gather information and the issue is that companies have an inventory of projects they want to do and you have to make sure that these shale projects are economically viable and competitive with other projects in each company's inventory. The numbers might be large and exciting but at the end of the day you have to look at the returns. Companies internally rank the opportunities they can invest in and for money to be spent on shale gas these opportunities have to be competitive and rank favorably against other others."

Q What role should the Egyptian government play in promoting unconventional resources?

"Egypt needs gas but the current gas prices here are low. If they were able to increase the gas prices I think companies would be more aggressive in exploring for and developing unconventional gas."

Q Will the government need to revise fiscal terms to accommodate unconventional exploration and production?

"It needs to be a comprehensive process between the contractors and the government to determine what makes sense. You have to look at the numbers. Then you may have to sit down and talk to the government about the fiscal regime. The government officials are very reasonable, they understand the business and they are always working to overcome any of the challenges. Given the rocks and the thickness maybe you can find away to make it work under the current terms but that is speculation at this point because we do not have the data. I think the terms need to be flexible in case prices drop to keep projects viable, without passing new legislation every time prices change significantly. It is also suggested that the enhanced terms facilitate accelerated cost recovery. Countries like Canada have a sliding scale royalty that can adjust somewhat to prices. There is obviously a limit but it is a bit more flexible."

Q Is Kuwait Energy looking into unconventional resources here?

"It is something of interest to us. We are looking at the source rocks in some of our fields and will be collecting data to further evaluate this potential."

Q What operational challenges does Kuwait Energy face here?

"There are a lot of issues but nothing unusual for the business we are in. You always have a variety of issues with partners and the government but you sit down and work those issues out. We are very happy with the relationships we have with both the government and our partners. I cannot think of an instance where the government officials have not been helpful. Overall we enjoy a very good working relationship with our partners and the Egyptian Government. "

Interview with Dirk Warzecha

The Chief Operating Officer of RWE Dea

What can you tell me about RWE Dea?

RWE Dea AG is an international exploration and production company for oil and gas with headquarters in Hamburg, Germany. Our company relies on its extensive geoscientific know-how, state-of-the-art drilling and production technology, and the experience gained during more than 110-years of corporate history. In all our operations we attach the highest priority to environmental protection, occupational safety and health. All this is the guarantee of our corporate success.

RWE Dea has stakes in production facilities and concessions or holds exploration licenses in defined core regions worldwide. We are active in Europe, North Africa, the Caspian Region, the Southern Caribbean and the Equatorial Region of South America. RWE Dea is part of the RWE Group, one of Europe's largest energy utilities.

We are committed to an on-going and significant expansion of our operative activities in the future. The foundations for this were laid in recent years mostly through our outstanding exploration work and in some cases successful acquisitions. Moreover, RWE Dea has been able to steadily expand its portfolio through successful participation in bid rounds. In order to achieve our growth targets as quickly as possible, we are pushing ahead with an ambitious programme of production enhancements in existing fields and major field development projects of discoveries, like recently with Disouq in Egypt or our growth projects Breagh and Clipper South in the UK Southern North Sea.

Can you tell me a bit about RWE Dea's existing activities in Egypt?

Including its predecessor company, RWE Dea Egypt has already been engaged in upstream operations in Egypt for almost 40 years and we have produced oil in the Gulf of Suez as operator for three decades now. In recent years, we have made a number of large gas discoveries in Egypt and we were able to extend our portfolio substantially by acquiring additional concessions. Currently, RWE Dea is engaged in 11 onshore and offshore concessions in Egypt with a total area of about 6,500 square kilometers.

The core regions of RWE Dea's exploration activities are the Gulf of Suez, onshore and offshore in the Nile Delta.

Recently, we have taken up gas production in one of our own operated growth projects, the Disouq concession, located onshore in the Nile Delta. Disouq is the first natural gas project brought into production by RWE Dea as operator in Egypt.

Another important growth project for us is the field development in the North Alexandria and West Mediterranean Deep Water concessions, jointly owned by RWE Dea (40% and 20%, respectively) and BP (operator and owner of the remaining share). In addition, we are partners in the Western Desert for production and are evaluating development concepts of our discoveries in the North El Amriya concessions.

What are RWE Dea's production rates here in Egypt?

During the financial year 2012, RWE Dea produced around 970,000 cbm of crude oil in Egypt.

The gas discoveries in the Disouq concession, which recently have been put on stream, increase the total hydrocarbon production of RWE Dea in Egypt by around 40%.

RWE Dea Egypt recently began producing natural gas at your Disouq concession.

Can you tell me a bit about this new operation?

The project encompasses the development of seven gas discoveries in the Nile Delta, to produce total reserves of approx. 11.4 billion cubic meters of natural gas. As said, Disouq is the first natural gas project brought into production by RWE Dea as operator in Egypt. Initially in Phase 1 production is expected to ramp-up progressively to a rate of 1.4 million cubic meters of gas per day. Beyond that, we will continue development and plan to achieve a peak production level of around 4 to 4.5 million cubic meters per day in mid-2014 when additionally a central treatment plant will start producing. The Disouq Central Treatment Plant (DCTP), a dedicated facility set up by RWE Dea, has a processing capacity of 4.25 million standard cubic meters of gas per day. The treated gas and the condensate are pumped by the DCTP into the national grid via two pipelines, each about 40 kilometers in length. All together, we plan to have 16 wells in production by the end of 2014.

Above the initial 11.4 bcm of gas reserves, the Development Lease Area includes additional appraisal and exploration potential, which we intend to drill out with a substantial drilling program until 2015.

The Disouq concession is located in the Kafr El Sheikh Governorate. The concession currently comprises a total area of 3,217 square kilometers and was awarded to RWE Dea in July 2004.

RWE
The energy to lead

Does RWE Dea have plans for more natural gas projects in Egypt?

RWE Dea is partner in the largest project in the Egyptian oil and gas industry, the West Nile Delta project, together with BP as operator. With reserves of more than 50 billion cubic meters of natural gas (RWE Dea share), the development of the combined concessions of North Alexandria and West Mediterranean Deep Water is a main growth project in RWE Dea's portfolio.

In addition, we are working on a concept to develop our own discoveries in the North El Amriya concession. Here we have discovered and appraised several gas discoveries.

What other projects is RWE Dea currently working on?

Internationally, RWE Dea is pushing ahead with several major growth projects to increase production in our defined core regions. Just to give a few examples:

Currently, we are bringing the Breagh gas field on stream, one of the largest natural gas discoveries under development in the UK sector of the Southern North Sea and the largest RWE Dea operated field development project in the UK.

Last year, we brought two other UK gas fields in production: the self-operated Clipper South and the Devenick field, where we are partner.

In Norway, where we began our 40th year in the country, we are about to submit the plan for development and operation (PDO) for the Zidane field, our first self-operated development project offshore Norway. We expect more development activity in Norway with the Tiatan discovery.

What challenges does RWE Dea face with its operations in Egypt?

Experts predict that Egyptian gas production will fall below the level of demand starting from 2013 with a supply gap ranging from 10 Bcm/a to 25 Bcm/a until 2030. With no change in the investment climate and failure to secure large-scale imports, Egypt's supply gap will widen.

Setting the right incentives for new gas developments and reforming the upstream investment environment are important and necessary tasks for the Egyptian government to improve the future economic performance of the country.

Principal factors determining how attractive Egypt's upstream environment will become in the international competition will depend on, amongst others, the government's timing and ability to stabilise the investment environment and improve commercial terms to IOCs will attract more development capital.

Enabling more developments will benefit Egypt by making better use of its own resources and help to solve the growing energy demand of the country.

What are RWE Dea's goals for the year here in Egypt?

Our upcoming main operational tasks and goals in Egypt are to keep our oil production stable in the Gulf of Suez, to ramp up the gas production from the Disouq concession to progress with the field development project West Nile Delta in order to accelerate the path to first gas and find an environment to bring gas from North El Amriya to the market. Overarching, we want to do our operations in a safe way with regard to environmental protection, occupational safety and health.

Exploring Egypt's Unconventional Reservoirs:

An Interview with EGPC's Vice Chairman for Exploration Ahmed Abdel Fattah

Dr. Ahmed Abdel Fattah, EGPC's Vice Chairman for Exploration met with Egypt Oil & Gas newspaper to discuss Egypt's unconventional resources and the necessary agreements between production companies and EGPC.

Where is Egypt at in terms of assessing and developing unconventional reserves?

Egypt can be considered in the early stage of the work of unconventional petroleum resources. Each project has to go through three main phases: exploration, pre-development and development. Before exploration there is the preliminary study to evaluate and assess the potential in the different areas, we are currently in this phase. We have a team from different companies, which are working on the geological and geochemical parts. We believe from some observations and studies that there is shale oil in the south of Egypt and shale gas in the north. Shale requires a lot of assessment and knowledge about the specific area. The most important factor is homogeneity, as it requires a lot of study because no one can judge shale continuity.

What production companies have expressed interest in Egypt's unconventional resources?

A lot of companies are interested. Apache and Shell are very keen about the unconventional resources and they have a lot of history and experience in this field. However, companies tend to go back and forth based on the cost of gas, the amount of the resources and the cost of infrastructure. Anyone who would like to invest wants to know all of the details in terms of how much they would need to invest, the project's duration, commerciality and most importantly, when they will get their money back to evaluate their return on investment.

What is the expected price for gas?

Gas prices vary due to the factors I previously mentioned. In the US it reaches USD 6 to 7. In 1981, the US started with just a few wells and now they have thousands of wells and the price reached USD 4.5. According to Dr. Ibrahim Abu Said shale gas is not expensive because a big part from the cost is related to the contractor (service company). He mentioned that the presence of propane could lower the cost of gas, as propane is necessary for fracking. I think it is a great idea if we made this material here in Egypt and exported to Libya and Algeria. I believe this would lead to more investment.

What can the government do to attract investment in Egypt's unconventional resources in terms of agreements?

First of all, all conventional agreements must cover: area, time, cost, gas price and production sharing. For instance, Mediterranean and Western Desert conditions are different. Time is the most essential factor. Based upon the type of unconventional reservoir the conditionals will be different and the agreements should also differ. A development lease for a conventional field can last from twenty to twenty-five years. As for unconventionals the main issue is that the investor must drill a lot of wells as it's producing very little for a long time. The only difference could be in the details of the terms of the agreements.

Gas production consists of three sanctions: the amount of gas, the cost of the project and the gas price. It is like a triangle in which each point represents one of the aspects. On the one hand, if the cost and resources are high then the project will be reasonable in terms of low to moderate price. On the other hand, if resources are low and the costs are high, then gas price must be higher in order for the project to be economically viable. Ultimately, the key issue is in having lots of resources.

Has the recent political instability impacted investment in the sector?

Political instability all over the world can affect anything but generally it is temporary. EGPC's last bid round was one of the most successful in the last decade and this reflects that political instability does not strongly affect our work. Also we talk with our partners about their concerns and explain that the current problem is one of internal politics. In terms of recent insecurity in the Sinai, I believe that it is just a matter of time until everything settles down and returns to normal.

What is the environmental impact of hydraulic fracturing in Egypt? Who is responsible for monitoring this?

I think this is currently understudied. Some companies have done a lot of fracking in Egypt and were successful in a reasonable way. In terms of the monitoring, I do not know the specific details about this issue but I think there is a monitoring process. So long as the technicalities are proper, it will be successful. They are monitoring the steps done to evaluate the movement of water below the ground level, as most of them are close from ground water, but what we have is deeper than ground water.

What are EGPC's short and medium goals?

This year we achieved 86 discoveries in Egypt out of approximately 170 exploratory wells, in addition to development wells, this reflect high amounts of activity in different oil provinces. Despite the fact that the discovery is not big in size, it is the greatest discovery in terms of numbers compared to North Africa. Our deep target is for new discoveries in the Western Desert and to increase production there.

We are pushing hard with our partners to increase the portfolio of our exploration and when Egypt becomes more stable it will allow more investment. The plan is to do a lot of bid rounds in order to encourage investment.

Realizing Egypt's Wind Power Potential

Regions of Egypt are known for excellent wind resources, allowing the country to become a leader in terms of installed wind power capacity in Africa and the Arab region. The government has committed to an ambitious target of increasing the share of wind energy to 12% by 2020 through engaging the private sector for the first time in developing Egypt's wind farms. However, bidding processes have not run as smoothly as expected and achieving the target remains elusive.

By Laura Raus

The Current Share of Wind Energy

"The MENA region is a paradise for renewable energy," said Hossam Gamil, the director of educational programs at the German Academy for Renewable Energy and Environmental Technology, pointing out the region has very good climate conditions. In Egypt, there are excellent wind regimes in the Gulf of Suez region, on the Nile banks in the Western and Eastern Desert and in some parts of the Sinai, he noted. Egypt is in a favorable position when it comes to the cost of wind energy since most of its potential is for onshore farms. These require significantly less investments than offshore farms, which constitute the vast majority in Europe.

With financing from the government and international donors, Egypt's New & Renewable Energy Authority (NREA) has built two wind farms which produce 550 MW in total, accounting for about 2% of the country's power capacity. The NREA established a pilot wind farm in 1988 in Ras Gharib, near the Gulf of Suez. In 1993, a 5.5 MW demonstration wind farm was set up in Hurghada. Egypt's first commercial wind project was the phase one of the Zafarana wind farm in the Gulf of Suez area, which was commissioned in 2001 with a capacity of 30 MW. This was followed by seven more phases, which increased the farm to about 700 turbines and 545 MW by 2010.

Strategy for Achieving the 12% Target

The government's current target of increasing the share of wind energy to 12% by 2020 was announced in 2008. The 12% share represents a capacity of 7,200 MW. In order to achieve this target, the government is engaging private investors in the development of wind farms. The government foresees that by 2020 the projects implemented and owned by the NREA will account for 2,375 MW and private sector projects for 4,825 MW.

A bulk of the private investments will be engaged in the form of build-own-operate projects. The electricity generated from these projects will be sold to the Egyptian Electricity Transmission Company, which will sign contracts for 20-25 years. The investors will also benefit from selling certificates of greenhouse gas emission reduction as per the Kyoto mechanism. Several other private wind projects will be based on the independent power producer model. Most production from these projects will be sold directly to end consumers.

As for the incentives already in place, all renewable energy equipment has been exempted from custom duties and sales taxes since 2010. Besides, the government has allocated more than 7,600 square kilometers of land on the Gulf of Suez and the Nile banks for implementing wind projects. The NREA also intends to introduce feed-in tariffs for some projects. Last year the government established a fund for covering the difference between the production costs and selling price of renewable energy, but the details of these plans have not yet been set.

50% Renewable Requirement to Speed up Tenders

The NREA is currently developing seven wind projects with a total capacity of 1,140 MW, with one already under construction. Private sector projects in the pipeline total 1,470 MW. They include Egypt's first self-producer wind project, a 120 MW wind farm for Italgen. The first phase of the project, costing about USD 180 million, will create a capacity of 120 MW, which satisfies about 35% of the energy needs of Italgen's subsidiary Suez Cament. The company has committed to increasing the capacity to 400 MW. (2)

Egypt's first wind build-own-operate project, with a capacity of 250 MW, is currently in the bidding stage. Even though the project has secured financing from the Japanese government, the bidding process has been lengthy. Investors were invited to submit pre-qualification documents in May 2009 and in November 2012, 10 bidders were shortlisted. In spring this year, the NREA made a request for proposals, but the final deadline to receive them has been postponed several times.

There are six lots, each denoted for a capacity of 100 MW, at the bidding stage. The NREA intends to conclude 25-year concession agreements with winners that foresee 2% of power production, or its monetary equivalent, being given to the government for the use of land. The rest will be sold directly to end clients, a list of which needs to be submitted with bid. A request for pre-qualifications was made in December 2012 and the submittal deadline was September 30th. Since potential investors had difficulties with finding end clients, the government decided in September that starting in 2015 energy-intensive factories will be granted operating permits only if they meet 50% of their electricity needs with new and renewable energy sources. (3)

Key Players in Egypt's Wind Sector

According to advisory firm Caravel Financial, potential foreign private wind developers in Egypt are companies such as Toyota of Japan, Siemens of Germany, Kharafi National of Kuwait and General Electric of the US. As for local firms, the potential developers include Elsewedy for Wind Energy Generation, Orascom Construction Industries and PICO Energy. For existing projects, the key supplier has been Gamessa of Spain, which has installed 406 MW of capacity in Egypt since 2003. However, around only one-fourth of the investments for the Zafarana farm has flowed into the Egyptian economy.

An emerging player in the sector is Elsewedy Electric, which entered wind energy industry in 2008 by buying a stake in the Spanish wind turbine manufacturer MTorres in order to acquire its know-how and by forming a joint venture with the German wind tower manufacturer SIAG. According to Elsewedy, its wind energy unit has factories for manufacturing turbines, towers and rotor blades and the company expects to double their capacities within five years. It appears to have a good chance to become a major supplier of wind energy projects in Egypt since the government decided to give tender privilege to local companies. Elsewedy intends to export its surplus from Egypt to Africa, the Middle East and Europe.

Government's Credit Rating a Hindrance

According to the Arab Future Energy Index by Regional Center for Renewable Energy and Energy Efficiency (RCREEE), an NGO based in Cairo, Egypt is a leader of institutional capacity in the region when it comes to renewables. However, the country's recent political instability and economic crisis have slowed down the development of wind energy. "In the past three years, hardly anything has happened in this field," said Allam Hussein, the founder and chairman of Caravel Financial. Therefore, the 2020 target seems a very distant prospect. "A distinct gap exists between the stated goals of national governments and the current course of development," notes RCREEE, pointing out

that an average annual growth by 739 MW is needed to meet the target. "It is very difficult to achieve this target given the current situation," agrees Hussein.

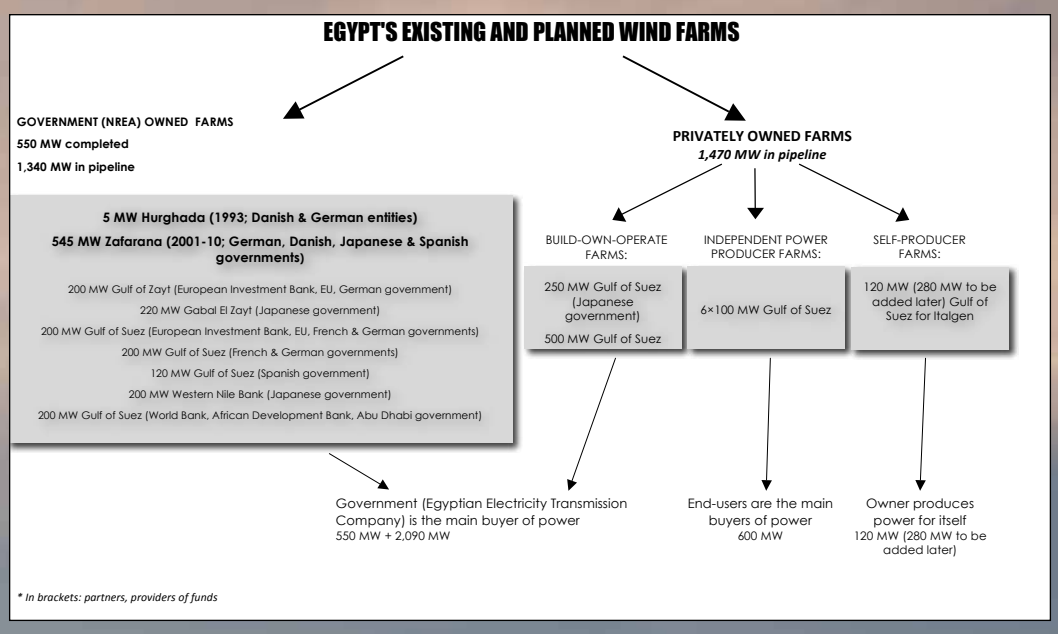
According to RCREEE, Egypt needs to phase out energy subsidies, speed up bidding processes and provide additional incentives for private developers. Hossam Gamil from the German Academy for Renewable Energy and Environmental Technology thinks that it would be wise for MENA countries to increase taxes on fossil fuels and use the resulting funds to support renewables. He also stressed the importance of feed-in tariffs, adding that since the energy economy is changing constantly, incentives have to be re-calibrated periodically.

Hussein pointed out that a large obstacle for private-public wind power developments such as the build-own-operate projects is the poor credit rating of the government. The banks that could provide financing for such projects to private investors will take the credit rating of the government into consideration since it is the off-taker. For the government's credit rating to improve, more political stability is needed. Additionally, Hussein said, the government needs to make more efforts in the wind energy front and have officials who would push this sector on a daily basis. He also pointed out that an electricity law that includes regulations concerning feed-in tariffs, bidding and take-or-pay contracts, which could encourage wind energy development, is waiting to be ratified by the parliament for months already.

Hussein added that small-scale renewable energy projects by companies, farms or individuals for their own consumption, which depend less on the government's initiative, could be a big opportunity for Egypt. "Especially considering the frequent power cuts, companies could choose to do it as a source of energy security," he explained. "It is more expensive than the electricity from the grid, but one needs to think about it in a different way, by taking the lost days of production caused by power cuts also into account." A few months ago a law came out calling for two-way meters, which enables renewable energy producers to sell to the grid the electricity generated in excess of own consumption. According to Gamil, this is definitively a good initiative for speeding up such developments. Gamil said that it might also be a good idea to provide grants or favorable credit policy for small-scale wind projects, pointing out that they already have a significant market share in the US and the UK as well as quickly increasing popularity in China.

Technological Progress is the Key for Success

Hussein added that although the government's incentives are important, the key for the success of wind energy in Egypt, lies in achieving technological innovation that would decrease the huge initial investments it requires, which is a job for scientists all around the world. Gamil is optimistic that such innovation will occur, just as it has happened in the past. He noted that wind turbines are nowadays 40 times more powerful than 20 years ago. "Wind energy is already in the same cost region as new gas and coal-fired power plants and it's cheaper than new nuclear and CCS (carbon capture and storage) plants," Gamil said, adding that one should also not forget the advantages of wind energy in terms of the environment and public health.



Many experts believe that by 2020, the average cost of wind energy can be reduced to USD 0.05-0.09 and wind power can account for as much as 50% of global electricity by that time, Gamil noted. According to him, technologies are being developed that can reduce the costs of new materials with lower weight, permanent magnet generators, concrete towers instead of steel, direct drivers, deformable blade profiles as well as substitutes for rare earths.

Conclusion

In the past, Egypt has been successful compared to other countries of the region in developing its promising wind energy resources. This development has suffered a significant setback due to the political instability of recent years. Considering all the challenges that the country has faced, the development of wind energy has not been a priority. In order to achieve the 7,200 GW target by 2020, the government needs to put significantly more effort in developing the sector. Such efforts, accompanied by technological progress, can make wind energy a real success story for Egypt in the future.

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A Constitution to End All Constitutions

As Egypt struggles to navigate its political roadmap following the revolutionary events of 25 January 2011, the debate over the constitution is proving to be a major roadblock.

By Rebert Mogielinieki

Many Egyptians and international observers believed that a ratified constitution built on consensus should have preceded elections, but parliamentary and presidential elections were nevertheless held before a constitution was agreed upon. As a result, responsibility for drafting the constitution was left in the hands of former President Mohamed Morsi and his Muslim Brotherhood. When the Supreme Council of the Armed Forces (SCAF) removed Morsi from power, the newly ratified Constitution of 2012 was suspended. The new interim government then created a 50-member committee responsible for drafting another constitution. This committee has had to reconcile competing demands from the military and judicial institutions as well as seek consensus among an Egyptian public that appears more divided than ever—a challenging job to say the least. While the constitutional committee cannot please all interested parties, it can achieve moderate success by focusing on three critical issues. The new constitution must provide protection from presidential autocracy, limit the power of the military, and grant more rights to more Egyptian citizens.

History of Islamist Influence

Before discussing the three critical issues regarding the constitution, it is necessary to examine the historical context that continues to shape the constitutional process. The current debate is primarily framed by the two constitutions of 1971 and 2012. Despite the radically different time periods that these constitutions occupied in Egyptian history, Islamists managed to exert substantial control over the constitutional processes in both instances. The Constitution of 1971 emerged in the midst of Anwar Sadat's new approach towards Islamists. Consequently, the Islamists indirectly influenced the content of the constitution as part of Sadat's political bargaining. In 2012, former President Mohamed Morsi and his Muslim Brotherhood were directly responsible for drafting the constitution. As a result, many argued that the Islamist-backed constitution deepened the religious divide in Egypt. In comparison to the two former constitutional experiences, the current constitutional process lacks both Islamist influence and representation.

The 50-member committee charged with drafting the latest constitution is headed by Amr Moussa, a prominent political figure, former presidential candidate and member of the National Salvation Front. Interestingly enough, the committee includes only five Islamists. Of the five, three members are representatives of Al-Azhar, a moderate religious institution that is often opposed to Muslim Brotherhood initiatives. The other two Islamist members are Kamal El Helbawy, a former member of the Muslim Brotherhood, and Bassam El Zarqa, a representative from the conservative Nour Party. This Islamist minority is strange considering that, until recently, Islamists controlled the presidency and secured majorities in many of the parliamentary elections following 25 January 2011. The overt exclusion of many Islamists from membership in the committee seems to make the job of building consensus that much more difficult. Other committee members include three representatives of the Coptic, Evangelical and Catholic churches as well as representatives from various professional syndicates and human rights groups. This diverse committee is the body charged with creating the foundation for a new Egyptian political tradition.

High Constitutional Aims

First, the new constitution must protect Egyptian citizens from presidential autocracy. Historically, presidential autocracies in Egypt resulted from the re-election of military leaders in fraudulent elections. Presidents Sadat and Mubarak were allowed to be re-elected indefinitely because Article 77 of the Constitution of 1971 did not set a presidential term limit. Instead, the article explicitly states that "the President of the Republic may be re-elected for other successive terms". The Constitution of 2012 limited the president to only two terms in office; however, the new language in this article did not eradicate the endemic problems associated with the position of president. This is best demonstrated by the millions of Egyptian protesters who called for and ultimately achieved the removal of former President Morsi from power in July of 2013.

The new constitution must ensure that the next Egyptian president can serve as an effective leader while remaining within the bounds of mutually accepted presidential authority. A semi-presidential system, in which an elected president shares powers and responsibilities with a prime minister, would be a good first step in the right direction. The articles covering legislative oversight of the executive branch, though, are equally as important as power-sharing between the president and a prime minister. In particular, the new constitution must stipulate how the legislature can directly remove the president from office or conduct an impeachment process. It is critical that the constitution clearly and fully grants this power to the legislative branch in order to prevent future interventions by the military in Egyptian politics. At the same time, it is important to note that a well-written framework for the legislative will not be a sufficient check on the powers of the executive. There also needs to be strong, organized political parties that are able to cooperate when serving as a check on executive power.

Second, the new constitution must limit the power of the military institution. In the past, the head of the SCAF automatically assumed the position of defense minister, and the Constitution of 2012 further consolidates this power by stating that the defense minister must be a top military general. The constitution also ambiguously defines the role of the defense minister in relation to the president. Article 195 states that the Minister of Defense serves as Commander-in-Chief of the Armed Forces; however, Article 146 describes the president as Supreme Commander of the Armed Forces. This ambiguity not only undermines the powers of the president but also allows the military to continue to exercise wide-spread powers as a state within a state. These powers are also demonstrated by the military's dominance over the National Defense Council, the body which controls the military budget and laws relating to the military. One of the laws that has received considerable attention lately involves military trials of civilians. Article 193 of the Constitution of 1971 grants the military the right to try civilians, and the Constitution of 2012 likewise permits these trials under certain circumstances.

The new constitution must ensure that the president is the sole Commander-in-Chief of the Armed Forces. Alternatively, the title of Supreme Commander of the Armed Forces, or any similar title, should be removed from the position of defense minister. This will, at the very least, symbolize that Egypt is under civilian control, and consequently authority and legitimacy will ultimately reside with an elected official rather than a member of the military. At the same time, the new constitution should protect Egyptian civilians from military trials. For decades, the military judiciary has been used to intimidate opponents and stifle opposition. These limitations on military power, though, are unlikely to be implemented in the new constitution. If the Muslim Brotherhood, who were persecuted by the military for decades, were unable to place these basic limitations on military power in the Constitution of 2012, then it is difficult to imagine that the current constitutional committee will make much progress in this regard. This is especially true since the committee's existence was enabled by the military's removal of Morsi and installment of an interim government.

Third, the new constitution must grant more rights to more Egyptians, especially those pertaining to religion. In order to accomplish this goal, the committee must first resolve the issues relating to the Islamic nature of the Egyptian state. Article 2 in both the 1971 and 2012 constitutions states that "Islam is the religion of the state and Arabic its official language. Principles of Islamic law [shari'a] are the principal source of legislation." These principles are further explained in article 219 to be derived from the Sunni school of thought. The Salafist Nour Party, represented in the committee by Bassam El Zarqa, wants to replace the term "principles" with "rulings" in the text of the new constitution. This alteration in terminology would facilitate a stricter application of Islamic law, and consequently more moderate Islamic institutions like Al-Azhar support the original wording of the text. While the term "principles" is flexible in its application of the law, it is by no means flawless. The Constitution of 2012 only recognizes the Sunni schools of thought, which inevitably marginalizes Shiite Muslims. The new constitution should reuse the original, more flexible wording of "principles", but it does not have to explicitly mention the Sunni schools of thought as the source of Islamic law.

The articles protecting freedom of belief are also a source of controversy in the constitutional debate. Unfortunately, neither the 1971 or the 2012 constitutions provide a useful framework for protecting religious freedom in Egypt. The 1971 constitution is extremely vague when describing the state's role in protecting freedom of belief, whereas the 2012 constitution is perhaps too specific. Article 43 of the Constitution of 2012 reads, "Freedom of belief is an inviolable right. The state shall guarantee the freedom to practice religious rites and to establish places of worship for the heavenly religions, as regulated by law." Muslims, Jews and Christians are protected as practitioners of the heavenly religions, but it is unclear as to what degree followers of other faiths, like the Baha'i, would enjoy religious freedoms. The new constitution must clearly assert that freedom of belief is an inviolable right of all Egyptian citizens. At the same time, it should refrain from specifying which religions are protected as it will inevitably discriminate against religious minorities.

Hope for the Best, Prepare for the Worst

While the three constitutional aims mentioned above by no means serve as an exhaustive list, they are critical to the formation of an Egyptian political tradition. Egypt is in dire need of an elected government, but the country also requires an functional government. A constitution that clearly articulates executive powers will help protect against presidential autocracies without hindering the effectiveness of the president. At the same time, the constitution must redefine the role that the military has historically played in Egyptian politics. While the military played a large role in installing the interim government and creating the subsequent constitutional committee, this does not mean that they should be rewarded with excessive powers enshrined in the constitution. Instead, the committee may be able to gain additional legitimacy if it doesn't capitulate to the military's demands and instead limits the institution's power to control the military budget and try civilians in military courts. Finally, the constitution must make a sincere effort to grant more rights for more people. This article only focuses on religious rights but that is not to ignore the countless other human rights issues that need to be addressed in Egypt. The degree to which these goals can be accomplished is unclear; however, it is clear that even a perfectly articulated constitutional framework will not translate into good governance without the consensus of the broader Egyptian public.

Egypt Statistics

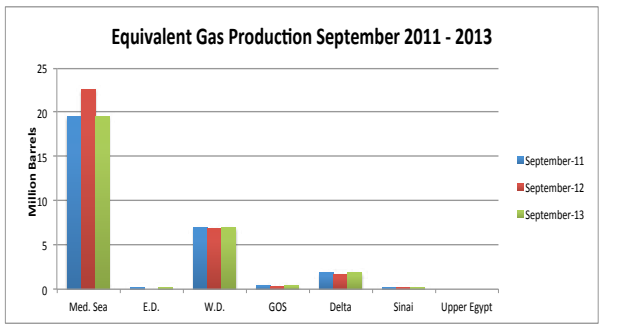
EGYPT OIL&GAS RESEARCH & ANALYSIS

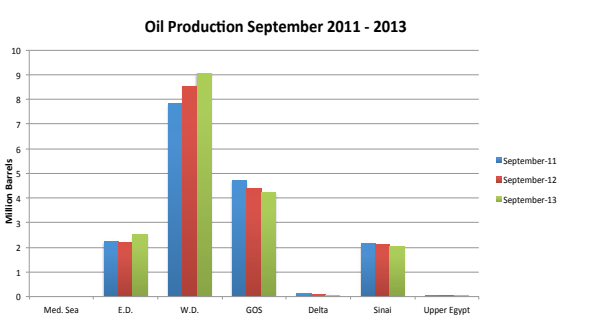
Table 1 Egypt Rig Count per Area – October 2013

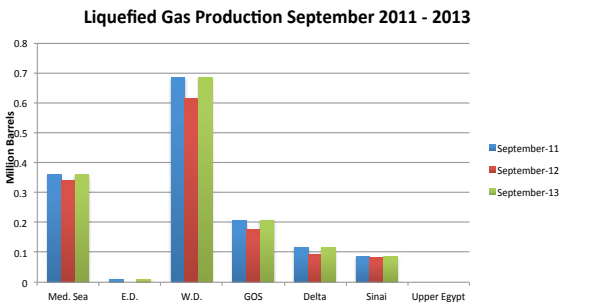
RIG COUNT

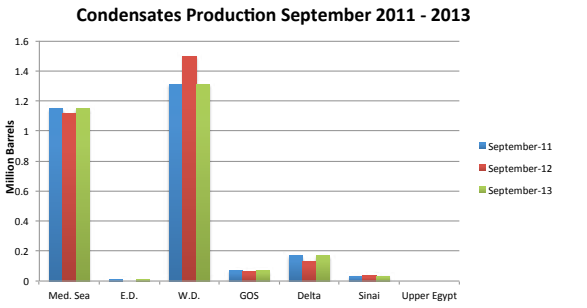
Area		Total	Percentage of Total Rigs
Gulf of Suez		10	9 %
Offshore	10		
Land			
Mediterranean Sea		8	7 %
Offshore	8		
Land			
Western Desert		80	69 %
Offshore			
Land	80		
Sinai		8	7 %
Offshore			
Land	8		
Eastern Desert		6	5 %
Offshore			
Land	6		
Delta		3	3 %
Offshore			
Land	3		
Total		115	100%

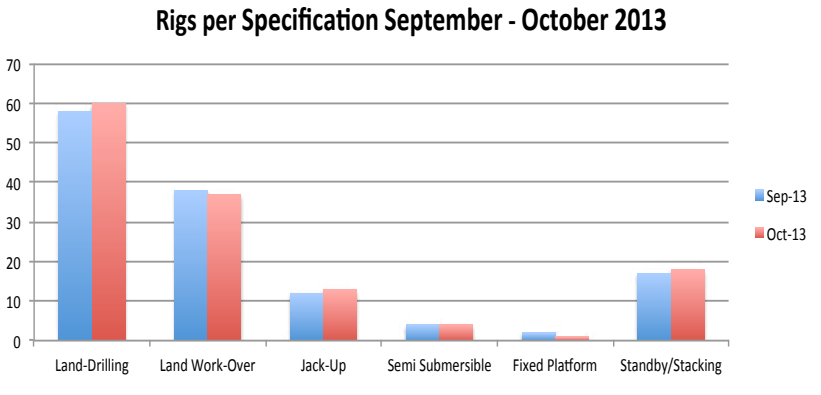
	Oil			Equivalent Gas			Condensate			Liquefied Gas		
	Barrel			Barrel			Barrel			Barrel		
	September-11	September-12	September-13	September-11	September-12	September-13	September-11	September-12	September-13	September-11	September-12	September-13
Med. Sea				19509464	22574464	19509464	1146947	1115749	1146947	360500	339575	360500
E.D.	2239282	2193004	2527618	59821		59821	3295		3295	9439		9439
W.D.	7823972	8533977	9055637	6935179	6808214	6935179	1311602	1495613	1311602	684056	612988	684056
GOS	4692945	4371153	4237517	412143	249821	412143	70522	62886	70522	207904	176797	207904
Delta	107092	82387	62846	1927143	1668036	1927143	167808	133158	167808	117106	93840	117106
Sinai	2138661	2124823	2045814	15536	893	15536	31821	34143	31821	87116	81698	87116
Upper Egypt	18190	14987	11513									
Total	17020142	17320331	17940945	28859286	31301428	28859286	2731995	2841549	2731995	1466121	1304898	1466121

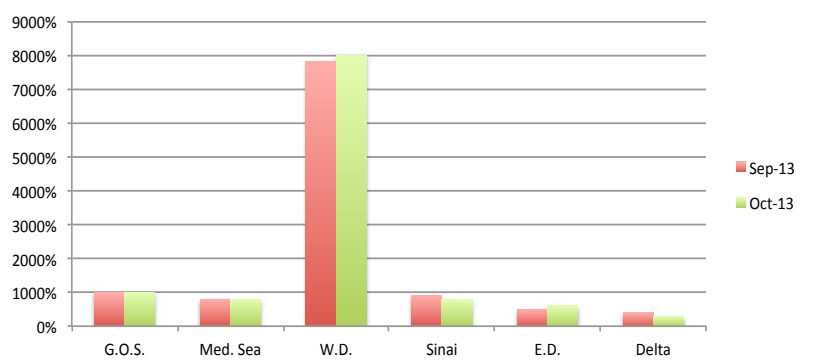


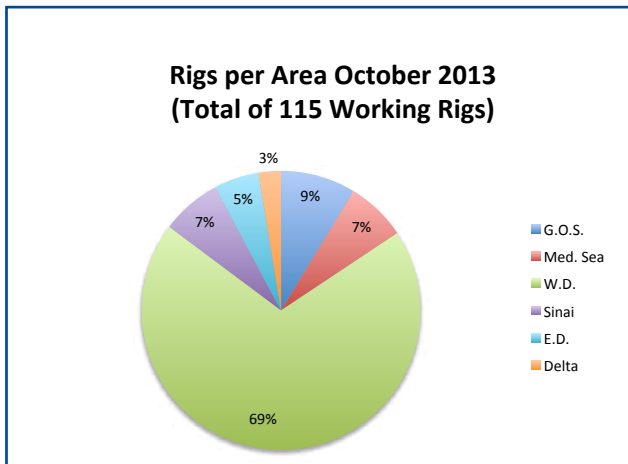


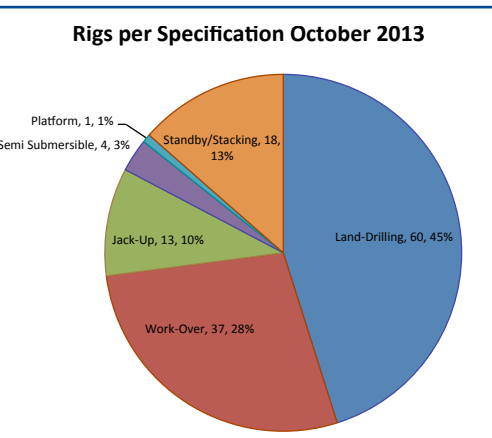


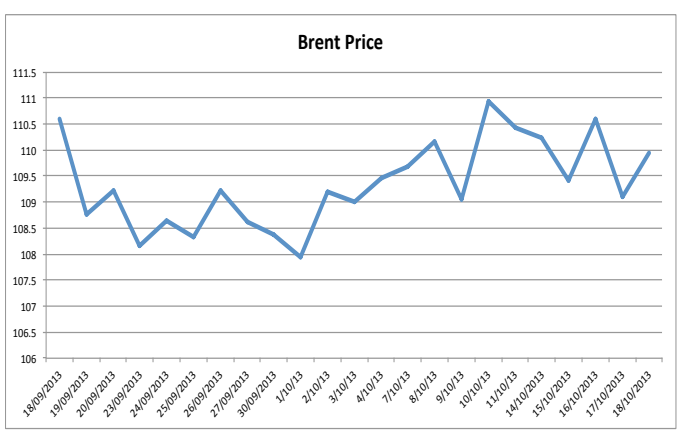


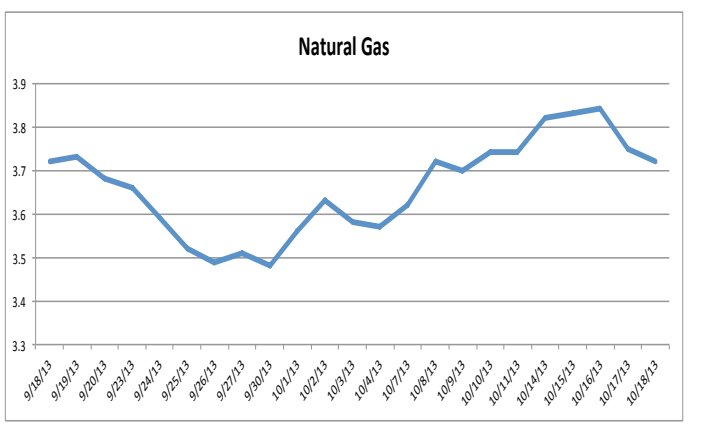


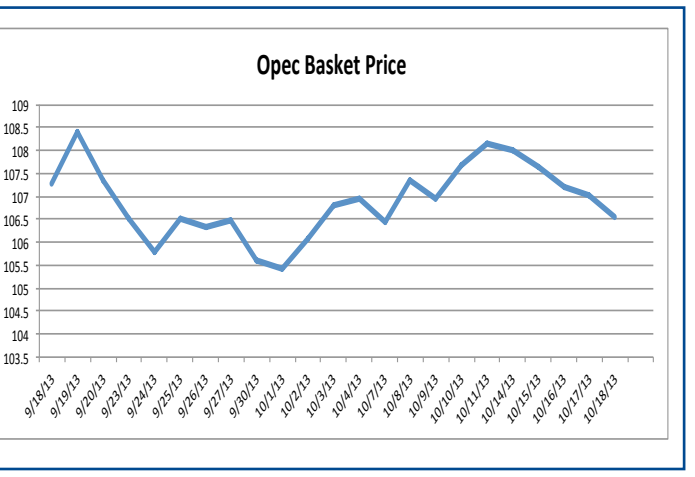


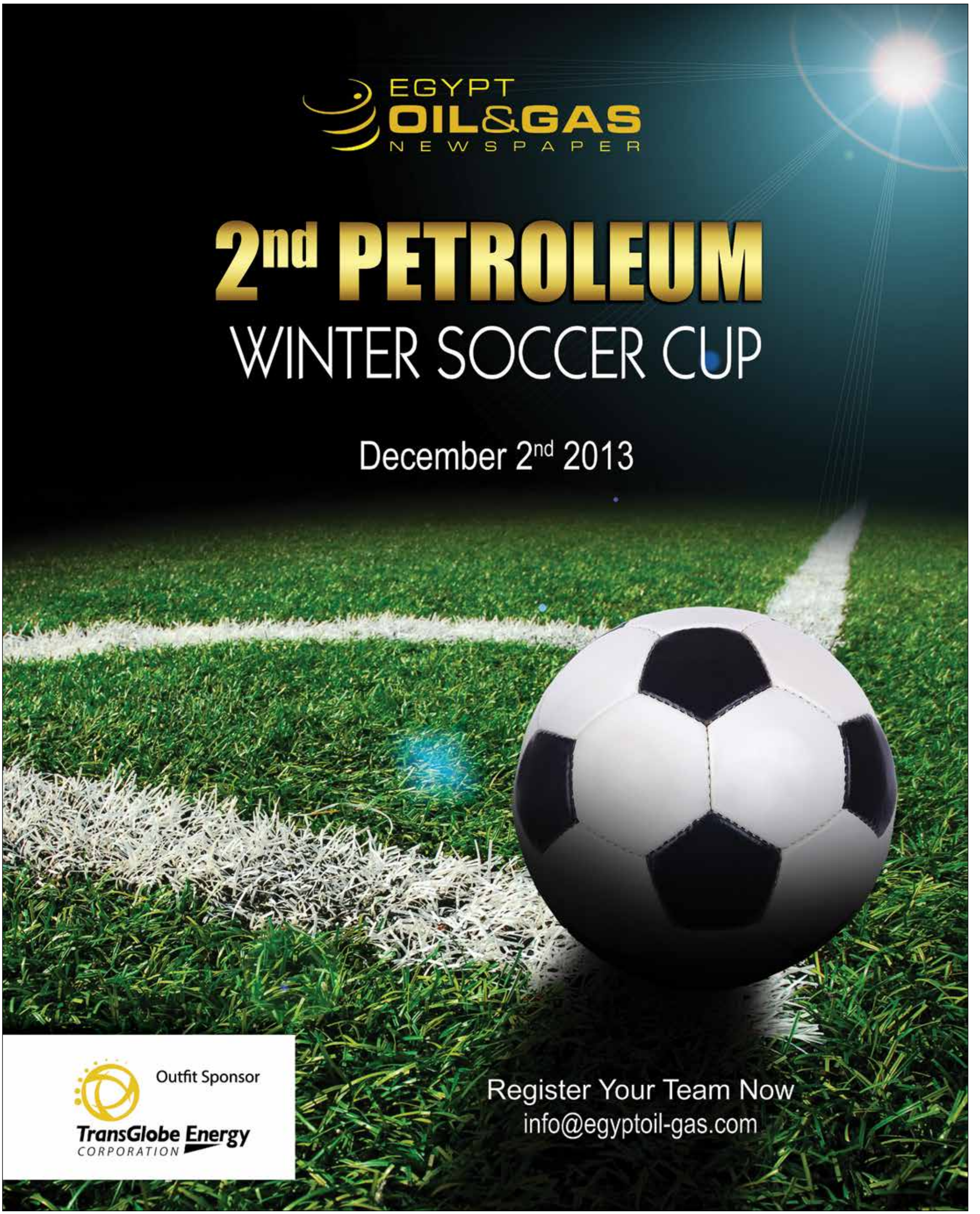








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