

**DIVERSIFYING
EGYPT'S ENERGY
MIX** The Road to
Renewable Energy



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CHANGE; BUT FOR BETTER?
What Egypt's Shift in Energy Policy
Means for the Future

Low oil prices continue to plague the energy world. This month we are discussing the issue further with two different articles: a political review of Saudi Arabia and OPEC's oil gamble, and the impact of prices in the Egyptian oil industry.

We also continue to discuss Egypt's diversification of its energy mix as we delve into renewable energy sources in the country.

As Egypt's energy crisis continues, this month we took a look into the government's approach to the issue. An article highlighting the government's tactics for dealing with the energy crisis helps put things in perspective.

Our last article is tackling a topic deemed sensitive by many, the prac-

tice of selling preliminary data packages and whether it is beneficial to the consumer.

This month, Egypt Oil & Gas introduces a new section: Industry Statistics. They come to you this month in a new layout that is more reader-friendly and dynamic.

Once again, we would like to renew the call for your feedback and contributions; hearing from our reader provides us with the utmost pleasure.

Happy reading.

Editor in Chief **Passante Adel**

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Publisher

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This publication was founded by Mohamed Fouad and Omar Donia

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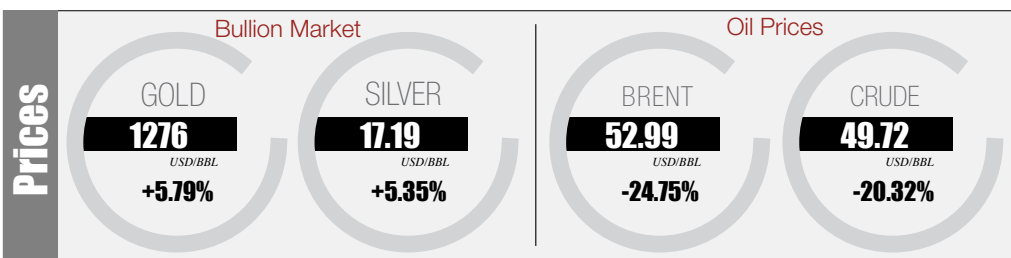
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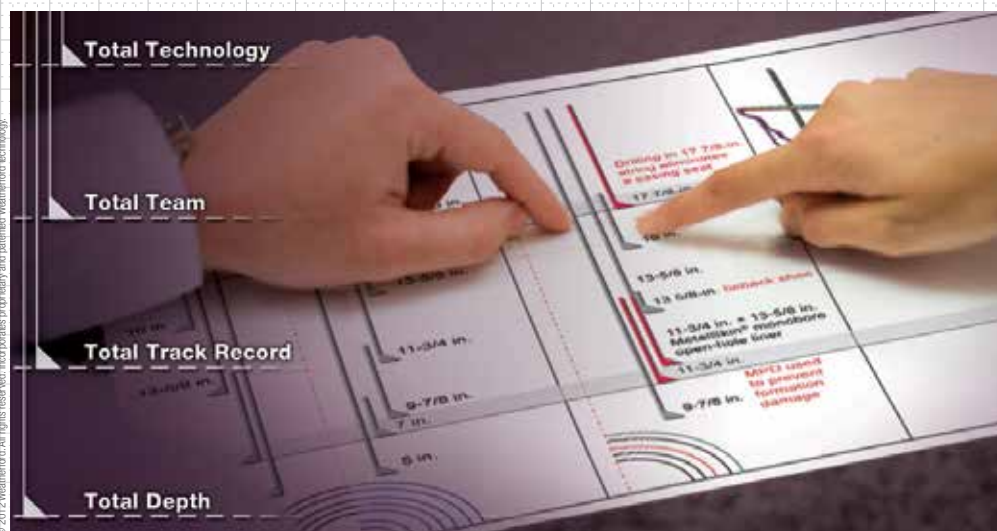
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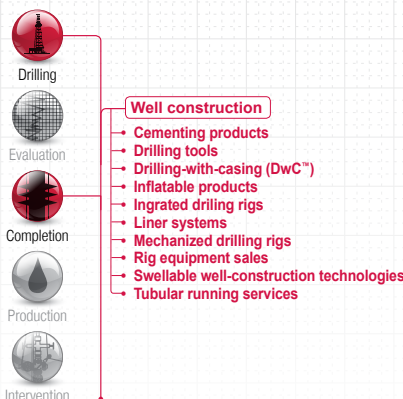
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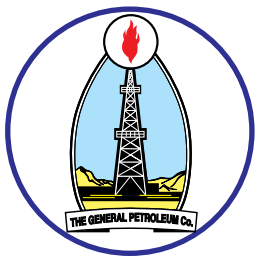
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The Arab Republic of Egypt

Ministry Of Petroleum

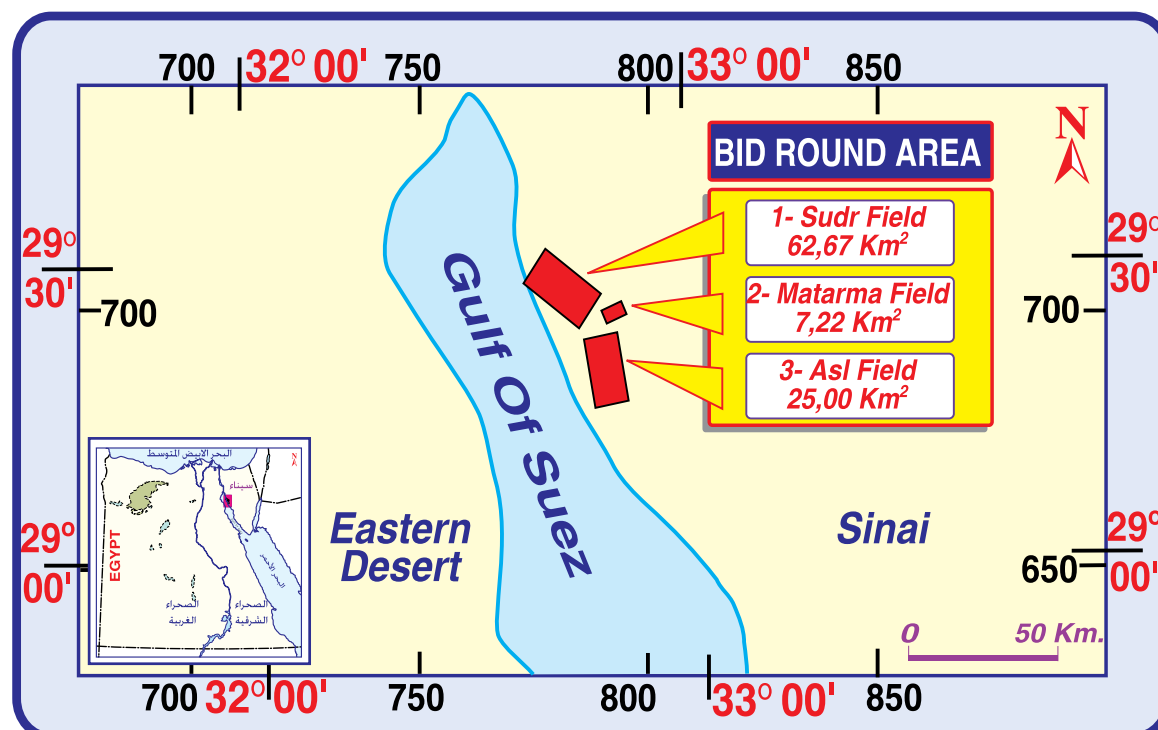
General Petroleum Company (GPC)



Invitation to International Bid Round For Exploration and Production Services Agreement

The General Petroleum Company (GPC) invites specialized petroleum companies in the field of exploration and production (oil and gas) to submit offers for undertaking oil and gas exploration and production services in GPC concession area in South Sinai, The Arab Republic of Egypt, with the target of maximizing and stimulating production from the proved and unproved reserves in the discovered fields and explore the unexplored areas to achieve the optimal development of this area.

The above mentioned area (as shown in the map) includes Sudr, Matarma and Asl oilfields with an approximate total area of 95 km². The offer must be presented for the whole area for the signature of production and exploration services agreement.



General Bid Round 2015 Sinai, (Sudr, Matarma & Asl Fields)

The bidders can purchase the bid round brochure from GPC head office at 8, Dr. Mostafa Abu Zahra St., Nasr City, Cairo, Egypt, as of Thursday 15/1/2015 to Thursday 26/2/2015 from 9:00 am to 3:00 pm for 1000 US\$ or the equivalent value in Egyptian pound paid by a payable check named to the General Petroleum Company or in cash

The brochure includes the following:

- 1) Announcement
- 2) Procedures
- 3) Terms, Conditions & Guidelines
- 4) Summary of the available technical data of the fields
- 5) Exploration and production services agreement model

Data room will be opened to interested bidders starting from Sunday, 18/1/2015 to Thursday 26/2/2015 except for Friday, through two sessions, the first session from 9:00 am to 2:00 pm and the second from 3:00 pm to 8:00 pm for 1000 US\$ or the equivalent value in Egyptian pound per session paid by a payable check named to the General Petroleum Company or in cash.

Bidders can purchase the data package of the bid round area from the General Petroleum Company according to the announced price list in the bid round brochure.

Bid round offers are to be delivered to the office of the Assistant Chairman for Exploration and External Operations in two sealed and separated envelopes (technical and financial) addressed to Chairman of the General Petroleum Company attached with an Unconditional letter of guarantee valid for six months or a payable Check from first class Egyptian bank at a value of 50,000 US\$ (only fifty thousand American dollars) as a bid bond.

The below mentioned documents have to be attached:

- 1) Financial Status for the last three years ratified by an acknowledged financial auditing institution in Egypt
- 2) Current organization structure
- 3) Available applied technologies
- 4) Current activities and projects
- 5) Official authorization to receive the brochure & data package

**Closing Date for submitting
offers 15 / 4 / 2015 @
12:00 PM Cairo Local Time**

For Further informations visit www.gpc.com.eg or contact :
GPC's Assistant Chairman office for Exploration & External Operations.
Tel. & Fax Number : (202) 24012058
Email : assist.Exploration@gpc.com.eg

EGP 2 Billion from Banque Du Caire Earmarked for Energy and Transport Sectors

Banque Du Caire is studying plans to pump EGP 2 billion (around \$280 million) into a number of fertiliser, petrochemical, oil and transport projects within 2015, reported Amwal Alghad. This follows on from the landmark successes accomplished throughout 2014 in providing syndicated loans, notably in the Egyptian oil sector. Ayman Mokhtar, General Director of the bank's Corporate Credit Sector, said this was out of consideration for the immediate and pressing needs of the sector, with direct and syndicated loans totalling EGP 2.230 billion during 2014.



Kuwait Energy Starts Production in Al Jahraa-3

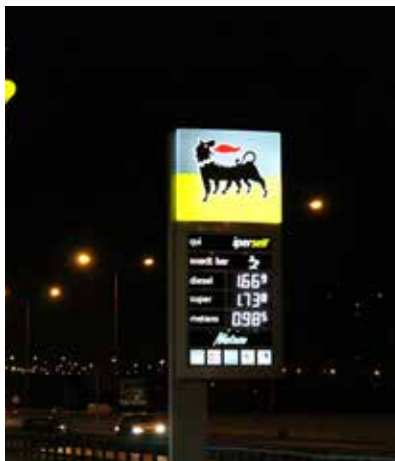
Kuwait Energy completed testing at the Al Jahraa-3 oil appraisal well in the Abu Sennan Concession onshore Egypt in January, reported Oil & Gas Technology, leaving the well cased and completed as an Abu Roash "C" member oil producer. A cased hole test at a depth of 2,953 metres to 2,961 metres was conducted over an 11-hour period where the well flowed at a maximum recorded rate of 1,385 b/d of oil on a 128/64" choke. The well is targeting the Abu Roash

"C", "D" and "E" members. The Abu Sennan Concession is run in a joint venture between Beach Energy (22%), Kuwait Energy (50% and operator), and Dover Energy (28%). The older Al Jahraa-4 oil appraisal well, located approximately 3,300 metres south-east from Al Jahraa-3, was spudded on 23 December 2014 and is currently drilling ahead. The ASH-1X ST1 oil exploration well is drilling ahead at a depth of 3,270 metres and is targeting the Alam El Bueib and Khatatba Formations.

Italian Energy Giant Eni Signs New Concession in Western Desert

Eni has signed a new concession agreement to operate in the South-West Melehia block in the Western Desert of Egypt, reported Platts. The block covers an area of 2,058 sq km (1,276 sq miles). This follows the state-owned EGPC's bid round in December 2013, in an attempt to boost Egypt's flagging production. Egypt's oil production has slightly stagnated in recent years, with production in 2013 averaging 714,000 b/d, down from some 750,000 b/d 10 years previously, according to BP's latest Statistical Review of World Energy. Natural gas output in 2013 was 56.1 bcm, down from a high of 62.7 bcm in 2009. Eni was also awarded the operator-ship of two blocks — 8 and

9 — by state-owned Egyptian Natural Gas Holding Company (EGAS), offshore in the Mediterranean near the maritime border with Cyprus.



Six New Exploration Agreements in Western Desert, Gulf of Suez

The Petroleum Ministry announced that it had signed oil and gas exploration agreements in the Western Desert and Gulf of Suez, Egypt's State Information Services (SIS) reported. The signed deals are worth \$271.5 million in investments, in

addition to \$124 million worth of grants that were allocated to drilling 41 wells. Petroleum Minister Sherif Ismail signed the agreements between Shell, Italy's Eni, United Kingdom's British Petroleum, Canada's TransGlobe, Egypt's Tharwa and EGPC.

Circle Oil Receives \$15 Million in Debt Payment from Egyptian Government

Oil and gas explorer Circle Oil announced it had received a \$15 million payment from the Egyptian government, Reuters reported. This is part of Egypt's plan to pay off debts owed to energy companies operating in the North African nation. "This has resulted in a significant reduction in the outstanding debt owed to the company," Circle Oil said in a statement, without saying how much more it was owed. Previously Oil Minister Sherif Ismail said the country had paid \$2.1 billion of its debt to foreign energy companies, though the government still owes \$3.1 billion. Gas producer BG Group said on Jan. 2 that it had received a \$350 million payment from the Egyptian government. Egypt has delayed payments to oil and gas firms since its economy was hit by almost four years of instability from the beginning of the Arab Spring. Circle Oil operates also in Morocco, Tunisia and Oman and owns oil and gas sites in the Gulf of Suez.



EGAS in Talks with Foreign Firms to Boost Gas Production

State-run Egyptian Natural Gas Holding Company (EGAS) is negotiating with various major international firms in Egypt to increase gas production rates, announced chairman Khaled Abd El Badee. EGAS aims to accelerate production rates

through upgrading current gas fields and wells in addition to expanding exploration, reported Amwal Alghad. EGAS would also step up efforts to overcome energy obstacles by encouraging foreign oil and gas firms to invest in Egypt.

BG official: Idku LNG Exportation Collapses

Exports from the Idku LNG plant decreased from approximately 50 LNG shipments in 2013 to 5 shipments in 2014, according to a senior British Gas (BG) official, reported Daily News Egypt. The official said that for the factory to achieve revenue and expenditure self-sufficiency, it needs to export at least 22 shipment of LNG annually, pointing to a decrease in gas production from the Borollos fields of roughly 900 mcf/d, compared with 1.2 bcf/d in 2013. The domestic gas market's needs led to the reduction of the gas pumped to Idku plant, with the company only exporting approximately five shipments during 2014. In the same vein a senior official with the EGAS said that BG's work to link its projects with the Borollos fields slowed down, which in turn contributed to a strong decrease in the production of gas. He noted that the company delayed linking the production of project phase "9B" in the Borollos fields to the beginning of 2016, rather than the beginning

of 2015 as originally agreed. This is in addition to linking project phase "9A" by the end of 2014, which is 10 months behind schedule. The EGAS official said that BG would have to bear the consequences of the delay, and confirmed that they will continue to reduce pumping gas to Idku for the needs of the domestic gas market.



Storyboard



Electricity and Petroleum Ministries to Schedule Debt Repayments

The Electricity Ministry reached an agreement in January to reschedule debts owed to the Ministry of Petroleum in the upcoming months. The Ministry of Petroleum is to receive EGP1 billion a month in order to provide for the electricity sector's power plant needs. The electricity sector receives between EGP 3.6 billion and EGP3.9 billion worth of petro-

leum products every month, of which 50% is paid for by the Ministry of Finance. The debts have reached EGP44 billion. The agreement was reached during a meeting between Eng. Sherif Ismail, Minister of Petroleum and Mineral Resources, Minister of Electricity and Renewable Energy Mohamed Shaker, and several officials from both ministries.

Dana Gas Receives \$60 Million from Egyptian Government

Egypt's government has paid Dana Gas \$60 million, part of the overdue receivables totalling \$212 million, the Abu Dhabi-listed firm said in a statement in January. The Cairo government said in November it intended to repay all its en-

ergy-related debt within six months. The debts owed to international oil companies by the Egyptian petroleum authority have reached about \$4.1 billion as of January 2015.

EGAS Halts Gas Supplies to Cement Plants

The Egyptian Natural Gas Holding Company (EGAS) halted gas supplies to cement factories due to Egypt's current lag in gas production, as a step to prioritize gas supply to the country's power plants. Instead, EGAS is powering cement factories with fuel oil to take advantage of the decline in Brent prices, which in turn has decreased the price per ton of fuel oil. A senior at EGAS said that Helwan, Al-Qatameya and Al-Qawameya cement factories will not be subjected to the gas cuts

as they are directly connected to the Abu Gharadiq gas field, Daily News Egypt reported. Egyptian cement factories utilize 430 mcf/d of gas, an official at EGAS told Daily News, adding that the continuing decline of Brent crude prices will extend the cut of gas supplies to the cement sector. At the moment, Egypt's gas production is estimated at 4.75 bcf/d, due to the current decline in wells and foreign investment.

Savings of 35% in Petroleum Subsidies

The government's plan to save on petroleum product subsidies is expected to reach 35% of the subsidies total for the current fiscal year, Minister of Petroleum Sherif Ismail told Daily News Egypt. The savings are cutting down the budget designated for petroleum product subsidies, from EGP 126 billion last year to EGP 65 billion. Further negotiation will take place with an Iraqi delegation, concerning Iraqi gas imports quantity, price, and supply schedule. In addition, Ismail as-

ures that the savings will not impact liquidity for the petroleum sector or the state, due to the latter's failure to pay back petroleum and natural gas bills. The fall of the oil prices, as well as the government's subsidy reforms, succeeded in lowering the state budget for the fiscal year 2014-2015 by EGP 40 billion, as measures towards eliminating energy subsidies entirely are underway.

GE to Help with Renewable Energy

General Electric (GE) has expressed its willingness to participate in constructing new and renewable energy plants in Egypt, according to a cabinet press release. This came after GE's Vice President met with Prime Minister Ibrahim Mehleb and the Minister of Electricity. The press release added that GE has stated an interest in providing the necessary technical and feasibility studies for these projects. The Vice President stressed that his company is keen on fruitful cooperation with Egypt in the energy field. GE also trains many Egyptians to

operate and maintain power plants to ensure that they operate for long periods under the guidance of local personnel. He added that the US government is keen on standing by Egypt to face current economic challenges. Mehleb also invited GE to attend the Economic Summit scheduled to be held in Sharm El-Sheikh in March. GE's Vice President welcomed this invitation and stressed that the company President will attend in person and speak at the conference, as it is an important event for the company.

\$2.7 Billion Earmarked for Mostorod Refinery Project

In exclusive statements to Al-Borsa, Wael Al-Orabi, Commercial Director of the Egyptian Refining Company's (ERC) project in Mostorod, announced that a contract had been signed with the Egyptian General Petroleum Corporation (EGPC) to receive fuel oil to be converted into diesel. Approximately \$2.7 billion will be utilised throughout 2015 and 2016 to complete the implementation, he said, adding that about \$1 billion has already been invested in the project by the Qalaa Holding subsidiary, with total investments estimated at \$3.7 billion. Al-Orabi added that actual production will begin during the first quarter of 2017 and the necessary permits are currently being approved to determine the course of transport for company equipment manufactured abroad. The equipment

has already been sent to the Port of Adebeya in Suez several months ago, but requires special preparation to protect the road from the port to the site in Mostorod from damage. He pointed out that transporting equipment to the company's site in Mostorod is scheduled to begin in August. EGPC will purchase shares amounting to 25% of the project, while the remainder will be divided amongst a number of Arab investors. Al-Orabi said that the project will provide 50%-60% of domestic diesel needs, which will save approximately \$300 million annually from the state's budget for import, shipping, and transport costs of petroleum products. The project will occupy an area of 320,000 sq. meters in Mostorod with total production reaching 2.3 million tonnes of diesel annually.

Gazprom to Supply Egypt 35 LNG Shipments

Petroleum Minister Sherif Ismail announced an initial agreement has been made with Russia's Gazprom to supply around 35 shipments of liquefied natural gas (LNG) over the next five years. He told Daily News Egypt that Gazprom will send a delegation to Egypt to complete the agreement that will supply the country with seven shipments of LNG annually from 2015-2020. He stressed that Egypt will gain access to Russian and Algerian LNG shipments at global prices, determined at the time of supply. An initial agreement was made

with Sonatrach to supply six shipments of LNG during 2015. This comes as part of the government's efforts to provide the energy resources necessary for the country to operate power plants. The volume of the shipments of Algerian gas is around 145,000 cubic metres, to be supplied from April-September 2015 with one shipment arriving each month. Norway's Hoegh announced last November that it signed a lease for five years with EGAS to supply a re-gasification boat to receive LNG shipments.

Dana Gas Could Put Debt Payments on Hold

UAE-based Dana Gas revealed that it could delay the schedule of receiving the owed debt by the Egyptian government. This is due to the international decline in oil prices. CEO of Dana Gas Patrick Allman-Ward told Reuters that his firm's calculations for Egypt's debt, stated by him to be \$165 million, were based on the \$85 price for barrel, as opposed to the current price, which stands at about \$45 per barrel. "Clearly we are not there at the moment, how far and how long the current decline will last we don't know," he continued. The Ministry of Petroleum could not be reached for comment by Reuters. In November Dana Gas and the government had agreed to increase gas production and allow the company

to export condensates in exchange for repaying debts owed to Dana. Abiding to the agreement, the dues will fall to their lowest levels by 2018. In September, Dana signed a gas production enhancement agreement (GPEA) with the Egyptian EGAS and EGPC. The company revealed that the agreement stated that Dana will launch a program over a seven-year period, to start within the next few months. As part of the plan, Dana Gas will be working on drilling 37 new wells and carrying out maintenance for existing wells. Around 270 bcf of natural gas, 8 to 9 million barrels of condensate, and around 450,000 tons of liquefied petroleum gas (LPG) are expected to be produced during the seven-year period.

CHOICE Words



We will work to change the energy mix from almost total dependence on fossil fuels to renewable energy generated from the sun and wind as well as coal,

Mohamed Shaker
Electricity Minister



Japan will strongly help Egypt and will walk with it side by side,

Shinzo Abe
Japan Prime Minister



Clearly we are not there at the moment, how far and how long the current decline [of oil prices] will last we don't know,

Patrick Allman-Ward
CEO Dana Gas



Egypt works on developing a national strategy for energy that fulfils the needs of the local market and achieves the targeted growth rates for the national economy. It must also secure its power supply, and protect the environment and be sustainable

Abdel Fattah Al-Sisi
President



CARTOON



companies struggling with falling oil prices

LNG Savings from Price Drop Still in Works

The cost of importing LNG to Egypt will decrease by \$500 million annually to \$2 billion as a result of the drop in international oil prices, according to Khaled Abdel Badie, the chairman of EGAS. The price of LNG dropped to an average of \$12 per million Btu – \$13 per million Btu currently, down from \$16 per million Btu previously, Abdel Badie said. Egypt spent EGP 22 billion on fuel subsidies in the first quarter of the 2014-2015 fiscal year, down 29% from

a year earlier, another oil ministry official said in January. At the same time, however, the Finance Minister Hany Qadry Dimian revealed that the savings from the decline in oil prices and its impact on the budget has not been determined yet. The minister added, the majority of savings will be directed to reduce the budget deficit to reach EGP 240 billion, representing 10% of the gross domestic product (GDP).

Two New Concessions for Italy's ENI

Eni signed two concession agreements for the North Leil and Karawan blocks offshore Egypt as part of the EGAS 2013 bid round, reported Oil & Gas Technology. North Leil and Karawan blocks cover areas of 5,105 and 4,565 square kilometres respectively. Eni is the operator and holds 100% equity in North Leil and 50% in Karawan, where it partners with BP. The two blocks, which will be operated by Eni's subsidiary IEOC, are located offshore in the deep-water Mediterranean, west of the

Shorouk block, which Eni acquired last year. The signature of these two new concession agreements follows that of Southwest Meleha Block recently awarded, further strengthening Eni's position in Egypt, a country of historic and strategic importance for the company, and relaunching Eni's exploration activities in the Egyptian's offshore. Eni has been present in Egypt since 1954 and is the main producer in the country with an equity of approximately 210,000 boe/d.

Egypt Open to Gas Imports from Israel

Egypt is open to importing gas from Israel, said Oil Minister Sharif Ismail. He added, in his interview with the state-owned Al Mussawar magazine, "Anything can happen. Whatever achieves the best interests of Egypt, and of the Egyptian economy and the role of Egypt in the region... That will determine the decision to import gas from Israel." Companies are already negotiating to bring Israeli gas to Egypt, but any

deals will hinge on approval from Cairo. The operators of Israel's offshore Tamar gas field said they had plans to build a pipeline to Egypt's LNG plant in the north-eastern port of Damietta, run by a joint venture of Spain's Gas Natural and Italy's Eni. Israel's Delek Drilling, one of the operating partners, said in November that if an agreement is signed, gas supplies to Egypt could start flowing in 2017.

Extra 3,600 MW Planned for Summer Electricity

The Ministry of Electricity plans to add 3,600MW of electrical energy next summer to overcome growing electricity consumption, according to Electricity Minister Mohamed Shaker, reports Daily News Egypt. Shaker said the government signed nine agreements with the Chinese government during President Abdel Fattah Al-Sisi's visit. The agreements are for the construction of coal-operated power plants with a 20,000 MW capacity over five years. The power stations will be constructed on the Red Sea and the Mediterranean, away from residential communities, Shaker said. "We will work to change the energy mix from almost total dependence on fossil fuels to renewable energy generated from the sun and wind as well as coal," Shaker explained. Electricity subsidy allocations for the fiscal year 2014/2015 amount to approximately EGP 27 billion, and the government

plans to decrease this figure to EGP 20 billion by 2015/2016 according to Shaker. "We will not take away subsidies for the poor after lifting electricity subsidies, and subsidies will amount to EGP 9 billion," the minister said. He admitted that if the government did not decrease electricity allocations during 2014/2015, they would increase to EGP 38 billion. Shaker said that the government continuing to sell electricity at 50% of the real price is not sustainable. The Ministry of Electricity hopes to generate 16,000 MW of extra electricity at power stations over the next five years. According to the minister, the government is working to introduce 7,000 MW of electric energy during 2015. This comes in addition to distributing 10 million energy-saving light bulbs to consumers and increasing the number of smart meters in place from the current 31 million.

Japan's \$360 Million for Egypt's Energy Sector

Japan has new policies regarding leaders of the Middle East, said Japanese Prime Minister Shinzo Abe during a conference organised by the Egyptian-Japanese Business Council. His country pledged \$360 million in financial support to Egypt's energy sector, reported Daily News Egypt. The financial aid will include other sectors such as infrastructure and technology, part of a total aid package for the Middle East amounting to \$2.5 billion. Abe said the Middle East is very important to Japan, which provides support to the region's stability, especially its war against terrorism and extremism. Abe added that Japan is determined to contribute to achieving stability and will provide aid estimated at \$2.5 billion to the Middle East in different sectors over the next few years. This will not include

military aid, he said. Egyptian Prime Minister Ibrahim Mehleb said the government is currently encouraging economic growth through integrated cooperation with several countries worldwide, especially Japan, and will use Japanese experience in growth and development as an inspiration. He also requested an effective contribution from Japan to Egyptian economic development, as well as support for the Economic Summit in March. The government will present its economic reforms and projects at the conference, which will be held in Sharm El-Sheikh. There are 50 Japanese companies working in Egypt in different sectors, and total Japanese contributions to capital are estimated to be worth \$203 million.

Eni Strikes Oil and Gas in Egypt's Western Desert

Eni has announced a new discovery of oil and gas in the West Meleha deep exploration prospect, reported Oil and Gas Technology. This was in the Meleha licence, in the Western Desert of Egypt, 300 square kilometres west of Alexandria. The discovery will be rapidly followed by the drilling of other delineation and development wells which should result in an estimated production of about 8,000 b/d by the end of 2015. The exploration well, which allowed the discovery of Meleha West Deep 1X, was drilled to a depth of 4,175 metres, meeting a 20 metres net mineralised accumulation of light oil in the Lower Cretaceous age of the Alam El Bueib formation. The well also encountered a significant mineralised accumulation of gas and condensates in the Upper Jurassic layers in the Safa formation. The well began production with an initial flow of 2,100 b/d (40° API), intended for the Meleha field infrastructure treatment.



Drilling News

PETROSANNAN Drills New Well

PETROSANNAN, a joint venture between EGPC and Ukraine's Naftogaz, has recently completed drilling a new oil-producing developmental well in their concession area in the Western Desert. The production rate of PETROSANNAN was 197,670 barrels of oil as of December 2014.

AES E6 (1/8)

The oil-producing well was drilled at the depth of 6,808 ft. utilizing the SHAMS-2 rig. Investments surrounding the project are estimated at \$1.778 million.

WEST BAKR Drills New Well

WEST BAKR, a joint venture company between EGPC and TransGlobe, has completed drilling a new oil-producing developmental well in its concession area in the Eastern Desert.

M-15

The oil-producing well was drilled at a depth of 5,250ft. utilizing the EDC-62 rig. Investments surrounding the project are estimated at \$1 million.

AGIBA Drills New Well

AGIBA, a joint venture company between EGPC and IEOC, has completed drilling a new oil-producing developmental well in its concession area in the Western Desert. The production rate of AGIBA was 2,052,263 barrels of oil as of December 2014.

E.AGHAR-35

The oil-producing well was drilled at a depth of 6,505ft. utilizing the WF-161 rig. Investments surrounding the project are estimated at \$752,000.



By EOG

QARUN Drills New Wells

QARUN, a joint venture company between EGPC and Apache, has completed drilling two new oil-producing developmental wells in its concession area in the Western Desert. The production rate of QARUN was 1,214,031 barrels of oil as of December 2014.

WON C-30

The oil-producing well was drilled at a depth of 9,255 ft. utilizing the EDC-63 rig. Investments surrounding the project are estimated at \$2.495 million.

NED-46

The oil-producing well was drilled at a depth of 6,400 ft. utilizing the PD-1 rig. Investments surrounding the project are estimated at \$1.075 million.

KHALDA Drills New Wells

KHALDA, a joint venture company between EGPC and Apache, has completed drilling two new developmental wells in its concession area in the Western Desert. The production rate of KHALDA was 4,529,650 barrels of oil as of December 2014.

KENZ-51

The gas-producing well was drilled at a depth of 13,110 ft. utilizing the EDC-19 rig. Investments surrounding the project are estimated at \$1.550 million.

SIWA R3-3

The oil-producing well was drilled at a depth of 14,900 ft. utilizing the ED-40 rig. Investments surrounding the project are estimated at \$4.731 million.

GPC/SCIMITAR Drills New Well

GPC/SCIMITAR, a joint venture company between EGPC and Russia's Lukoil, has completed digging a new oil-producing developmental well in its concession area in the Eastern Desert. The production rate of GPC/SCIMITAR was --- million barrels of oil as of December 2014.

ISS-147

The oil-producing well was drilled at a depth of 1,875 ft. utilizing the SHAMS-1 rig. Investments surrounding the project are estimated at \$350,000.

BAPETCO Drills New Wells

BAPETCO, a joint venture company between EGPC and Shell, has completed drilling two new oil-producing developmental wells in its concession area in the Western Desert. The production rate of BAPETCO was 1,284, 286 barrels of oil as of December 2014.

OBA D-AZ

The oil-producing well was drilled at a depth of 13,783 ft. utilizing the EDC-42 rig. Investments surrounding the project are estimated at \$3.355 million.

AL FADL-41

The oil-producing well was drilled at a depth of 4,757 ft. utilizing the EDC-72 rig. Investments surrounding the project are estimated at \$1.509 million.

ESHPETCO Drills New Well

ESHPETCO, a joint venture company between EGPC and Russia's Lukoil, has completed digging a new oil-producing developmental well in its concession area in the Eastern Desert. The production rate of ESHPETCO was 186,559 barrels of oil as of December 2014.

RABEH E-40

The oil-producing well was drilled at a depth of 5,830 ft. utilizing the ECDC-6 rig. Investments surrounding the project are estimated at \$2.117 million.



Tunisian Offshore Well Drilling Completed by DNO

DNO has concluded drilling on Tunisia's Jawhara-3 offshore well, reports Offshore Magazine. The well was drilled vertically to a TD of 2,815 meters (7,168 ft). It encountered water in the targeted section of the Douleb and Bireno fractured carbonates formations, while two secondary objectives had oil. DNO and partners Petrogas E&P Tunisia, Eurogas Internal, and Atlas Petrole-

um Exploration Worldwide will analyze logging and testing results to re-assess the Jawhara field's oil-in-place estimates. Petrogas agreed to acquire a 35% interest in the permit last November with terms that included reimbursing DNO for prior expenditures. The deal remains subject to approval by the Tunisian authorities.

Morocco Offshore Oil Discovery Hits Snag

Genel Energy says the SM-1 exploration well on the Sidi Moussa permit offshore Morocco is being plugged and abandoned (P&A'd) after encountering oil in fractured and brecciated cavernous Upper Jurassic carbonates, reported Offshore last month. The well was drilled to a TD of 2,825 meters (9,268 ft) subsea, producing 26° API oil to surface during well control operations. However, a subsequent test program over the same interval failed to produce oil at sustainable rates, possibly due to reservoir damage suffered during drilling. The partners will evaluate the well results and other subsurface information further before attempting to draw definitive con-

clusions, with the semisubmersible Noble Paul Romano to be released. Genel adds that drilling has started in its (non-operated) Jacare exploration well on block 38 since mid-September. It expects results within the next few weeks.



Libyan Warplane Bombs Greek Oil Tanker

A Libyan warplane from forces loyal to the internationally recognised government bombed a Greek-operated oil tanker anchored off the coast killing two crewmen, reported Reuters. Military officials said the vessel had acted suspiciously after a warning not to enter the port and said it was suspected of transporting Islamist militants to Derna, the eastern port city where the ship was anchored when it was hit. State oil firm NOC said it had leased the ship to carry fuel for power generation to Derna from Brega, an oil port to the west. The vessel was damaged, but none of the 12,600 tonnes of heavy oil leaked out, the Athens-based operator Aegean Shipping Enterprises Co. said. Greece condemned the "unprovoked and cowardly" attack that killed one Greek and one Romanian crew member and wounded two others, and said it had contacted the U.N. envoy for Libya and the European Union

about the incident. The NOC office in Tripoli, where the rival government is now in control, said it had informed authorities of the vessel's plans. It said the incident would impact "negatively" on incoming tankers to Libya's ports.



Gulfsands Makes Progress in Morocco Drillings

Gulfsands Petroleum Plc. announced that well perforating, completion and clean-up operations have now been concluded on the Dardara Southeast 1 well ("DRC-1") located within the Rharr Centre Permit in Northern Morocco, reported Your Oil and Gas News. Following an initial 3 hour well clean-up flow period, the well was fully unloaded of completion fluids to a 100% gas stream. During a subsequent 6 hour flow period the well flowed at an average gas rate of 7.1 mscf/d on a 32/64th" choke with a stable well head pressure of 1,230 pounds per sq. inch, and with no associated formation water production or sand production. The well is to be suspended as a future gas production well and the COFOR drilling rig will move to the Douar Ouled Balkhair ("DOB-1") drilling location, where gas exploration well DOB-1 will spud later in January. Operations on the DOB-1 well are expected to take 28 days in total. Gulfsands, an oil and gas services company, has operation in Syria, Morocco, Tunisia and Colombia.

Naftal Considering Algerian Used Industrial Oils Refinery

The Algerian national Company of Marketing and Distribution of Petroleum Products (NAFTAL) is considering setting up a refinery unit for used industrial oils, announced Algeria's Minister of Energy Youcef Youssi, reported AllAfrica. Until now such oils have been exported, he said. This was during a session devoted to oral questions at the Council of the Nation (Upper House of Parliament). The minister said that Naftal recovers 18,000 tons of used oils every year. He added that investments in the refining of these used oils has been opened since 1996. In addition, the minister said that this ambitious program for the construction of many oil refineries was being conducted by his ministerial department, adding that the technical offers are being assessed for the construction of new refineries, including one in Illizi.

Croatia Part of US LNG Energy Independence Plans

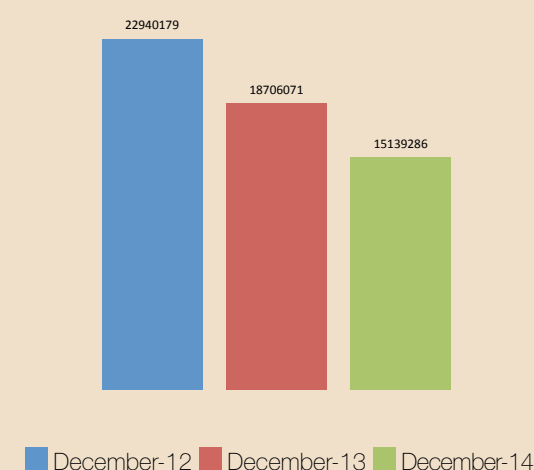
The US is expected to start deliveries of LNG at the end of the year, a move aimed at loosening European dependence on Russia for energy, said Amos Hochstein, US State Department Coordinator for International Energy Affairs. Hochstein also supported the Third Energy Package and called for construction of an LNG receiving hub in Croatia, reported Russia Today. "There are some projects that I've been publicly advocating for that I believe would be positive. One of them is an LNG facility in Croatia. I really believe that it's a critical node," he said, adding that the hub would help diversify energy supplies in neighboring Slovenia and Serbia, as well as other countries in the region, including Hungary and Ukraine, which currently dependent on a single source. In December, Croatia restarted a decade-old project of building an LNG import terminal. The idea was abandoned amid the fall of demand for gas during the global financial crisis, but after the cancellation of the South Stream the project was revived as an attempt to reduce dependence on Russian gas.

Mediterranean STATISTICS



Production (barrel)

Oil		
December-12	December-13	December-14
NA	NA	NA
Equivalent Gas		
December-12	December-13	December-14
22940179	18706071	15139286
Condensate		
December-12	December-13	December-14
1269135	1060922	851696
Liquefied Gas		
December-12	December-13	December-14
392613	372482	356011



Mediterranean Rig Count October 2014

Total	Percentage of Total Rigs
6	5%

Gazprom Signs Second Italian Bank Loan

GAZPROM (GAZP), the world's biggest natural-gas exporter, signed its second loan agreement in two months with a top Italian bank, reports Bloomberg. It agreed to borrow \$407 million from Milan-based Intesa Sanpaolo SpA (ISP), Gazprom said in an e-mailed statement. The first bilateral loan with Intesa "is of great importance for the development of partnership with credit institutions in Italy and all over the Europe," Moscow-based Gazprom said, without providing further details. While the U.S. and European Union aren't targeting Gazprom with financial sanctions over Russia's role in the conflict in Ukraine, they have blacklisted the company's oil unit OAO Gazprom Neft. The EU also opposed a \$45 billion Gazprom-run gas pipeline project through the Black Sea, which led to the link being scrapped last month, according to Russian officials. Gazprom agreed to buy out some European partners in the South Stream project, including Italy's Eni SpA. Francesca Palermo Patera, a spokeswoman for Intesa, Italy's second-largest bank, confirmed the loan agreement while declining to make further comment.

Repsol Abandons Canary Islands Oil and Gas Exploration

The Spanish energy company Repsol announced it was abandoning oil and gas exploration off the Canary Islands after an initial survey yielded insufficient results to merit extraction, reported The New York Times. The project, which started in November, had faced stiff opposition from local politicians and environmental groups. It also coincided with a plunge in oil prices that has put into question the viability of planned exploration projects around the world. Repsol is the lead operator of a consortium that earmarked \$350 million for an exploration phase that was expected to last four months. It had teamed up with Woodside Petroleum of Australia and RWE Dea of Germany. The deepwater survey was about 40 miles from Lanzarote and Fuerteventura, part of the Canary Islands off the west coast of Africa. The archipelago, which belongs to Spain, is also a major destination for tourists. The project's oil exploration vessel, the Rowan Renaissance, will return to Angola, where Repsol has another venture. Repsol had forecast long-term yields of 110,000 b/d from the project, enough to cover about one tenth of Spain's oil consumption. The company initially put the chances of finding oil for exploration there at between 15% and 20%. A major oil and gas discovery near the islands could have reduced Spain's reliance on energy imports, as it imports more than 99% of its hydrocarbons.

World Biggest Oil Platform Begins Commercial Production

The world's biggest oil platform has begun commercial production at the Sakhalin-1 offshore project in Russia's Far East, reported Russia Today. The Berkut oil rig is expected to extract 4.5 million tons of oil annually. The Sakhalin-1 Consortium, formed in 1996, is the first major shelf project in Russia created under terms of a Product Sharing Agreement (PSA). The international consortium is made up of the US major ExxonMobil (30%), Japan's Sodeco (30%), Russia's Rosneft (20%) and India's ONGC Videsh (20%). The total cost of the project is estimated to be \$10-12 billion, making it the largest direct foreign investment in Russia. The Berkut platform is expected to produce 12,000 tons of oil daily or about 4.5 million tons annually, raising the total output of the Sakhalin-1 Consortium to 27,000 tons a day. Oil from the Arkutun-Dagi oil field will be processed at the Chaivo onshore treatment facility and then delivered by a pipeline to the DeKastri oil export terminal. The tax revenues from oil produced by the Berkut platform will provide Russia's regional and federal budgets with no less than \$9 billion over the next ten years. The Berkut rig is designed to work under harsh Arctic conditions, and has an autonomous power supply and can work even when temperatures go down to minus 44 degrees Celsius. Floating ice up to two meters thick cannot damage its sub-

structure. The drilling platform can withstand a 9 magnitude earthquake, and waves up to 18 meters high. The field which spreads 60 kilometers offshore holds 72 million tons of recoverable oil, is also being developed by another oil rig specially built for the task. The US and the EU sanctions are targeting Russia's big Arctic and Siberia shale oil ambitions by barring foreign oil companies from supplying any technology or equipment for joint ventures in deep water, offshore, or shale projects. Drilling will continue even if sanctions prevent foreign companies from participating in Russia's Arctic, Rosneft CEO Igor Sechin said in September in an interview with Bloomberg News. "Of course we'll do it on our own and attract the necessary technology and different partners who don't have limitations on cooperation," the Rosneft CEO said.



Eni Production Begins with Congo's Nene

16 months after discovery, the Congo's Nene Marine field started production in January, announced Italian energy giant Eni. "The startup of Nene Marine field achieved just eight months after obtaining the production permit is a great result for Eni, and confirms our strategy of rapid exploitation of resources," Claudio Descalzi, the company's CEO, said in a statement reported by United Press International (UPI). The field is located in shallow waters about 10 miles off the coast of Congo. With more than 30 production wells planned, the company expects the field to produce an eventual

140,000 boe/d. Eni made its first discovery at the field in late 2013. First production is yielding about 7,500 boe/d. In mid December, the company said it completed a production test in the Minsala Marine 1 NFW well off the Congolese coast, yielding more than 5,000 b/d of oil and 14 mcf/d of natural gas in natural flow. Reserves off the West African coast are similar to those in Brazil in that they're located beneath a thick layer of submarine salt. Eni has been operating in Congo since the late 1960s, producing around 100,000 b/d of oil.

Venezuela-OPEC Move to Stabilize Oil Prices

Venezuela and Saudi Arabia are coordinating joint action to recover oil prices, which fell 50% last year, and stabilise global oil markets, Venezuelan Minister of Economy and Finance and Public Banks Rodolfo Marco Torres stated. Torres described Venezuelan President Nicolas Maduro's meeting with Saudi Crown Prince Salman Bin Abdulaziz in the Saudi capital, Riyadh, in January as "excellent, and resulting in significant results", reported the Middle East Monitor. Venezuelan President arrived in Riyadh after an official trip to Iran meant to revive relations with OPEC countries and their cooperation

would help them strengthen their positions in the global oil markets and improve oil prices.



Mexico May Start Importing US Crude

Mexico's state-owned Pemex announced it wants to import about 100,000 b/d of light U.S. crude to mix with the country's heavier oil as a way to improve refinery processes, reports Penn Energy. Pemex added that the deal was originally proposed last year and would simply trade heavier Mexican crude for light U.S. oil. While the deal has not gone through, it is raising concerns in Mexico, a country sensitive about its own falling oil production. Mexico has been a crude exporter for decades, but officials have warned it will become a net importer if it doesn't explore new reserves. Mexico exported an average of about 803,000 b/d of oil to the United States in 2014.



3,086-ton Offshore Platform Completed in Indonesia

McDermott International Inc. completed the installation of a 3,086-ton central processing platform (CPP) topsides at the Kepodang gas field offshore Indonesia, reported Offshore Magazine. The company used the tight-slot float-over method in the Muriah working area for PC Muriah Ltd., a wholly-owned subsidiary of Petronas. The project scope included procurement, construction, installation, and commis-

sioning of the CPP topsides and jacket, a wellhead module, a wellhead platform and jacket, 1.7-mi (2.7-km), 10-in. diameter infield flowline, and installation of remote control facilities at an onshore receiving facility. The total weight of overall facilities is about 11,000 tons and is located about 112 miles (180 km) northeast of Semarang, Central Java, in water depths of up to 230 ft (70 meters).

Georgia Seeks Investors for its First Refinery

Georgia's government is looking for investors to develop on a build, operate and transfer basis what would be the country's first oil refinery, reported Penn Energy. Investors seeking to participate in the project must submit a completed expression-of-interest package to the Ministry of Economy & Sustainable Development of Georgia (MESDG) by February 10th. The proposed facility, to be constructed in the Black Sea coastal town of Poti along the left embankment of the Rioni River, should have a minimum refining capacity of 2 million tonnes/year and be ready to start production no later than December 2018, according to documents

recently posted to the MESDG website. Developers of the potential refinery, which must be able to produce a fuel slate that conforms to no less than Euro 5 quality standards, also will guarantee that 20% of the plant's production will be offered in Georgia's local market, MESDG said. Georgia's campaign for the grassroots refinery comes amid increasing demand for oil products on local and regional markets, current infrastructure development in the region, and the country's proximity to crude oil-producing regions MESDG First Deputy Minister Dmitry Kumsishvili told potential investors.

Ghana's Only Refinery Up and Running Again

Ghana's Ministry of Energy & Petroleum (MEP) announced the state-owned Tema Oil Refinery Co. Ltd. (TOR) has resumed crude oil processing at its 45,000-b/d refinery in Tema, the Oil & Gas Journal reported. This was after a nearly 4-month operational shutdown. Crude processing restarted in mid December, after Nigeria's Access Bank PLC provided TOR financial support to secure about 800,000 barrels of crude oil feedstock from a subsidiary of Nigeria-based Sahara Group, MEP said. The newly delivered crude supplies will take about a month to refine, during which time the refinery will be producing at about 50% of its name-

plate capacity as the plant gradually ramps up to normal production levels, MEP said. TOR's refining operations have been inconsistent amid frequent shutdowns of processing units since 2009 mainly due to a lack of capital to procure crude oil on a continuous basis, which has impacted petroleum product supplies to the Ghanaian market, the company said in a March 2014 release. According to the local media PetroSaudi has also provided funding and will oversee the second-phase revitalization project at the TOR refinery.

Shell Reaches Deal with Nigerian People

Oil giant Royal Dutch Shell reached an \$84 million settlement with the residents of the Bodo fishing community in the Niger Delta for two oil spills, reports BBC Africa. The deal, which ends a three-year legal battle, is the first of its kind in Nigeria. Shell has pledged to clean up the Bodo Creek over the next few months. The settlement was announced by the Anglo-Dutch oil company's Nigerian subsidiary Shell Petroleum Development Company Nigeria (SPDC). Lawyers for 15,600 Nigerian fishermen say their clients will receive \$3,300 each for losses caused by the spills. The remaining \$30m will be left for the community, which law firm Leigh Day says was "devastated by the two massive oil spills in

2008 and 2009". For their part, SPDC managing director Mutiu Sunmonu said "from the outset, we've accepted responsibility for the two deeply regrettable operational spills in Bodo," adding that earlier settlement efforts had been hampered "by divisions within the community". He also insisted that the company maintains that the extent of pollution in the area is caused by "the scourge of oil theft and illegal refining". Lawyer Martyn Day, who represents the claimants, said it was "deeply disappointing that Shell took six years to take this case seriously and to recognise the true extent of the damage these spills caused to the environment and to those who rely on it for their livelihood".

Brazil's Second 'Fanfan' Deep-water Oil Find

Petrobras confirmed last month a second oil find in the Fanfan area in the deep-water Sergipe-Alagoas basin offshore Brazil, reported Offshore Magazine. In August the company reported an initial discovery with well 9-SES-188D in the BM-SEAL-11 concession in block SEAL-M-426. It encountered 37-40° API light oil. The well subsequently proved another light

oil accumulation in a deeper-lying reservoir. The location is 107 km (66 mi) offshore Aracaju, 5.7 km (3.5 mi) from the initial discovery in the block announced last August, in a water depth of 2,492 m (8,176 ft). Petrobras operates in partnership with IBV-BRASIL.

China Imports Oil for Reserves Even as Exports Grow

China finished the year with a rise in crude imports, with an increase of 13.4% from the 30.37 million tons the previous year. The imports surpassed the record high of 6.81 million barrels per day in April, as well as the second highest volume, 6.74 million barrels per day in September, reported Platts. Crude imports are increasing at a fast rate, reaching a 9.5% growth in 2014, translated to 308.38 million tons, or roughly 6.19 million barrels per day. Experts claim that half of the increase in the country's crude imports for 2014 went directly into commercial and strategic crude storage, writes Platts, most of which came from the Middle East. The in-

crease in crude imports also led to a higher volume of exports from China. Last year, China's total crude exports fell 63% year on year to 600,000 million tons, but December saw exports of 240,000 million ton of crude oil, the highest monthly volume in 2014. The rise in oil products last month was driven by fuel oil, which increased over 50% year on year. In total, China's net import of oil products last year was 330,000 mt. According to Platts, fuel oil demand in China has slowed down due to a lower consumption by independent refiners, which now rely stronger on crude oil and a bitumen-blend feedstock.

Lime Making Progress in UAE Offshore Drilling

Hibiscus Petroleum issued a progress report last month on the activities of its part-owned subsidiary Lime Petroleum, off the UAE's coast, reports Offshore Magazine. Zubara Petroleum, a Lime subsidiary, has secured an extension from Sharjah's government for the offshore Sharjah East Coast concession and now plans to drill an exploration well by summer 2015. In anticipation of the project, the company awarded a well management services contract at the end of July and expects an environmental impact assessment and a site survey to be completed early next year. Procurement for long-lead equipment for the well is advanced and award of major components are expected to go through around the turn of the year, pending results of a potential farm-out

of a portion of Lime's interests in the Sharjah concession. As for the RAK North Offshore concession, the management team has secured access to 3D seismic data acquired in 1984 over the Saleh field, which has been producing wells and lies within (but is excluded from) Lime's concession, as well as some acreage within the concession boundaries.



Gazprom Brings Iraq's Badra Field Online

JSC Gazprom Neft announced that a third well in the Badra field in eastern Iraq has come on production, ensuring "sustainable" rates of at least 15,000 b/d. The field has been in commercial production since August, reports the Oil & Gas Journal. Drilling of another three wells continues. Gazprom Neft said a key condition in the development contract has been met with 15,000 b/d for 90 days, and that participants can expect to start receiving their shares of Badra production as early as this year's first quarter.

Gazprom Neft, the operator, holds 30% interest in the field, while other holders include Iraqi Oil Exploration Co. 25%, Korea Gas Corp. 22.5%, Petronas 15%, and TPAO 7.5%.



Kurdish Tanker Still Awaiting Texas Resolution

Iraq's oil ministry can sue the Kurdistan regional government, announced Houston US District Judge Gray Miller last month in relation to the SCF Byrranga oil tanker – renamed the United Kalavryta (also known as United Kalavrta) – full of Kurdish crude oil that has been circling off the Texan coast for more than five months, reports the Gulf Times. Miller had previously ruled he had no authority to hear Iraq's dispute due to the alleged misappropriation of 1 million barrels of crude oil that took place in Kurdistan, outside the jurisdiction of US courts. After the Iraqis reworked their claim, Miller agreed the Kurds' involvement in the US oil market triggered a legal exception that properly placed the dispute over the cargo in his court. The judge has

since rejected the Kurds' claims of sovereign immunity and said the regional government's plans to sell its crude in the US gave him authority to hear the lawsuit. "The heart of this dispute is to whom the text of the Iraqi Constitution grants the right to export oil, and whether the KRG converted the oil here," Miller explained. "US courts regularly interpret other countries' laws, including constitutions." Hal Watson, the Kurds' Houston attorney, didn't immediately respond to phone and e-mail messages seeking comment on the judge's ruling. Jim Loftis, the lead Houston lawyer for the Iraqi Oil Ministry, declined to comment on the ruling beyond confirming that Miller has agreed to let the lawsuit proceed for now.

Iran and China Sign More Refinery Deals

Shahrokh Khosravani, Deputy Head of National Iranian Oil Refining and Distribution Company (NIORDC), announced the signing of an agreement between Iran and China to finance one of the largest refinery projects in Iran. Khosravani also announced the maintenance plan of Abadan Refinery to tap financial sources provided by Chinese credit, reports Mehr News. The credit required for construction and operation of the refinery is about

2,600 billion euros, Khosravani said. Previously Iran's Deputy Oil Minister Abbas Kazemi had said that Iran's engineering office was currently working in China and a group of engineers were engaged in follow-up activities and coordination with the contractors of the project. He added that a detailed design of the Abadan refinery expansion project was underway and its construction will begin once the necessary research is carried out.

Kuwait Could Become Shale Oil Producer

The Head of Al-Sharq for Petroleum Consulting Company Abdul-Samea Behbehani told Kuwait News Agency (KUNA) that Kuwait has 23 calcareous clay layers expected to be a source of shale oil and gas, similar to those found in America's Eagle Ford Shale. He admitted that the process is facing challenges, but affirmed that they would be overcome soon. Saudi Arabia is currently digging up five experimental wells of shale gas in the Ghawar Field and in other fields near borders with Jordan, he added. In addition, Russia has announced the discovery of 75 billion barrels, the US 58 billion barrels, China 32 billion barrels, Argentina 27

billion barrels and Libya 26 billion barrels.



Unconventional News

Chinese Shale Gas Production Soaring

China's Ministry of Land and Resources (MLR) statistics clearly demonstrated a 42% total increase in production of unconventional gas by the end of 2014, reported Platts. Shale gas production was 1.3 billion cubic meters, expanding output by over five times of the previous year's, the ministry said. China has targeted shale gas output to hit 6.5 billion cubic meters a year by this year, the end of the current five-year economic plan. This is largely expected to be reached because of significant efforts by state-owned Sinopec and PetroChina at a few key projects, including the former's Fuling facility in central Chongqing municipality. China's total 2014 gas output rose 10.7% year on year to 132.9 billion cubic meters, with conventional gas output up 9.8% over the same period to 128 billion cubic meters, the MLR said.



Petrobras Shale Innovation Cuts Emissions



An unparalleled technology to cut greenhouse gas emissions through carbon dioxide capture is being developed on a demonstration scale at Petrobras' Shale Industrialization Facility (known as SX) in Paraná, reported PennEnergy. This is in partnership with the company's Cenpes research center. This technology is now being tested in a prototype fluid catalytic cracking unit (FCC) – a facility that transforms heavy crude into light oil products. This is the first pre-industrial scale FCC unit in the world to use oxy-combustion technology (the burning of a fuel using pure oxygen instead of air) to capture carbon dioxide, a gas released during industrial processes in refineries. Based on data obtained from the most recent tests, the researchers involved expect to be able to capture at least 90% of the CO2 emitted when the technology is applied in industrial plants. They also expect to generate a stream of CO2 with a minimum purity level of 95%, ready to sell

to CO2-purchasing industries, to inject into oil wells to increase output (known as enhanced oil recovery–EOR), or to inject into natural underground reservoirs to be retained there (called geological storage). The oxy-combustion process has proved to be more financially viable than post-combustion technology, which is traditionally used to capture CO2. An evaluation made in the project's previous stage showed that oxy-combustion is able to bring about a significant reduction in costs—around 40%—in relation to the traditional technology. Although specific legislation regarding greenhouse gas emission reduction targets does not exist in Brazil, nor any obligation to disclose relevant figures, every year, in its Social and Environmental Appraisal, Petrobras publishes an inventory of its greenhouse gas emissions and measures taken to contribute to mitigating climate change, as well as its voluntary goals.

Algeria Backtracks Over Shale Plans

Algeria's prime minister announced in a television interview that plans to drill for the country's abundant shale gas reserves have been scrapped, reported the Associated Press. The announcement came in the wake of a string of protests in the southern desert cities over environmental concerns near where drilling had already begun. "I confirm that the exploitation of shale gas is not the order of the day as for now Algeria has sufficient reserves of conventional energy to meet its needs," Prime Minister Abdelmalek Sellal said. Despite high profile announcements in December that drilling had been authorized, he added that the initial drilling near the town of In Salah had just been "experimental." He said the studies would continue for at least four more years to evaluate environmental and technical con-

siderations. Soon after the drilling began, protests erupted in nearby In Salah and spread to other southern cities in Algeria, principally over fears the scarce water supply would be contaminated. "Between shale gas and water, the Algerian people will choose water and you think the Algerian state would be crazy enough to endanger the lives of its citizens?" he asked the interviewer. "We are a responsible government." While Algeria derives more than 95% of its export earnings from oil and gas, its reserves are dwindling. The country has also been hard hit by the drop in oil prices in the last six months. The country has the third largest estimated shale gas reserves globally. Sellal stated the country had sufficient conventional reserves to last until 2037.

American Interest in Lithuania Shale Growing, PM

"I received information this week that after our visit to the US, there is interest again in the soon to be held [shale exploration] tender in Lithuania," announced the country's Prime Minister Algirdas Butkevicius in a national LRT radio interview. Several American companies, in fact, had showed interest in the exploration and extraction of the Lithuanian shale gas, he added. Butkevicius met with members of the American association of shale gas extraction

during his October visit to the US. Lithuania plans to hold a new shale gas exploration tender early this year. New tax rules for unconventional hydrocarbons were approved by the parliament in December last year. The parliament had decided that shale gas exploration companies will be exempt from tax for extracted raw materials for three years and afterwards will pay a fixed tax rate of 15%.

Surprise Shutdowns Hit US Oil Refiners

Three of the largest U.S. oil refineries have been working desperately to restore operations after a series of glitches knocked out some million b/d of processing capacity, the worst spate of outages in years. The disruptions, including three fires and one shut-down, affected about 20% of the refining capacity in the eastern half of the United States. Philadelphia Energy Solutions' 335,000-b/d refinery, the largest on the East Coast, had a utility system failure, said a source familiar with operations. There is no evidence the incidents were linked, reported Reuters, but the East

Coast was experiencing its coldest stretch of winter at the time and cold weather can sometimes complicate operations at high-pressure refinery units. Marathon Petroleum Corp's 212,000-b/d Robinson Illinois refinery also experienced a fire that shuttered its crude and vacuum distillation units, a source said. It was unclear what caused the fire. Another Illinois installation, BP Plc. was restarting a 90,000 b/d crude unit and a 60,000 b/d reformer at its Whiting plant after freezing weather caused them to shut down in early January, sources said.

Naphtha Crackers Scheduled for 2015 Maintenance Shutdown

Trading sources in South Korea revealed that four naphtha crackers are expected to shut down for a month-long maintenance in 2015, reported Reuters. These South Korean installations share a total capacity of 3.76 million tons per year of ethylene, which is more than double the capacity of last year. The four crackers are owned by Samsung Total, LG Chem, YNCC and Lotte Chemical. South Korea's capacity set to be offline will, however, be offset by Japan's lessened cracker maintenance this year, leading to a less dramatic cut in naphtha feedstock demand in the two countries. In total, nearly 5.3 million tons per year of ethylene capacity will be taken down for main-

tenance in Japan and South Korea against about 6.23 million tons per year in 2014. Japan and South Korea are able to produce close to 16 million tons per year of ethylene and are short of naphtha raw material.



Pipeline Ban Hits British Columbia LNG

British Columbia banned the transport of oil on pipelines built specifically for proposed LNG terminals last month, in an effort to quell fears that those lines could eventually be converted to carry oil sands crude to coastal markets, reported Reuters. The regulation covers six proposed pipelines, which would all carry natural gas destined for LNG export terminals planned for the Pacific Coast province. The government said the legislation could also be applied to future gas pipelines. The ban is in response to concerns raised by Aboriginal leaders and environmental groups that pipelines built to serve British Columbia's nascent LNG industry could ultimately be used to transport crude oil or diluted bitumen. "A regulation prohibiting the automatic conversion of natural

gas pipelines for these purposes goes a long way to address the concerns we have heard," said John Rustad, British Columbia's Minister of Aboriginal Relations, in a statement. The ban follows a pledge by the provincial government last year to ensure LNG pipelines would never be converted to carry oil. The province of British Columbia has relied on an LNG boom to create thousands of new jobs and help bolster government coffers. Numerous aboriginal communities have filed lawsuits in an effort to stop Enbridge Inc's Northern Gateway project in the province's north, while others are building strategies on legal options to stop a proposed expansion of Kinder Morgan Inc's Trans Mountain pipeline to a port near Vancouver.

Carlos Slim Awarded \$767 Million US-Mexico Gas Pipeline

A consortium including an energy company controlled by billionaire Carlos Slim won a contract to build a 230 km (143 mile) pipeline to supply gas to central, northern and western Mexico, reported Reuters in early January. The consortium, which consisted of Slim's Carso Energy and U.S. companies Energy Transfer Partners and MasTec Inc, presented the lowest bid of \$767 million for the work. That bid was significantly below the \$1.365 billion budgeted for the project by Mexico's state power company CFE. The Waha-Presidio pipeline will run through Texas and connect with a pipeline in Mexico's northern Chihuahua state, the CFE said in a statement. Last year, CFE announced various infrastructure projects near Mexico's northern border with the United States that are part of the company's aim to boost U.S. natural gas imports and help lower electricity rates via cheaper inputs and more modern power infrastructure. Slim's

conglomerate Grupo Carso makes most of its revenue from its retail and real estate businesses but in recent years it has been boosting its energy unit, which includes drilling and energy services.



\$400 Million to Be Invested in Egypt Solar and Wind Energy Projects

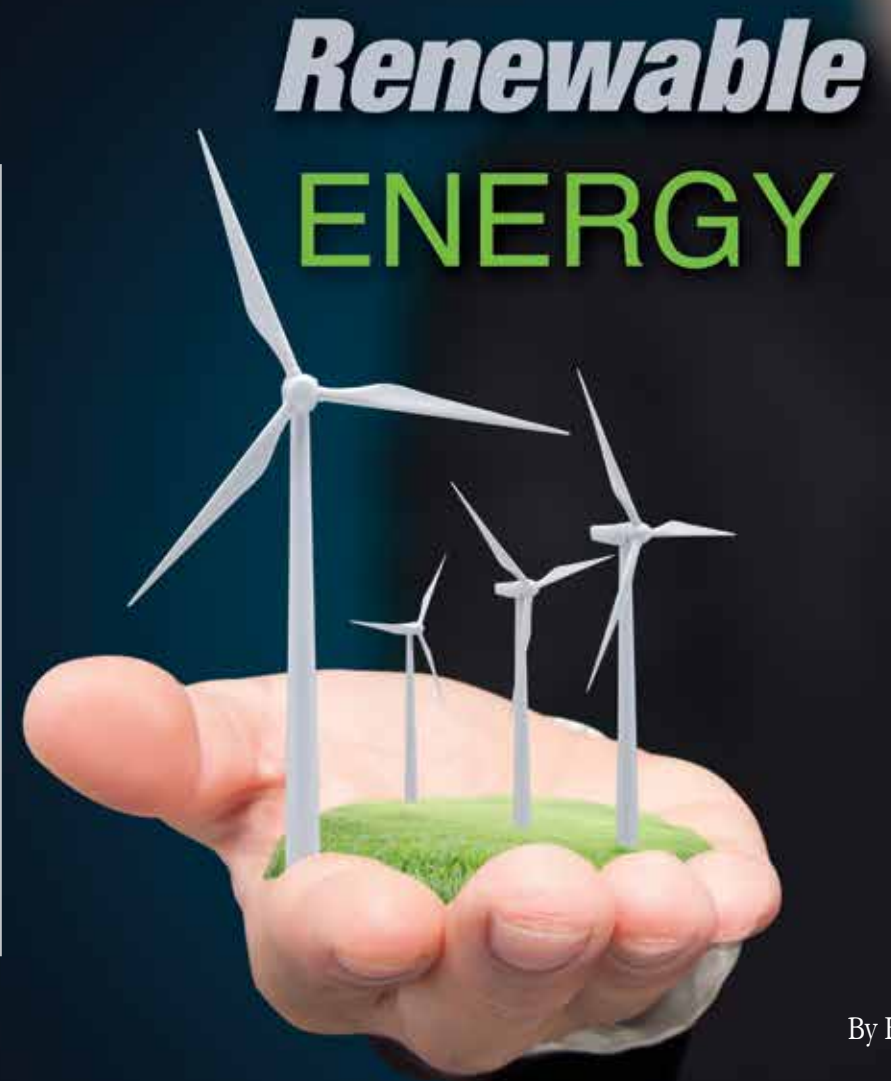
UAE investment vehicle Access Infra announced plans to fund various renewable energy projects in Egypt, totalling between \$350-400 million. Access Infra's Chairman Reda El-Chaar, speaking to Daily News Egypt, said the company would produce 300 MW of electricity in the first phase of projects, with two-thirds of energy coming from solar and the third from wind. El-Chaar

added that the steps the New and Renewable Energy Authority (NREA) was taking to attract more foreign investment in Egypt's energy sector were encouraging. Access Infra Africa, which has a \$500 million investment portfolio, plans to invest in renewable energy projects throughout the African continent over the next five years, with the majority of the investment allocated to Egypt.

Egypt to Tender 250MW Wind Energy Project

The National Renewable Energy Association (NREA) announced the implementation of a tender for 250MW of wind energy, according to NREA's chairman Mohamed El Sobki. In this year's World Future Energy Summit, El Sobki addressed Egypt's efforts to restructure the power market, with a particular emphasis on fuel subsidies. "The number of studies addressing electricity in Egypt show fuel costs represent 60% of our power generation costs," said El Sobki. According to The National, Egypt spent EGP 45 billion in energy subsidies on the first half of the fiscal year. Egypt is now a net energy importer, compared to a few years ago when Egypt was a net oil export-

er. The 250MW tender initiative comes as a direct result of President Abdel Fattah El Sisi's energy strategy to include 4300MW of renewable energy into the energy mix, of which 2000MW will come from wind energy. The tender is gathering interest from foreign investors, such as France's EDF and Dubai-based Access Power MEA. Finally, El Sobki explained that Egypt's natural gas market is vulnerable to oil prices, reported The National. This makes renewable energy even more imperative in Egypt, as the possibility of tripling gas prices from their current rate (\$3 per million Btu), would raise generation costs up to 80%.



By EOG

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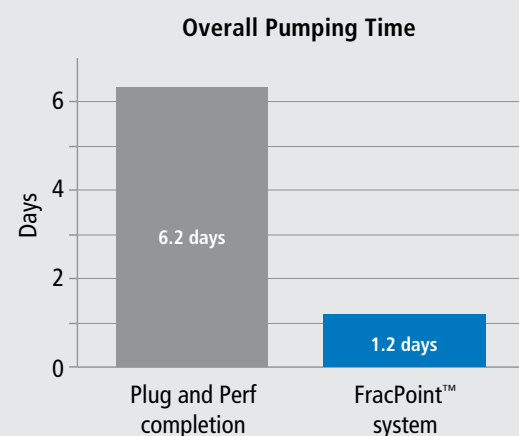
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BETTING IT ALL: HOW SAUDI ARABIA IS GAMBLING WITH OIL

When the price for Brent Crude reached its peak in June 2014, few analysts or experts would have believed the longest and biggest oil boom in history was coming to an end. Or that prices would tumble to less than half their current price within six months. In the boom years, markets and experts had come to consider hundred-dollar oil as the rule, rather than the exception. Studies in the early 2000s on projected oil prices for 2015, when a barrel was expected to cost about \$20, seemed laughable to say the least.

By Alessandro Accorsi

Why prices fell so fast

"In retrospect it seemed that prices were heading for a fall, but few thought it would occur when it did", says Peter Kiernan, Energy Analyst at The Economist Intelligence Unit. "I don't think anyone was expecting a fall this far though, to the mid \$40 per barrel range."

In past years, the energy and oil market was able to sustain high prices while new producers who did not belong to the Organisation of the Petroleum Exporting Countries (OPEC) made their breakthrough in the market. The surplus created mainly by US shale and light oil was easily absorbed by the growth in global demand. As long as oil consumption was growing, prices still averaged around \$100 a barrel, leaving both the new and the old producers satisfied.

"But continued output growth in 2014, mainly from the US, and slower consumption pushed prices over the edge, and they have since been in free fall", explains Kiernan. "When you have drillers in one country, the United States, boosting output by 4 million barrels a day in four years — at a time when demand growth is weak by historical standards— eventually something had to give", he adds.

After reaching its peak, prices began to fall as the surplus in production was not met with an equal reduction in production. The failure by OPEC to reach an agreement to slow production in late November however, was probably more shocking than the price free-fall itself.

"Faced with a modest surplus of oil in the global market, a coherent cartel would have pared back its production, propping up prices and revenue", wrote Michael Levy, a senior fellow at the Council on Foreign Relations. However, the cartel shifted away from its long-standing policy of defending prices, recognizing that a reduction in production might only result in losing market share to non-OPEC countries.

Why did OPEC not cut production?

According to Michael Levy, seeing the cartel as a well-functioning actor is a mistaken assumption. This is not the first time OPEC failed to coordinate well between its members in response to a crisis. In 2008, during the last oil crash, the group did not take action until prices fell from \$145 per barrel to \$60. Similarly, in the mid-1980s, Saudi Arabia had to flood the market in order to push its fellow OPEC partners to cooperate.

Peter Kiernan claims that "in a sense, the non-action by OPEC so far is a choice, although not one that all OPEC members are comfortable with". "There will be short-term pain for OPEC in terms of lower revenue, but as they see it, perhaps there will be longer term gain if their market share is protected by other producers cutting back output growth."

The problem, Levy claims, is that OPEC is "a collection of countries with little in common aside from oil. Qatar doesn't care about Venezuela's future. Saudi Arabia would rather see Iran fail than succeed." In such a selfish environment, "it is all too tempting for each member to encourage the others to cut production while doing nothing themselves."

Still, energy experts had assumed that Saudi Arabia - who controls a third of the cartel's production — would have weighed in to influence markets more, as it often has in the past.

Saudi Arabia gives a significant amount of cash to other countries — and to militant groups — to ensure its dominance in the region and to avoid



threats to its stability. In addition, the kingdom's response to the Arab Spring was to increase internal welfare spending to buy domestic peace. Analysts believed that Saudi Arabia was interested in keeping oil prices at an optimum level. High enough to maximize profits, but low enough to stimulate consumption.

However, even though the state is under pressure both internally and externally, the Saudis appear willing to gamble.

They know their foes - Iran and Russia in particular — are under much more pressure than them. According to analysts at Deutsche Bank, Saudi Arabia needs oil at over \$104 to break even in 2015. Still, they might have enough monetary reserves — around \$900 billion — to sustain about three years of hardship and still maintain their current level of spending.

But that might be a risk the Saudis are willing to take in order to leave its arch-nemesis, Iran, with a serious financial crisis and renewed internal pressure on the government. Iran needs oil at about \$140 to keep state coffers full and funds available for its allies and proxies. Crippled by decades of sanctions, the country does not have substantial monetary reserves. Russia has also been hard-hit by economic sanctions over its policy concerning Ukraine, underscoring the difficulties the economy has already faced over the combined fall in gas and oil prices.

Saudi Arabia may also hope that a harsh economic setback in both Russia and Iran will lead the two countries to reduce their support of Bashar Al Assad in Syria, making it easier for Saudi-supported militias to gain ground.

Saudi Arabia seems confident that low oil prices will scare away the newer entrants to the field: Shale oil producers who will not be able to keep pumping with prices at production cost or lower. Saudi crude oil costs about \$5-\$6 to produce, while oil from shale and tar sands are much more expensive, with extraction costs ranging from \$50-\$100.

Is Saudi Arabia right to gamble?

Saudi Arabia is going to war against US and non-OPEC producers. "The shale boom was not a strategic decision made by the US government, simply individual decisions of dozens and dozens of actors in a market environment. Nevertheless, Saudi Arabia prefers for the supply reduction— necessary to recover prices— should come from the newer shale producers, not themselves. By not cutting output and letting prices fall they are in effect forcing shale drillers to make those economic choices", says Peter Kiernan.

Basically the Saudi position is that those who caused prices to fall by producing extra oil very quickly should be the ones that need to cut back.

The competition OPEC faces is mainly from producers of higher cost oil — shale in the US, tar sands in Canada, pre-salt in Brazil, ultra-deep-water in the Gulf of Mexico and similar projects — "so this explains OPEC's strategy of allowing prices to fall to put those producers under pressure", explains Kiernan.

"The wild card is continued technological innovation in the tar sands and shale oil industry that reduces costs and allows extraction to remain profitable — even with falling oil prices", explains Livio Di Matteo, Professor of Economics at Lakehead University. "Saudi Arabia might be gambling, but not responding at all to the increased competition it faces is even riskier", he adds.

On the political side, the Saudis will see wins and losses. "Oil doesn't discriminate who it impacts in times like these, but the impact of course varies", says Peter Kiernan.

Among the countries which are — or soon might be — hardest hit by the fall in prices are exporters with large populations and high fiscal requirements. Beside Iran and Russia, other countries could soon face a deep financial crisis such as Iraq, Algeria, Nigeria, and Venezuela.

Iraq is a particularly tricky case for Saudi Arabia,

given the intertwined presence of the Islamic State and a Kurdish movement seeking greater autonomy from the government in Baghdad. On an economic front, if the Islamic State continues to control oil fields in Western Iraq, demand and prices for oil will increase. However, even as Saudi Arabia is financially and politically committed to fighting the radical group, they are opening up the possibility of further production by Kurdish groups, again reducing demand and prices.

Iran also presents a downside to the Saudi's gamble. A fall in oil revenues — combined with the Islamic State posing a bigger threat to Iran as well — may pave the way to a nuclear deal between Iran and the US to reduce sanctions and increase security.

One of the biggest risks is in Arabia itself, "The Gulf countries have large financial reserves to insulate them from lower prices but they will still be affected, though not as much as others", says Kiernan. Oman, for example, is already in debt and needs to issue new bonds to finance its debt. Bahrain relies on a precariously stable equilibrium.

Gulf Cooperation Council (GCC) countries might be forced to either cut spending, reduce subsidies or raise taxes, especially on foreign firms. As the contentment of their citizens — and their political quietism — relies on governmental spending and handouts, GCC countries will have to make a choice between being less appealing for business or cutting some development projects. "If low prices are sustained some states will clearly be more vulnerable than others, and cutbacks in state spending may cause domestic unrest", says Kiernan.

Just as it was hard to predict the timing of the price plunge a year ago, it is difficult now to predict how the Saudis will make their gamble work — as they seek to balance their risks with gains on both economic and political levels. Most difficult of all, it is nearly impossible to predict how all other actors will respond.



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ADVERSE ENVIRONMENT:

The Impact of Oil Prices on Egypt's E&P

By: Passante Adel



As oil prices continue their dive —with prices below \$50 dollars per barrel at the time of publishing— many of us are left wondering what's next. Will prices ever return to their previous levels? Have oil producers changed tactics? How will all this affect Egypt?

Impact on Egypt's Economy

The falling prices appear to be in favour of the government, as Egypt is a net oil-importer. Egypt's imports of crude oil were about 170,000 b/d in 2013, according to OPEC's Annual Statistics Bulletin.

"Egypt is a net energy importing country. Consequently, a drop in the oil price will provide some relief for the Egyptian economy," said Germany's RWE Dea, in an exclusive statement to Egypt Oil & Gas. Eng. Sabry El-Sharkawy, Chairman and Managing director of Pharaonic Petroleum Company (a joint venture between BP and EGPC) agreed saying, "The import prices have decreased, which will benefit the country." Eng. Mohamed Baydoon, Chairman of SUCO (a joint venture between RWE Dea and EGPC), said "On the short term, Egypt will profit [from the low oil price] since we purchase oil either through imports or through buying the foreign partner's production share."

Egypt's petroleum products subsidies bill cost the government EGP 126 Billion in the 2013/2014 fiscal year. In January, Petroleum Minister Eng. Sherif Ismail stated that the subsidies budget for fiscal year 2014/2015—which was previously reduced to EGP 100 billion due to subsidy reforms introduced in July 2014—is to see a further decrease of about 35%, amounting to a final total of EGP 65 Billion. The difference will go towards filling the gap of Egypt's budget deficit, which reached 12.4% of GDP in 2013/2014.

Impact on IOCs & Service Companies

Exploration and production (E&P) companies operating in Egypt are expected to feel the biggest blow; several international oil companies have announced pay freezes for their employees as well as a reduction in their workforces.

A source in a leading international service company, who preferred to remain anonymous, revealed that his company is downsizing 5% of its staff in Egypt. Other sources in the industry revealed that a few market-leading E&P companies are undertaking similar measures.

E&P companies are currently assessing the scale of their operations. Total E&P Egypt's Managing Director Jean-Pascal Cléménçon stated, "Total is reviewing its entire portfolio to reassess its investments across the world. Total had already launched a program to reduce spending before oil prices collapsed."

"The current drop of the oil price is not a specific RWE Dea or Egyptian issue, but a world-wide industry matter. As a commercial enterprise, we practice due diligence and observe the market closely, always taking into account changed market conditions. Therefore, we will evaluate our projects in Egypt and elsewhere under these new market conditions," said RWE Dea.

Sources have revealed that several companies have recalled between 8-15 rigs in total from different concessions across Egypt.

The future of deep/ultra deep-water exploration —where Egypt's larger gas reserves are located— has become less certain. It is expected that exploration of these concessions will see less action in the coming period due to the high cost of operating in these areas. Eng. El-Sharkawy explained, "Most companies did their profit calculations based on an oil price between \$60-\$80, no one imagined the price would go lower than that. In deep-water wells, projects can cost up to \$100 or \$200 million. Now that barrels of oil are selling for less than \$50, it's not economically viable to invest in such wells." He does not believe, however, that onshore exploration will be affected in the same way, as the costs of drilling in these concessions are significantly lower at around \$2-\$5 million.

Mr. Cléménçon had a similar opinion, "I see difficulties in attracting the interest of Total and other international oil companies (IOCs) to deep-water blocks, which require heavy investment. If oil prices stay at current levels, such spending will be pushed back many years."

Finding A Way Around The Crisis

The slow down in E&P activities is not in favour of companies operating in Egypt; but with the future unclear about when oil prices may recover; many operators find themselves scrambling for a solution to the crisis.

"The levels oil prices have reached are considered a crisis," said

Abed Ezz El-Regal, Chairman and Managing Director of GUPCO, "We [oil companies] should all stand together to face this crisis." He added, "We started contacting services companies, and the companies with which we are contracted, asking for reduced rates. This discount in the prices for their services should be relative to the Brent crude indicator."

If this were the case, service companies would offer their services for a discounted price; one linked to the current price of oil. This would allow the price for services to rise at the same time as oil, keeping all involved profitable and limiting potential losses. "This way we can continue with the E&P activities, which were planned before the prices decreased," Ezz El-Regal explained. "The alternative is that E&P efforts in Egypt will be halted; this is not in anyone's favor. It is better for service companies to operate for a lower price instead of halting all operations."

Eng. Baydoon shared Ezz El-Regal's opinion saying, "The service that these contracting companies provide has a set price; now that oil prices are low, lowering these prices makes it more economically viable for exploration efforts." He added, "Once Brent price increases, we should be able to raise those prices [for service companies] to their previous levels. This way, service companies are sharing the profits and losses with E&P companies."

He also pointed out it might be in the companies' best interest not to reduce their activities, as this might only result in less profits. "In my opinion, if I was producing 100 barrels at the old price and am now selling them for half that, I simply need to increase production and maintain E&P activities to keep profits steady."

Regardless of the unique challenges faced by firms in Egypt. This crisis in the international oil price affects companies and operations worldwide. All companies should welcome a test such as this as a way to restructure and become a more efficient organization. Reforms such as linking oil prices to service contractors is another idea to be taken into consideration in the aftermath of the current crisis. While all involved hope to see a return to stable prices, there is always something to learn from the situation.



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Total E&P Egypte: The Start Of A New Journey

Egypt Oil & Gas speaks with the company's Managing Director Jean-Pascal Cléménçon



Would you tell us a bit about yourself?

My background is in chemical and petroleum engineering. I started working twenty years ago in Gabon, supervising offshore production, and since then have been working exclusively in the exploration & production (E&P) industry. After a few different assignments I obtained my MBA and joined Total thirteen years ago, working on business related matters across the Africa and the Middle East. My assignments have taken me all over the world, including the UK, Congo, Gabon, Iran, the UAE, and Qatar. Before accepting this assignment as Managing Director of Total E&P Egypte, I served as Director of Business Development at Total E&P Congo.

Total has recently merged its North Africa and Middle East divisions. What is the strategy behind the restructuring?

The first reason for merging our North Africa and Middle East divisions is that our Africa division of Total had become too big. We have a major presence in the Gulf of Guinea, Nigeria, Angola, Congo, and Gabon. Our East African presence has also grown recently, creating a large number of affiliates to supervise. At the same time of the merger, our Middle East division had fewer affiliates with many non-operating assets. It made better management sense to rebalance the portfolio of affiliates between the two divisions.

A Middle East/North Africa (MENA) division became a natural choice; With Arabic as a common language and many inter-cultural relationships, the region is already tied together.

Egypt is the corner stone of the MENA region, both by way of geography and its population of 90 million. While Egypt faces many domestic consumption challenges, it is also a large producer of oil and natural gas. It remains a critical player in the regional energy market and this new MENA designation has enabled us to give more visibility to Egypt in the overall portfolio of Total.

What is the extent of Total's operations in Egypt?

Total and ELF were originally in Egypt during the 1980s when they discovered large quantities of natural gas. However, at the time there was little demand for gas and in the early 1990s, Total E&P Egypte halted its activities. In 2010, Total E&P won an EGAS exploration bid round and the company restarted its operations in the country. We won the East El Burullus offshore block in 2010 and set up a new E&P affiliate to supervise all associated exploration activities. We have been busy the last four years conducting a large 3D seismic survey and subsequently drilling a well late in 2013. Unfortunately this well was not successful; we did not find gas, and after a thorough review of the project's potential, it was decided to relinquish the block last August. We also participated in the EGAS bid round at the end of 2013 and got the East El Mahala onshore block, where we plan to resume exploration activities.

We also just signed the concession agreement for the onshore North El-Malala block on January 22nd, 2015. Total E&P has been working on a deep-water block for the last 4 years in Egypt that we just recently relinquished. This new concession agreement is an important step for Total E&P Egypte as it allows us to keep our activity level up.

Is Total planning to participate in the upcoming bid round(s)?

Total is keen to expand its portfolio in Egypt and we are thoroughly analyzing each new bidding round. We are currently looking at Ganope's bid round but it is too early to say if we will participate. We also believe that EGAS will launch another bid round soon, which we will definitely look into.

What is your opinion on the Egyptian petroleum authority's practice of pricing data packages for concessions?

Selling data packages is a bit unusual; and 3D packages of millions of (US) dollars are very expensive for blocks that sometimes remain highly risky. There is an option to access the seismic data for about 10% of the price and, similar to many other companies, this is what we elected to do last bidding round.

Making data available in order to attract more companies to explore and develop oil and gas is where Egypt would benefit the most. Everything should be done to make sure that data is accessible to the largest number of companies possible. This ensures more bidders and more competition.

The current price for Brent crude is just under \$50, how is that affecting Total's operations?

As far as Egypt is concerned, we have remained reasonably unaffected because we currently have limited activity. The problem is really worldwide. Total is reviewing its entire portfolio to reassess its investments across the world. Total had already launched a program to reduce spending before oil prices collapsed. Our former chairman voiced very early on that the cost environment of the E&P world, where billions of US dollars had become the norm, was no longer sustainable.

If prices continue to drop after the 2nd quarter, do you expect to see an impact?

I believe so. In Egypt, I see difficulties in attracting the interest of Total and other IOCs to deep-water blocks, which require heavy investment. If oil prices stay at current levels, such spending will be pushed back many years.

I think that there is currently no hurry to launch a new exploration bidding round. Exploration is definitely the first area where companies can slow down. If operation on a new development is already decided on, you don't have much choice but to continue. On the other hand, with exploration you can always say, "I will wait for a better environment before making the decision".

Egypt needs to attract and stimulate new investment after three years of turmoil. Obviously it wants to move faster but the current environment is not really favourable.

What are some of the obstacles Total has been facing in its operations during your time here?

I have only observed exploration activities so my feedback is limited. However, I can say our administrative supervision of cost control is less than optimal; not necessarily utilizing the best available technology. Alternatively, if you try to speed the process up and use what you believe is a better solution, then you run the risk of superiors not seeing it as a valid expense. We have extensively discussed the issue with EGAS and I believe there is a shared understanding of the improvements necessary, but implementing changes in a large organization is never easy.

Can you give us an overview of your investment and exploration plans?

We are now moving to onshore projects on the Nile Delta, where drilling is less costly and a potential discovery could be moved into production phase much quicker. Nonetheless, we are still bringing the best of our expertise to this area and are targeting deeper and more difficult prospects than what has previously been done in the region.

We believe Total's added value is in the exploration of deeper prospects. These are more difficult to drill in because of high-pressure systems, and they require advanced technology. We have been discussing it with EGAS and they are keen to see major IOCs show interest in these advanced onshore prospects during the bidding rounds.

In your opinion, how can the Egyptian petroleum authorities better facilitate the process for IOCs?

Today the key issue preventing more interest from IOCs in the Egyptian fields is the gas price. We need to see examples of higher gas prices given to at least one local operator being transparently advertised by Egyptian authorities. Such precedent would really help us show our headquarters that the (currently too low) price levels are changing. In exploration, companies are taking huge risks, some-

times spending hundreds of millions of US dollars on dry wells; they can only justify these risks if they can firmly expect profitable projects in case of discovery. Today the policy says: "Come invest, and if you find something we will discuss about what can be done." This does not encourage foreign investors at all.

This is why we also need clear and specific terms for areas requesting specific technology. The agreement for shale gas development advertised by EGPC last December was a good example of this, and we need others, to explore and develop the HP reservoir for instance.

The time of easy oil and gas in Egypt is over, what is left is going to be a lot more challenging to develop and the fiscal and contractual terms need to evolve.

Do you see Egypt increasing its oil or gas output in the coming years?

Oil and gas are very long-term projects, and there has been a lack of investment over the last three years. Even if we agree on new investments right now, it is going to take few years before we see their impact. As current gas production is already facing a significant decline, we are unlikely to see strong improvement for the next 2-3 years. By 2017 we may see more significant growth.

What is the potential of Egypt's offshore blocks (e.g. Mediterranean deep-water and ultra deep-water)?

When I look at the portfolio for the Mediterranean off Egypt, I believe there is around 13 Tcf of gas present in various reservoirs already discovered by different operators. To give perspective, that is about the same size as the biggest recent Eastern Mediterranean discovery - the Leviathan field in Israel. Obviously, it is more difficult to develop [these reserves] because they are made up of scattered reservoirs —some of which are high-pressure— but the potential remains very significant.

I do not think the most critical issue for Egypt right now is finding new discoveries; more important is the development of reserves already discovered. This is why the gas price comes back as a key issue. As I explained, it is essential to ensure the gas price is attractive enough for companies that have already made discoveries to develop them. If they are able to develop those reserves, they will keep looking for additional resources in the area.

If you look at the way the North Sea has been developed, not everything was discovered in one go. When you have development and infrastructure, companies can more easily develop faster and it becomes more profitable. They will also be attracted to carry out exploration nearby, and at some point someone will make a large, additional discovery.

Why is North Africa's contribution to Total's African production standing at nearly 4% only?

It is true that so far we have not been as successful in North Africa as places like the Gulf of Guinea for instance. Looking at our North Africa portfolio, Mauritania is still very much an exploration country. In Algeria, we have limited assets, with some still under development. Libya's production, which was quite important for us, is currently halted as a result of the war. Lastly in Egypt, in the 1980's as well as more recently, we have not made any significant discoveries.

Our new block gives us an opportunity to maintain our E&P presence in Egypt. This continuity is important because it takes a long time to really have a good understanding of the country's mining acreage, to build up knowledge of its geology and to get a real grasp of opportunities when they arise.

We have confidence that after a few turbulent years, Egypt's future will offer promising challenges for companies with the right capabilities.

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DIVERSIFYING EGYPT'S ENERGY MIX

The Road to Renewable Energy

By Lorena Rios

The Hurghada-Cairo road follows the Red Sea's tranquil sea coast; the slightest swerve could drive a bus full of Egyptians, and the occasional foreigner, straight into the crystalline water. Opposite the Red Sea, the desert opens up in all directions, making the journey a pleasant experience, albeit the long bus ride. The scenery turns extraordinary the moment the highway reaches the wind farms; their giant wind turbines rising like palm trees in the desert, a scene more suited to Germany than Egypt.

Wind farm projects in Egypt are an astonishing example of the emergence of the renewable energy (RE) field in Africa's largest urban hub. The Egyptian Ministry of Electricity and Renewable Energy kick-started 2015 with a strategy to boost the renewable energy share by 2020—12% wind, 6% hydro and 2% solar— with an upsurge of private and governmental projects that illustrate the future of Egypt's renewable sector.

Setting the field for Renewable Energy:

Last September, the Ministry of Electricity and Renewable Energy implemented the feed-in-tariffs system, which sets a competitive price for RE to further attract investment. The tariff scheme will increase RE by 33% from government projects and 67% from private sector projects, as projected by the New and Renewable Energy Agency (NREA).

"The significance of the Egyptian feed-in tar-

iff scheme has to be measured relevant to the global solar market," says Ahmed Zahran, CEO of KarmSolar, an Egyptian solar technology and solar integrator company. "There would have never been a renewable energy market for the connected grid, had there not been the feed-in tariff scheme."

To facilitate and encourage the private sector to invest in RE, the Egyptian Electricity and Consumer Protection Regulatory Agency (EgyptERA) implemented net metering system. The system allows the consumer to install photovoltaic systems on their rooftops and connect them to the national grid at an attractive price, allowing them to sell electricity to other consumers.

Finally, heavy industries are not exempt from government's efforts to steer Egypt toward a cleaner and more sustainable energy mix. As of late September, the Cabinet requires heavy industries, such as the cement industry, to designate a percentage of their electricity consumption to renewable energy resources.

Solar Energy:

Under the feed-in-tariff, the Electricity Transmission Company (EETC) and other distribution companies, will purchase electricity generated by RE power plants at a fixed price for a period of 25 years for photovoltaic projects (PV) and 20 years for wind projects.

"The tariff is not the best price or the best

scheme to have," argues Zahran. The Feed-in-tariff for PV power plant range between 84.4 P.T./kWh for less than 200 kW installed capacity, to 14.34 \$ Cent/kWh for installed capacity 20MW- 50 MW.

"The plan was 2,000 megawatts of solar over two years," continued Zahran. "We were expecting four or five rounds of applications, but they got 11,000 for solar and 3,000 for wind on the first round" he explains. "This is telling you that there is a huge market and many companies are interested, knowing that the feed in tariff is the lowest profitability that we are getting."

KarmSolar focuses on creating personalized solutions for its off-grid clients, and recently began contributing to the national grid through the feed-in-tariff. "We have been working in solar since 2011," said Zahran. The idea came to Zahran as a combination of innovation and pragmatism. The need to utilize Egypt's prime position for solar energy, with Egypt being one of the sunniest spots in the world, came as a natural measure to Zahran.

"You want to do something that is straightforward, that requires the least maintenance possible and that doesn't have turbines so that you don't have to do very sophisticated maintenance," Zahran said matter-of-factly. KarmSolar's main competitor is diesel, "so we are offering solar solutions that should be cheaper than diesel," he concluded.

The NREA plays an important role in solar energy. The Egyptian Solar plan was drafted to utilize about 3,500 MW from solar energy by 2027. The low cost of photovoltaic electricity generation will guarantee growth in solar energy. For this reason, NREA already has two projects under way— one in Hurghada and Kom Ombo (both 20 MW) expected to become operative in 2016 and 2017.

Wind energy

The government has committed to implementing 2,400MW of wind energy in the upcoming years. "The Gulf of Suez is first priority," said Eng. Ashour Abdel Salam Moussa, General Manager of Wind Energy Department at NREA. "We also have good wind speed in the East and West Nile."

The NREA has been a pioneer of wind energy in Egypt and there are currently two wind farms in operation: the Hurghada wind farm and the Zafarana wind farm.

The Hurghada wind farm, built in 1993, has wind turbines ranging between 100-300 kW in capacity. According to NREA's 2012-2013 annual report, the total production of the farm reached 5 GWh in 2013, saving close to 1,000 tons of oil equivalent and reducing emissions of 2,800 tons of CO₂.

Then there is Zafarana, NREA's large-scale project, whose turbines rise gracefully to decorate the small town of Ain Sohna. The installed capacity of Zafarana is 545 MW

and last year alone, the wind farm generated 1287 kWh.

In addition to the two operating farms, NREA is launching six projects for 11,400 MW of installed capacity, mostly in the Gulf of Suez, which has a tremendous average wind speed ranging from 7 to 10.5 meter/second.

The wind farm projects in Gabal El-Zayt, the Gulf of Suez and the West Nile will range between 120-220MW installed capacity once they are operative. They have the support from countries like Japan, United Arab Emirates and Spain.

"By 2018, 1,340MW will be implemented by NREA and 3,470MW will be by the private sector," speculates Eng. Moussa. "Itagen, an Italian company that invests in the Egyptian cement industry, will implement 120MW in Gabal El-Zayt under the Independent Power Producers Scheme," he said. Under this scheme, independent producers are responsible for selling the electricity produced to their own consumers and factories.

The wind power tariff scheme varies by Full Operating Hours (FOH) for a period of 25 years. Within the first 5 years, projects of a lesser FOH will be paid more for kilowatt/hour than higher FOH. Consequently, the price will increase for low FOH, and decreases for high FOH for the following 15 years. For example, an FOH of 2500 is paid 11.24\$.Cent/kWh the first five years and at 11.48\$.Cent/kWh the following 15 years, while a 4000 FOH is paid 9.57 \$.Cent/kWh initially and is paid at 4.40\$.Cent/kWh the last 15 years.

"This measure was taken to create equality between all sites and equality between investors," said Eng. Moussa, "and to keep the

same level of return and present value."

Biomass

"Egypt has more than 30 million tons of agricultural crop residue that is not utilized," said Tariq Oraby, CEO of the Egyptian Center for Alternative and Renewable Energy (ECARE), a company that turns solid organic residue into wood and agro pellets to generate renewable energy.

A business like ECARE is intrinsically tied to sustainability as it reduces the health problems associated with organic waste in urban hubs and methane emissions. Cairo's waste collection system is a complex network of government and "zabaleen" (garbage collectors) systems, and its convoluted, informal state presents a challenge for the future of biofuel.

Oraby's wood and agro pellets target the cement industry in Egypt and abroad. "We care about the environment" said Oraby referring to the reasons why he created ECARE, "but wind and solar energy are too expensive." As a result, Oraby is one of the first investors in biomass in Egypt and a firm believer in its potential to expand.

ECARE is not the only private company investing in biomass, there are other smaller players, but Oraby considers himself the strongest. Within the next months, he plans to export agro pellets to European markets to bring the message home that biomass is worth investing in Egypt.

"If we finish the other nine production lines, we can give Egypt 2000MW and we would be getting rid of 1.5 million tons of agricultural residue," said an optimistic Oraby

Diversifying the energy mix amid the crisis

"Egypt is going to be one of the most important countries in renewable energy" claims Zahran resolutely. "What we are trying to do is to use the energy problem to create an industry."

Egypt experienced the peak of the worst energy crisis in decades during the hot summer months of 2013, startling not only consumers, but also government officials and foreign investors in the oil and gas industry. Even though the situation continues to improve, mostly due to oil subsidy reforms and the increase of natural gas prices, Egypt is expected to become a net importer of natural gas starting 2030; thus the imperative to diversify the energy mix. "If you don't have the money to invest and you need power, you will start looking for different alternatives to try to get that power," elucidated Zahran.

China is leading the way in RE with around 67.7 GW of wind capacity, with the United States falling slightly behind producing 60 GW. Like India, which is 5th on the scale of highest wind energy producers in the world, China is acting to meet its growing domestic energy demand as it can no longer be satiated with conventional energy sources alone. Ten years ago, China was not producing wind energy at its current rate, which demonstrates that proper government policy and incentives can catapult RE in a short period of time.

"The advantage of renewable energy is that it can deliver energy quickly," argues Zahran. "At the same time, the government wants to attract different kinds of energy investors be-

cause it is energy hungry."

However, Egypt RE sources will not entirely replace their conventional counterparts in the national grid, says Eng. Moussa. "Wind energy has a limit of penetration," he explained, "it should not exceed 20% of the grid's feed in order to not disturb the grid. Yet, RE combined with natural gas is important to maintain the energy mix."

While the government's aim to increase the RE share by 20% is ambitious, taking into consideration Egypt's current RE output of 1% of its total energy supply, different key players and experts can attest that renewable energy in Egypt is inevitable.



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Pricing Data Packages for Concessions:

BENEFICIAL OR IN-AFFECTIVE?

By Emad El-Din Aysha, PhD



A complaint raised recently by energy industry insiders in Egypt concerns the way bidding rounds take place for new concessions; namely that the bidders are required to buy the preliminary data packages needed for oil and gas exploration upon bidding for a concession. According to officials in EGPC, the government allows foreign firms to review data for 10% of its value with the option to purchase the remaining 90% if they deem the quality of the data sufficient. The practice is meant to give firms the opportunity to review data before making the huge investment of buying it.

The question has been posed, and quite rightly, whether the government should 'filter' entrants in such a critical sector. Pricing data is one of several safeguards often employed by governments in developing countries in the oil sector. Can investors deliver on their promises? Do they genuinely have the money and technical skill to carry out the job? The counter argument is that access to seismic data is a fundamental right to all exploration and development companies; a service the government should provide to stimulate growth and productivity in Egypt's (admittedly) ailing energy sector. Industry experts, in the public and the private sectors, as well as academics in Egypt and abroad, have an opinion on how data pricing can affect the industry in Egypt.

According to Dr. Ahmed Abdel Fattah, Executive Vice President for Exploration at Egyptian General Petroleum Corporation (EGPC), the prices charged by the petroleum ministry were not a burden for major oil companies. Any investor, especially a large international oil company (IOC), has to prove he is serious about operating in Egypt. The first step in that process is purchasing the data package(s), as it was generated at considerable cost. Abdel Fattah did not see it possible that such a critical service be provided for free. "Our sole concern is to benefit the country, EGPC and the contractors themselves," he said. Furthermore, investors can use the data to profit, by conducting further analysis and interpretation of the data they have purchased, and re-selling those studies. Dr Abdel Fattah believes the companies that ask for data without charge are the smaller companies, which find a difficulty in meeting the data expenses.

Interestingly enough, even in the Egyptian private sector and academia, most reject the notion that data packages would

be offered for no charge and support pricing them, in principle. "Since someone originally paid for it, it's unreasonable to have someone else take the data for nothing," says Dr. Magdi Nasrallah, Professor at the American University in Cairo's Department of Petroleum and Energy Engineering.

According to a civil society advocate and energy consultant (who wished to remain unnamed), purchasing data packages is the norm in most countries.

The industry experts consulted report that seismic surveys are phenomenally expensive, ranging from \$6 to \$12 million, and take up to three years to compile and check. Government officials in the oil sector also say that prices vary depending on factors such as how many oil wells are in a block and whether the seismic survey is 3D or 2D. Mr. Samir Abdel Moaty, Chairman of the Egyptian Geophysics Society and Country Manager at Beach Energy, also voices the concern about filtering potential candidates but argues that prices are "determined by committees, a bureaucratic process trying to profit the most." This reduces competition, prevents potential opportunities, and adds to the existing costs of investors: "Evaluating the data, once you've received it, is a costly process itself. Pricing does generate money for the country, the argument of the committees, but that's not the real objective here."

Mr. Ahmed Farid Moaaz, Country Manager and Director for Sea Dragon Energy Inc., said there were firms that had to pay fees for data packages as high as \$1 million. He agreed with Mr. Abdel Moaty on that those badly hit are small and medium-sized firms, adding that such youthful, innovative firms need to be actively cultivated since they are far more adaptable, eager and able to accommodate when it comes to negotiating concession terms. "We need a more flexible approach and more understanding towards the needs of oil firms if we are to attract more foreign investors," he added, especially now that Egypt is in competition with new producers, particularly in Africa. Mr. Moaaz, who formerly worked for EGPC, said he understood the Petroleum Ministry's reluctance to cut data packages prices now, as the global price of oil continues to plummet.

The bigger problems were bureaucratic, Mr. Moaaz said, pitting oil companies against five different government agencies over registration, customs, tax disputes and negotiations; investors

in all sectors in Egypt face essentially the same obstacles. The bureaucratic apparatus needed managerial upgrading. Nonetheless, he expressed his optimism as he has been discussing such hurdles with official from the oil ministry, and sees a strong impetus for change from the higher government administrative level; he believes reform would begin with the next parliamentary elections and upcoming economic summit. "We could easily leapfrog forward like Malaysia and Brazil," he said. Mr. Moaaz noted that all countries in the Middle East and North Africa (MENA) region charge for their data, but that their fees are nominal.

As for other alternatives, Mr. Abdel Moaty suggested that companies only pay a symbolic fee, adding that afterwards the Egyptian authorities "can prevent brokers from reselling the data and decide on which companies should get the packages."

Dr. Shawky Abdeen, General Manager at PICO and former Exploration Manager with EGPC, and a longtime advocate of making information free on the US Geological Survey model, did not discount the systems employed in several other countries such as Indonesia. Indonesia has a specific pricing policy: \$50 per km for seismic data (subject to review), according to Mrs. Lauti Nia Sutedja, Head of Economic Affairs (First Secretary) at the Indonesian Embassy in Cairo.

British economist Tim Harford cautions that the auctioning of data packages in any sector can lead to a form of 'cheating' when only a "small number of companies compete time after time." Here the bidders "only pretend to compete but instead are taking turns to win or otherwise sharing the prizes." Jean-Pascal Clemencon, Managing Director of Total Egypt, stated that "making data available in order to attract more companies to explore and develop oil and gas in Egypt would be most beneficial. Everything should be done to make sure that data is accessible to the largest number of companies possible."

To cite Mr. Moaaz for a final verdict on the filtering scenario, he mentioned that the government has to be open and direct in their criteria and proceedings for picking winners. The trick is to balance the interests of businesses with those of the nation so that both can benefit.

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CHANGE; BUT FOR BETTER?

What Egypt's Shift in Energy Policy Means for the Future

By Alexander Rifaat



A famous Japanese proverb states, "The bamboo that bends is stronger than the oak that resists." If there is any entity that has taken this advice to heart, surely it is the Egyptian energy sector. Over the past few months the Egyptian government, in the face of mounting debts and crippling energy demands, has slowly started to reform its energy policy. Once hesitant to change the long-standing policy of high fuel subsidies Egypt is now showing a willingness to cut subsidies and create an environment that encourages top energy companies to extract. Fuel subsidies, which artificially keep prices low and constitute a large part of the nation's budget, have been lowered in recent months. Prime Minister Ibrahim Mahlab has stated he expects to eliminate them completely "within 3-5 years." Another positive development has been the government's recent focus on settling debts with foreign energy firms; a major obstacle to growth in the sector. New licenses for drilling and exploration have been freshly issued. While many obstacles remain, the fresh approach by the Egyptian government appears to be a step in the right direction.

It is no secret the beginning of this new era of Egyptian energy policy coincided with the inauguration of President Abdel Fattah El-Sisi. The president's new administration has sought to alleviate the country's energy problems by tackling many of the inefficiencies that have held the energy sector behind. One of Sisi's first acts as president was to reduce fuel subsidies that had been draining government coffers. While previous administrations were unable to cut subsidies for fear of a political backlash, the new presidency indicated early on its will to tackle pressing issues regardless of their political implications. The diminished subsidies are an indication of the direction of Egypt's energy policy. President Sisi himself stated in a televised address that reducing fuel subsidies were a "bitter pill" necessary for the country to swallow. The result of the reduction in subsidies has, in addition with the lowering oil prices, undoubtedly helped ease the state's energy expenditure.

As the state's financial situation improves so too does its ability to repay overdue debts to foreign energy firms. While

contract and payment disputes were common in previous governments, the current administration has strived to better relations with these firms by settling accounts. So far, the government has paid back over \$3 billion and is on track to settle all of its accounts by the end of the year. The importance of these developments not only applies to current accounts, but also to public perceptions of Egypt in the eyes of energy firms. Petroleum Minister Sherif Ismail said in a statement earlier this year that the government "is aiming to reduce the sum of money owned to foreign partners...to motivate them to pump more investments." For oil and gas companies currently operating or considering investment in Egypt, payment of outstanding debt signifies the intent to reenergize the nation's energy production and development.

Coinciding with the renewed relationship with energy firms, the Ministry of Petroleum has also started issuing new exploration and drilling licenses for natural resources. Just this past December, the ministry agreed on its first shale gas exploration licenses with Apache Corporation and Shell Egypt, a subsidiary of Royal Dutch Shell. Similar licenses have been awarded to Italian giants Eni and Edison. The Ministry of Petroleum has also encouraged bids for fields in the Nile Delta and deep-water prospects in the Mediterranean. While in the past these projects took months of negotiation and ran into numerous obstacles, the new administration appears determined to quickly come to agreements with companies and remove as much red tape as possible.

Despite the positive environment that is being created, caution should be exercised. Although the government has taken numerous steps to reform and is beginning to create an energy market more conducive to investment, the falling price of oil poses a significant challenge for energy firms. While the low price is good for consumers and net importers—such as Egypt—it can be toxic for energy companies, especially those investing in unconventional techniques such as hydraulic fracturing or deep-water drilling where just extraction costs can be anywhere from \$40-60 per barrel. To make matters worse, the international price for oil is not expected to go back

up any time soon. Ahmed Farid Moaaz, country manager for Sea Dragon Energy, believes we will not see the price go up until at least "mid-year." In addition to the price, he also warned of the other major barrier Egypt's energy industry, public sector bureaucracy. He remarked that the process of dealing with government entities can often be chaotic and "kills investment." According to Moaaz, the primary reason for bureaucracy within public sector companies comes down to a lack of skilled management. "I want this country to flourish... but what is apparent with public sector companies in Egypt is that they need proper managers, people who know how both the public and private sector works," he explained. In that regard, time is still needed for the president and cabinet ministers to have their reform-minded agenda reach the lower levels of these government-owned institutions. However, when looking at the overall picture, Moaaz is more optimistic. "You have to give credit to the administration for what they are trying to achieve. It may be a bad year for the oil sector but it will be a great year for Egypt."

What should we ultimately make of the recent developments in the government's approach towards the energy sector? There is no doubt the signs from the current administration are encouraging. A sector that has long been overshadowed by mismanagement, disputes and unfulfilled potential could very well be on its way to a more productive future. Taking the difficult, yet necessary, steps to reduce subsidies will reap benefits in the long run. Settling debts with foreign firms boosts investor confidence and could potentially open up new avenues of capital. If any significant finds are made in areas where new licenses are issued, Egypt might return to being a net-energy exporter. However, obstacles still remain. The falling oil price will continue to affect the energy industry and weak management could derail the progress that has been made. Therefore, it is reasonable to conclude that while we should rejoice at the improvements that have been made, we should remain cautious. While bamboo may bend, it can easily spring back into place.



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Fugro SAE is a member of the International Marine Contractor's Association (IMCA) and we conform to IMCA guidance documents, and have implemented a competence assurance scheme

for all our staff members that is based on the IMCA TCPC model.

In 2012, Fugro SAE has also passed an OGP-aligned HSE audit undertaken by a major international oil company and achieved a high score of 84%. The lead auditor commented, "This is the highest OGP audit score I have seen of all the geophysical companies audited worldwide".

In the same year, FSAE received the runner up prize in Fugro Group's 'Golden SAM' safety award for most improved safety performance over the last 5 years. SAM stands for Safety Always Matters.

M/V Fugro Navigator

Fugro SAE operates its own dedicated survey vessel, M/V Fugro Navigator. The multi-role survey vessel can undertake single channel and multi-channel (2D Hi Res) geophysical, geotechnical and environmental surveys, as well as ROV surveys and inspections.

Since its introduction in 2008, the vessel has been utilised for the major surveys undertaken by Fugro SAE. Her portfolio includes major block surveys as well as detailed pre-engineering route surveys utilising hydrographic, geophysical, geotechnical, environmental and ROV systems. Most of these surveys have been carried out offshore Egypt in the Mediterranean Sea, but surveys have also been undertaken in the Adriatic, the Red Sea and the Black Sea.

A dedicated survey vessel allows FSAE to offer enhanced services through permanently installed high specification equipment. The M/V Fugro Navigator is equipped with state-of-the-art systems such as integrated deep tow side scan sonar/chirp, long-range acoustic positioning system, high resolution multi-beam echo sounder systems, pinger sub bottom profiler array and 17.5T hydraulic A-frame for environmental and geotechnical operations.

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- Faster Response Time - being permanently mobilised and based in Egypt, the M/V Fugro Navigator is able to respond quickly and efficiently to client requests for survey projects.
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- Reduced Turn-around Reporting Time – the availability of a

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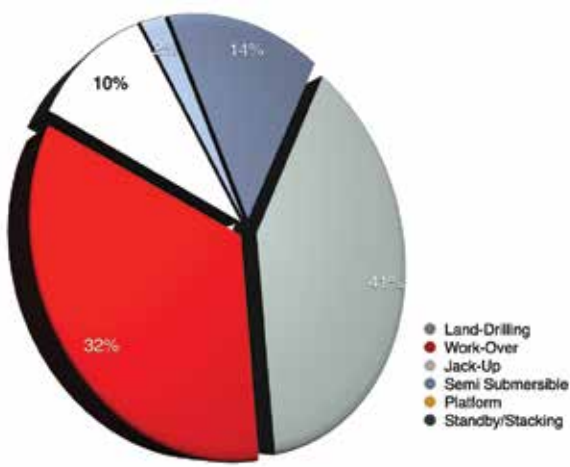
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Rigs per Specification January 2015



EGYPT STATISTICS

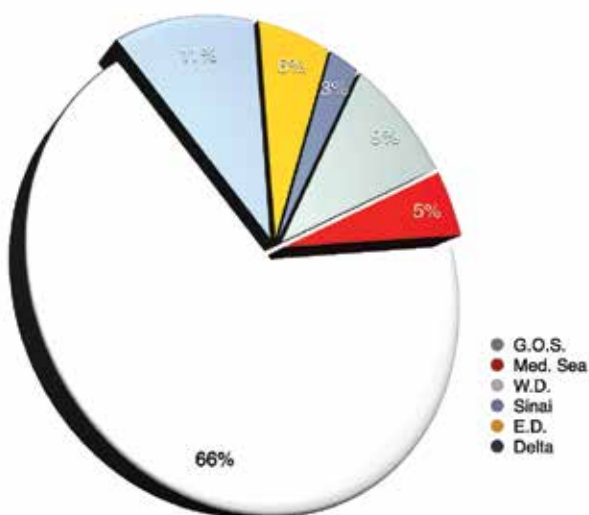
Egypt Rig Count per Area – January 2015

Area	Total	Percentage of Total Rigs
Gulf of Suez	11	9 %
Mediterranean Sea	6	5 %
Western Desert	78	66 %
Sinai	13	11 %
Eastern Desert	7	6 %
Delta	3	3 %
Ganoub El Wadi	0	0 %
Total	118	100%



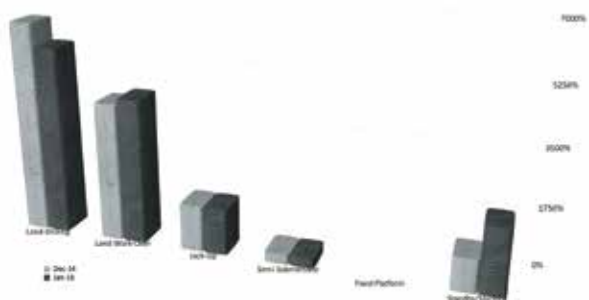
EGYPT OIL & GAS
RESEARCH & ANALYSIS

Rigs per Area January 2015 (Total of 118 Working Rigs)



	Oil			Equivalent Gas			Condensate			Liquefied Gas		
	Barrel	Barrel	Barrel	Barrel	Barrel	Barrel	Barrel	Barrel	Barrel	Barrel	Barrel	
	December-12	December-13	December-14	December-12	December-13	December-14	December-12	December-13	December-14	December-12	December-13	December-14
Med. Sea				22940179	18706071	15139286	1269135	1060922	851696	392613	372482	356011
E.D.	2344063	2392638	2221056		59464	34821		3123	2484		6442	5080
W.D.	8757285	9495606	9833128	7017679	7200893	7650000	1438379	1389919	1468448	792884	864204	529714
GOS	4468263	4034357	4645721	240714	274464	466964	67739	59415	78219	187374	199224	245738
Delta	84336	62562	47499	1644821	1871607	2228393	143639	184476	185090	96235	128572	113595
Sinai	2119665	2182979	1976207	3036	5357	17857	29945	32689	17773	56671	81052	45588
Upper Egypt	10341	11884	9427									
Total	17783953	18180026	18733038	31846429	28117856	25537321	2948837	2730544	2603710	1525777	1651976	1295726

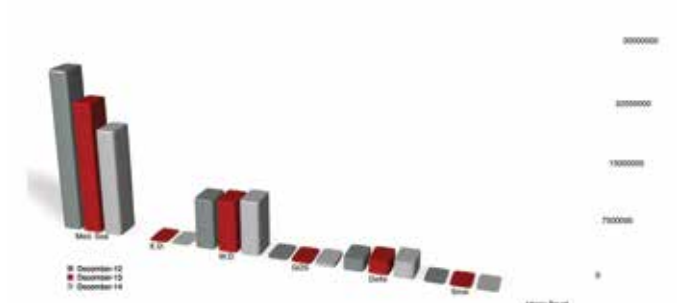
Rigs per Specification December 2014 - January 2015



Oil Production December 2012 - 2014



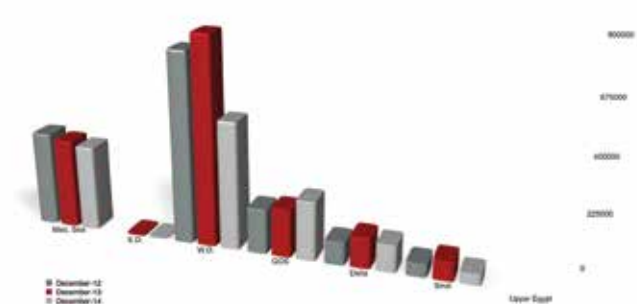
Equivalent Gas Production December 2012 - 2014



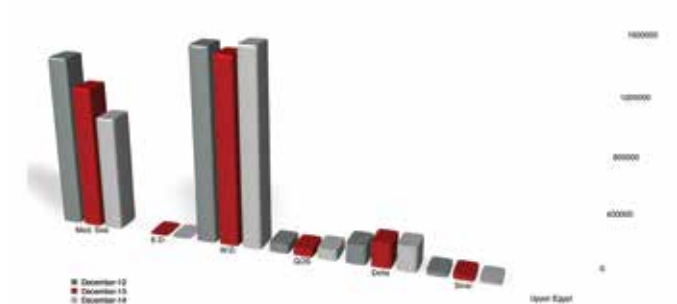
Rigs per Area December 2014 - January 2015



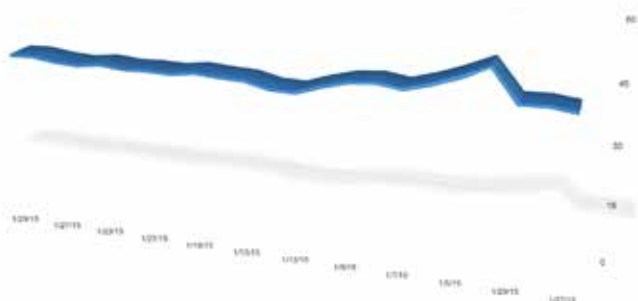
Condensates Production December 2012 - 2014



Liquefied Gas Production December 2012 - 2014



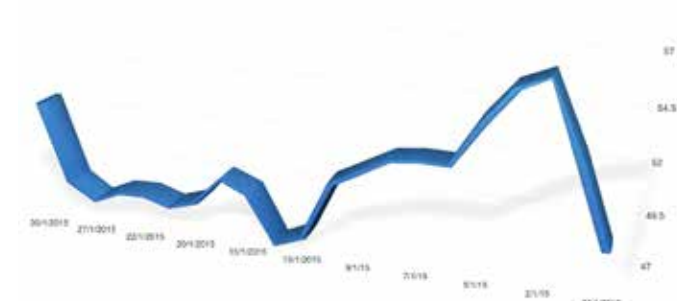
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