

# EGYPT OIL & GAS NEWSPAPER

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As the year rushes to its end, the world takes a leap forward to address a global issue. As you are reading these lines, 160 countries are pledging to reduce their carbon footprint at the UN Paris Climate Change Conference. Egypt Oil & Gas was able to explore the true value of the conference through an interview with one of the world's leading political voices the EU Commissioner for Energy and Climate Action, Miguel Arias Cañete.

The topic of natural gas in Egypt and the region is always a priority, due to its immense effect on the national economy, and this month the topic of choice is the recently approved Gas Regulatory Authority, while the law approved is still in a draft state, the role of the authority is of significant importance. Egypt Oil & Gas had the pleasure to interview the Vice Chairman for the Gas Regulatory Affairs, Amira Al Mazni, a key person in the future of Egypt's gas imports.

In this issue we chose to focus beyond the core circle of the industry purpose, shedding light on the human side of this sector. Corporate Social Responsibility (CSR) is quickly becoming a key factor in the promotional efforts of large companies, especially in the FMCG sector, but what about oil? Through this issue

we explore the level of involvement of the oil industry in CSR activities, the true effect of these efforts, and what experts think needs to be changed.

Another topic explored this month is the role of consultancy firms in the industry; addressing questions about the common perception of the need for consultancy in the industry, the perceived effectiveness of their role, and how a firm should render the decision when hiring a consultancy.

As this is my first month, and this year's final issue, on behalf of Egypt Oil & Gas's entire team we deeply thank you for your readership, and continual support. We are working tirelessly to keep this publication abreast of all issues, and to continuously develop to match the changing needs of the market; and as we prepare for the new version of Egypt Oil & Gas, which we will begin 2016 with, we urge you to share your thoughts on shaping the new publication.

Happy New Year,

Editor in Chief

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# EOR / WATER FLOODING

**TECHNICAL CONVENTION**  
Roundtable - Workshop - Training Course - Exhibition

**13-16 MARCH 2016**



## Committee Executives Include

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Former Minister of Petroleum

**Geol. Mostafa El Bahr**  
Former Chairman - Agiba Petroleum Company

**Mr. Brian Twaddle**  
Country Manager & Director TransGlobe Energy

**Eng. Abed Ezz El-Regal**  
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**Eng. Diaa Kassem**  
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Director Sales & Marketing NAF - Baker Hughes

**Mr. Walid Nossier**  
Country Manager - Weatherford

**Geol. Saber Moustafa Selim**  
Exploration Division General Manager & Board  
Member - SUCO

**Dr. Ahmed El-Banbi**  
Professor - Cairo University

The convention identifies means to access additional reserves by enhancing and increasing oil production. With EOR and water flooding techniques, 30 to 60 percent or more of the reservoir's original oil can be extracted compared to 20 to 40 percent using primary recovery.

## Speakers from previous EOG Conventions include:

*HE. Eng. Tarek El Molla, Minister of Petroleum*  
*Mr. Arshad Sufi, BG Egypt Chairman*  
*Mr. Sebastiano Burrafeto, ENI -IEOC Country Manager*  
*Dr. Mahmoud Dabbous, IPR Group Chairman*  
*Mr. Thomas Maher, Apache VP- General Manager*  
*Mr. Maurizio Cortella, Edison General Manager*  
*Eng. Hesham Ismail, Halliburton Vice President*  
*Eng. Ahmed el Nakkadi, Schlumberger Vice President*

## What Executives Say About Egypt Oil & Gas



We commend this outstanding publication and wish it continued success in its journalistic mission to inform others about Egypt's petroleum industry and to communicate positively with foreign petroleum companies operating in Egypt.

**SHERIF ISMAIL**  
Prime Minister



I consider Egypt Oil & Gas one of our critical tools enabling us reaching our success locally & globally.

**TAREK EL MOLLA**  
Minister of Petroleum and  
Mineral Resources



"Egypt Oil & Gas successfully brought together the leadership and technical experts from the government, IOC's, local companies and the service providers for three days of productive dialogue, lessons learned and technology transfer.  
Thanks for your industry support Egypt Oil & Gas Team."

**THOMAS MAHER**  
Vice-President & General Manager - Apache



# EOR / WATER FLOODING TECHNICAL CONVENTION

## CALL FOR ABSTRACTS

### ENHANCED OIL RECOVERY (EOR)

#### MODELLING EOR

- Reservoir characterization for EOR Modeling
- Reservoir uncertainty and the impact on EOR
- EOR in naturally fractured reservoirs
- EOR in non-fractured reservoirs
- EOR in heavy oil reservoirs

#### EOR CASE STUDIES

- Pilot studies
- Full field implementation
- Project execution
- HSE considerations
- EOR screening criteria

#### TECHNOLOGY FOR EOR

- Solar thermal EOR
- Low salinity EOR
- Technology options (Polymers, ASP, CO<sub>2</sub>....)
- Emerging technologies
- Smart water – economics and applications
- New era EOR – Well placement,

#### OPERATING EOR

- Surveillance and monitoring
- Optimization

### WATER FLOODING

#### MODELLING WATER FLOOD

- Water flood process and design
- Prediction of water flood performance
- Geological considerations
- Field reconnaissance to simulation output

#### CASE STUDIES

Combined aquifer and water flood drive management

#### TECHNOLOGY

- Optimisation using polymers
- Smart water

#### OPERATING WATER FLOOD

- Surveillance, optimization, monitoring and management
- Reservoir souring mechanisms, corrective actions and mitigation measures
- Performance evaluation within multi-flow unit formation
- Management of IVRRs



#### ABSTRACT CONTENT

Description of the proposed presentation summarizing the scope of business upon which the presentation will be based.

#### PRESENTATION CONDITIONS:

- Must be technically correct, related to production optimization.
- Should avoid commercialization
- Must be written in English
- Should be submitted in electronic format and be a maximum of 500 words

#### DEADLINES FOR ABSTRACTS:

**January 3, 2016** – Abstract submission

**January 17, 2016** – Notification of acceptance

**February 17, 2016** – Presentation submission

**SEND YOUR ABSTRACT TO:**

ayman@egyptoil-gas.com

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NEWSPAPER



## Egypt, Russia Finalize Nuclear Plant Deal

The Egyptian and Russian governments signed a final agreement to build a nuclear plant in Dabaa, Egypt, Reuters reports. Russian agency Rosatom will build the plant, which could take up to twelve years. The plant will utilize "four third-generation" reactors generating 1200 MW each. The Russian government will provide a loan to Egypt to cover the unreported cost of the project. The loan will be repaid over 35 years. President Sisi stated that "the country and the balance sheet will not bear the cost of building this plant. It will be paid back through the actual production of electricity that will be generated," Ahram Online reports. The agreement comes as Egypt seeks to quickly expand and diversify its energy sources – looking to ramp up production through alter-

native, nuclear and fossil fuels to meet domestic demand. It also comes as Egypt and Russia seek to rebuild their political relationship after the "terrorist incident," Sisi acknowledged in his announcement. In October, Rosatom announced that discussions were in final stages, with an agreement expected by the end of the year. Construction is expected to be completed by 2022. In an interview with Daily News Egypt during the bidding process last year, Electricity Ministry Nuclear Affairs and Energy Adviser Ibrahim Al-Osery estimated that the project will cost \$8b and require a loan from the Russian government. Al-Osery estimated the Dabaa project to be able to provide up to 50 percent of Egypt's electrical power.

## Egypt Approves Draft Law for the Egyptian Gas Regulatory Authority

The Egyptian cabinet approved several draft laws, including that of the gas regulatory, reported Egypt Oil & Gas. The new draft law targets organizing the gas market, through setting rules and procedures, regulating natural gas trade (liquefied and compressed). The draft law also includes establishing

the Egyptian Gas Regulatory Authority, as an independent body to regulate all related activities to importation of natural gas, and use of national gas grid. The authority will also track and monitor all matters relating to the gas market.

## GANOPE to Expand into Renewable Energy



Ganoub El Wadi Petroleum Holding Company (GANOPE) agreed, during an assembly meeting, that the company should expand its activities to include unconventional sources of energy during the coming period. The meeting was presided over by the Minister of Petroleum and Mineral Resources, Tarek El-Molla. This decision came in the framework of the government's drive to diversify Egypt's energy mix through new sources of energy, reported Egypt Oil & Gas. GANOPE Chairman Abu Bakr Ibrahim pointed out that this move is a step towards utilizing geothermal energy to generate electricity, in cooperation with the New and Renewable Energy Authority

(NREA). He added that technical and economic feasibility studies were in preparation of a particularly promising site in the Red Sea, of a south of the Gulf of Suez. He explained that GANOPE had already signed a memorandum of understanding with Emirat Inmaa Al Ain for Development and Investment for the establishment of slew of economic projects in the Gulf of Suez annex worth \$3.5b, funded by Al Ain, to build a solar and wind or clean coal power plant and a desalination plant. There will also be an industrial zone for specialized companies to maximize value added for the mineral ores available in the Gulf of Suez and the Red Sea.

## Egyptian Gas Production Increases to 4.3 bcm/d

The Egyptian Natural Gas Holding Company (EGAS) reports that Egyptian natural gas production has increased to 4.3 bcm/d, up 50 mscfd from the previous month. Egypt Daily News reports that the increase is the result of two new production lines from BAPETCO and Balayem Petroleum Company. The two new wells produce 83 mscfd, compensating for declining production in other fields. An official with the company noted that total production of Egyptian gas

fields is currently decreasing faster than in fiscal year 2014/2015, at a decline rate of 130 mscf per month compared to 100 mscf per month over the previous year. Domestic production has fallen due to maturing fields and unhappy partners, who have delayed production due to lapsed payments from the Egyptian Petroleum Ministry. The Egyptian government is currently negotiating further import of natural gas, which would increase Egypt's import of gas bill to EGP 1b per day.

## EGPC in Negotiations with Kuwait to Increase Imports

The Egyptian General Petroleum Corporation is in negotiations with the Kuwait Petroleum Company to increase the number of barrels supplied by the KPC from 2.2m barrels monthly to 2.7m barrels, Egypt Daily News reports. The newspaper reports the deal will be reached by the end of November and that prices for the imports will be determined by international prices, not a fixed term set in the contract. The additional 500,000 barrels will be refined in Egypt and converted to petroleum products to meet domestic needs. Any surplus over local demands will be refined and resold internationally. An official with EGPC stated that the company seeks to greater utilize its refining capacity, which at the mo-

ment requires imports. KPC is also establishing offices in Egypt for the purpose of using the country as a center for its marketing to African and Mediterranean countries. KPC hopes Egypt can be a logistical hub for its regional plans.



## Tarek El Molla Meets with King Abdullah

Shortly after the November 15th meeting between the petroleum ministers of Egypt, Jordan and Iraq, the Egyptian Minister of Petroleum, Tarek El Molla, met with King Abdullah of Jordan. The ministers' meeting made international news, as the three states signed a cooperation agreement to export Iraqi oil and gas to Jordan and Egypt.

The Jordan Times reports that King Abdullah voiced his support for the effort to build a pipeline from Basra, Iraq to Aqaba, Jordan and on to Egypt. The King noted his desire for greater cooperation in the fields of energy cooperation, and coordination due to the important role energy can play in alleviating regional problems.

## Oil Ministers of Egypt, Jordan, Iraq Sign MoU

Egyptian Minister of Petroleum and Mineral Resources, Tarek El Molla, Jordanian Minister of Petroleum and Mineral Resources, Ibrahim Saif, and the Iraqi Oil Minister, Adel Abdul Mahd, signed a memorandum of understanding (MoU) in Amman to support cooperation in the oil and natural gas fields between the three countries, reports Egypt Oil & Gas. The agreement comes in light of the excess crude and gas in Iraq, as well as shared interests for better economic utilization of these resources in the hope of achieving economic integration, and supporting the economic development plans of the three countries. El Molla

stated that agreed areas of mutual cooperation include providing Jordan and Egypt with Iraq's surplus of oil and gas, as well as the export of Iraqi gas to Jordan and Egypt through the Arab gas pipeline. The ministers also agreed to conduct a study on the appropriate mechanism for the export of Iraqi crude to Egypt and Jordan and the implementation of the Haditha-Aqaba pipeline project. The three ministers held extended talks with the Chairman of EGAS, Khalid Abdel Badie, and the Jordanian-Egyptian FAJR Company Chairman, Fouad Rashad. All areas of current and future petroleum cooperation were discussed.

## Eni Amends Concession Agreements with Egypt

Eni's Egyptian subsidiary, IEOC, has signed 3 new amendments to its agreements with the Egyptian government. In a November 12th press release, the company announced the amendments for their concessions of Sinai 12 and Abu Madi, North Port Said, and Baltim. The company also announced a new concession agreement named "Ashrafi," which will be a partnership with French electric utility company Engie. Eni states that these agreements will lead to more than \$2b in investment for projects to be implemented over the next four years. According to the press release, Eni is currently the leading producer in Egypt, which is currently producing around 180,000 barrels of oil per day. The agreements were first reached at the March Egypt Economic Development Conference in Sharm Sheikh.

## President Sisi Ratifies \$2.2b Oil, Gas Exploration Contracts

Egypt's President Abdel-Fattah El-Sisi ratified six oil and gas exploration contracts worth a combined \$2.2b, the Ministry of Petroleum said in a statement according to Ahram Online. The first four agreements are between the Egyptian General Petroleum Corporation (EGPC) and Italy's ENI, with investments for exploration and the drilling of eight wells in blocs located in North Port Said and Baltim in the Mediterranean Sea, the Gulf of Suez and the Nile Delta. These agreements were first signed in March during the economic conference hosted by Egypt's government in Sharm El-Sheikh. The fifth deal is between the EGPC and US Apache Corp. in the south of Um Barka in the Western Desert, with \$30m in investments to drill two wells. The final agreement, worth \$9m, is with Tunisia's HBS for the drilling of four wells in the Halif region in the Western Desert.





## Egypt Redefines Mediterranean Borders

Ahmed Abdel Halim, petroleum expert in maritime borders, told Egypt Oil & Gas that the ministry of defense had sent a map to the petroleum ministry illustrating all concessions owned by Egypt in the Mediterranean deep-waters, and identifying the marine borders between Egypt and Israel and Cyprus, Turkey and Greece, clearly marking each country's economic zone. The map will be sent to foreign oil companies operating in Egypt, he revealed, in preparation for the new Mediterranean concession areas that will be offered in the coming period. Abdel Halim explained that Egypt had agreed with Cyprus and Greece on the re-demarcation of the maritime bor-

ders, defining each country's economic zone; this, however, is pending on Turkey's recognition of Cyprus' right to its fair share of gas from the Mediterranean.



## BAPETCO Achieves Highest Production Record in 15 Years

Badr El-Din Petroleum Company (BAPETCO) achieved its highest rates of oil and gas production in 15 years, reported Daily News Egypt. Emad Hamdy, Chairman of BAPETCO, said that the company increased the production of natural gas to reach 514 mscfd, and 51,000 b/d of crude in current fiscal year, in comparison with that

of 43,000 barrels during fiscal year 2014/2015. Hamdy noted that investments during fiscal year 2015/2016 are about \$415m, and will be divided in three directions, \$268m for the projects of field developments, \$97m for operation and business expenses, and \$50m for wells exploration and other expenses.

## El Molla: New Discoveries to Make Egypt Regional Energy Center

The recent discoveries of the Zohr and North Alexandria fields will make Egypt a regional center for oil and gas, Egyptian Petroleum Minister, Tarek El Molla said in a report by Egypt Independent. The Minister says that Egypt hopes to achieve energy self-sufficiency between 2020 and 2022. As such, Egypt would reduce imports and develop the assets needed to become a regional energy hub between the Middle East, Africa and the Mediterranean. The minister says that the Zohr field will start production at the end of 2017 and will produce between 700 mscfd and 1,000 mscfd, which will increase to 2,700 mscfd by 2019.

Egypt has faced a deficit of gas in recent years, being forced to import. The Minister says that factories which had slowed or stopped production due to lack of energy, particularly in the fertilizer, steel and petrochemical fields, have restarted operations. The discovery of the Northern Alexandria field will further contribute to Egypt's energy supply. The field will begin production in 2017 with 450 mscfd and will reach 1.2 bcf by 2019. The minister said that foreign investments in Egyptian petroleum and mineral resources hit \$7.8b in FY 2014-2015. In 2015-2016, investments are expected to be between \$8 and \$8.5b.

## Tarek El-Molla Attends Bahrain's APICORP Energy Forum

His Excellency Tarek El-Molla, Minister of Petroleum and Mineral Resources, attended the Arab Petroleum Investments Corporation's (APICORP) Energy Forum held in the Bahraini capital, Manama Bahrain on November 19, reported Egypt Oil & Gas. El Molla gave a presentation at a ministerial panel discussing policy decision making in a volatile market. Also on the panel are Dr. Abdul Hussain bin Ali Mirza, Minister of Energy, Kingdom of Bahrain, Ali Al Omair, Minister of Oil, Kuwait, and Ali bin Ibrahim Al-Naimi, Minister of Petroleum and Mineral Resources for

the Kingdom of Saudi Arabia, who will also provide a keynote speech to delegates. The APICORP Forum discussed the policies, outlook and financing options available to the Arab region's energy markets. Some of the most respected names worldwide, including specialists from Citigroup, Standard Chartered, HSBC, Abraaj Group, Goldman Sachs and the Oxford Institute of Energy Studies, shared their insight in 11 interactive sessions. APICORP is an affiliate of the Organization of Arab Petroleum Exporting Countries (OAPEC).

## FANPETCO Produces 5.5m barrels from Gulf of Suez

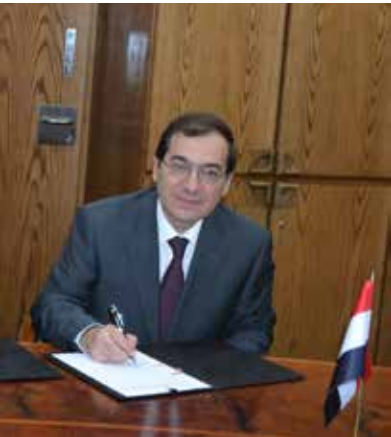
Ashraf Al-Araby, Head of Fanar Petroleum Company (FANPETCO), informed Egypt Oil & Gas that his company is currently producing 5.5m barrels of crude oil, out of an estimated total volume of 7.5m barrels of unconfirmed reserves. He added that there are more than 56m barrels of crude oil reserves in the July fields in Gulf of Suez, belonging to GUPCO, newly new exploratory that have not been placed on production, a process that demands several years. He explained that the size of the company's investments have reach \$40m for the drilling plans the company will imple-

ment during 2016 and 2017. He clarified that there were also geological fixtures containing crude oil in southwest Jabal al-Zait fields in the Gulf of Suez concession area that will be extracted over the coming years. We will not fix a price of oil per barrel because it is subject to international pricing, he added. He said that there were new drilling areas still being explored, especially in the concession areas of the Western Desert, that need to attract new petroleum companies, whether from Egypt or abroad. FANPETCO is a joint venture between EGPC and the American oil company IPR.

## Dollar Decline to Save Egypt 200m a Month in Subsidies

A source at EGPC told Egypt Oil & Gas that the mid-November decline in the value of the dollar relative to the Egyptian pound is a positive factor in ensuring that the amount allotted to energy subsidies in the state budget is not surpassed. Subsidies currently amounts to EGP 96b, with \$1.1b allocated monthly to the import of petroleum derivatives, fulfilling the petroleum products needs of the citizens in all local markets in the governorates. The source explained that the reduction of the dollar exchange rate by 20 pence will reduce the daily import bill for petroleum products, providing \$200m a month for the state from the \$ 1.1b. Egypt imports petroleum products worth \$51m a day to meet the needs of citizens in all fuel stations in the governorates, compared to \$60m last fiscal year.

## EU to Loan Egypt \$74m to Connect Households to Gas Grid



Egypt has signed a loan agreement with the EU for \$74.5m (EUR 68m) to help finance a number of projects for the delivery of natural gas in Egypt, especially to poorest areas, reports Egypt Oil & Gas. Tarek El Molla, Minister of Petroleum and Mineral Resources, and Dr. Sahar Nasr, Minister of International Cooperation, signed on behalf of Egypt. They sealed the deal with Federica Mogherini, High Representative of the European Union for Foreign Affairs and Security Policy and Vice-President of the European Commission. The funds will be managed by the French Development Agency, and the funding arrangement coincides with a \$500m World Bank loan Egypt will receive, in addition to the \$76.6m (EUR 70m) loan from the French Development Agency, contributing to the natural gas delivery project earmarked for 1.5m housing units. This will run over a four-year period and covers 11 provinces: Giza, Ismailia, Alexandria, Matrouh, Menoufia, Qaliubiya, Dakahlia, Al-Gharbiya, Qena, Sohag, and Aswan. Following the signing, the minister of petroleum said that the ministry has adopted a strategy of expanding the use of natural gas in houses in the various governorates of Egypt, especially in high-density residential areas, as a key contribution to rationalizing LPG consumption and relieving budgetary pressures for subsidies. He added that the current fiscal year plan for 2015/2016 aims to connect natural gas to 1.2m residential units, an ambitious plan targeting poorer areas, especially in Upper Egypt, part of a larger framework of improving services provided to citizens.

## Egypt Submits Proposal for UN Climate Change Conference

The Egyptian government submitted a proposal for its contribution to the UN climate pact, in preparation for the December Paris Conference. Among the most important pledges was the government's goal to eliminate fossil fuel subsidies by 2020, using four pillars: "set different prices for petroleum products based on energy generation efficiency; increase the efficiency of energy use; provide support to certain sectors to promote switching from conventional energy sources to clean energy sources; and apply the fuel subsidy smart card system to ensure that subsidies are received by target beneficiaries." The 2014-2015

fiscal year budget called for petroleum subsidy spending of EGP 100b. While energy subsidies were cut by the Egyptian government by around 30 percent in 2014, achieving the elimination of energy subsidies will be a difficult task. While the submission pledged to reduce emissions, clear proposals and targets were not offered. Lebanon, Algeria and Morocco did set targets for emission cuts. Wael Hmaidan of Climate Action Network, a coalition of NGOs, called Egypt's pledges weak, in relation to other regional and international proposals: "It is disappointing to see Egypt not taking this leadership role on the national level."

## Tarek el Molla: EGP 15b Spent on Energy Subsidies in Q1

Tarek El Molla, Minister of Petroleum and Mineral Resources said that subsidies for petroleum derivatives in the first quarter of fiscal year 2015/2016 have reached EGP 15b, reported Egypt Oil & Gas. El Molla added that Egypt, which imports around 35% to 40% of its petroleum product needs, has benefited from the decline in internation-

al oil prices, and is expecting to save around EGP 5b during the current fiscal year. Earlier this year, Egypt introduced LNG to its energy mix, aiming to deal with the nation's ongoing gas shortages. The move has contributed to a decrease in the country's consumption of crude and some of its derivatives.

## Diesel and Fuel Oil Pumped to Power Plants to Be Redirected

A source at the petroleum ministry revealed to Egypt Oil & Gas that the quantities of diesel and fuel oil pumped to power plants will be redirected to build up the strategic reserves. This move comes in light of the expected reduction in electricity demand during the winter months. Egypt mainly relies on natural gas to generate electricity, consuming around 90% of the country's production of natural gas, adding imported petroleum derivatives to the mix to generate the remainder of the country's power needs. The decreased demand in the coming months will push the power sector's consumption

of natural gas down to 60%, making power generation process no longer reliant on imported petroleum derivatives. The source clarified that a decision was taken to provide all the quantities of diesel fuel originally earmarked for power generation to the enhancement of the country's strategic reserve of petroleum derivatives to last up to 25 days during times of crisis. He added that a number of factory owners were still wary of coal as an alternative to gas, as it causes blockages in internal pipelines and increases maintenance operations.





## Siemens to Receive €4.1b Loan for Egypt Project

German credit insurance agency Euler Hermes has agreed to underwrite a €4.1b loan to Egypt from a consortium of German banks in support of Siemens electricity production efforts in the country, Egypt Independent reports. German firm Siemens is leading the €8b construction of the electricity production facilities, which will utilize gas and wind power. The deal, struck in June, was the largest ever for Siemens, according to a press release. The facilities built will provide a capacity of 16.4 GW, boosting Egyptian power generation by 50 percent. Six hundred wind turbines and a blade manufacturing facility will be built, in addition to three natural gas-fired plants. The project will provide jobs for up to 1000

people and will primarily be based in Beni Suef, Borolos and the new administrative capital. Joe Kaeser, President and CEO of Siemens, said: "With these unprecedented contracts, Siemens and its partners are supporting Egypt's economic development by using highly efficient natural gas and renewable technologies to create an affordable, reliable and sustainable energy mix for the country's future." The banks offering the loans consist of HSBC Germany, Deutsche Bank and the German Bank of Reconstruction (KfW). The loan will be repaid over the course of 12 years with a 3 year grace-period. The interest rate for the loan has not been made public.

## EGPC to Issue New Bid Round in December

Sources at the Egyptian General Petroleum Corporation (EGPC) have informed Egypt Oil & Gas that a new bid round will be announced at the end of December 2015. The bid round will offer new areas in the Western Desert for exploration. The move comes shortly after Tarek El Molla's recent statement in a press conference prom-

ising several new bid rounds by state companies EGAS, EGPC, and Ganope, to enhance investment in Egypt and boost production levels. The bid round, which is expected to be announced specifically on December 31st, is considered a good move given the poor interest in the last bid round issued by EGAS for the Mediterranean area.

## ISIS Leader Linked to Death of Apache Employee Killed

The Egyptian government announced on November 9th that Ashraf Ali Ali Hassanein al Gharabli, a leader of the Sinai branch of ISIS, was killed by police during a firefight in Cairo's El Marg district, reported Al Arabiya. Al Gharabli has been linked to a number of terrorist attacks across Egypt, including the Italian consulate bombing, the capture and beheading of Croatian topographer Tomislav Salopek,

and the killing of American oil worker William Henderson. Henderson was an employee of Apache Corporation, working as a district manager in the firm's Karama project. Al-Gharabli's death come as questions are being increasingly raised internationally about Egypt's security. The ISIS commander's group has been linked to the October 30th downing of a Russian airliner which killed 224 people.

## Noble Energy: Still Room for Gas Exports to Egypt

Texas-based Noble Energy believes the Egyptian gas market is still open to other players despite the recent discovery of the massive Zohr prospect within Egyptian waters. "We believe there is still a good market in Egypt both for internal consumption and for exports and we are working hard to make it a success in terms of coming to agreements," Gene Kornegay, company Vice President and Noble's Country Manager in Cyprus, said according to Cyprus Mail. The market in Cyprus is relatively small and not sufficient to support the development of the Aphrodite field, although gas will come to the island of Cyprus, he explained. "The markets available to us now are

in Egypt," he said, adding that the gas will be transported via pipeline. "Some of the market in Egypt would actually use it for export again, but some may be consumed within the Egyptian domestic market," he noted at the Economist's 11th Cyprus Summit, in Nicosia. He congratulated his colleagues at ENI Egypt for the Zohr field find but said that reports it has killed the market for imported gas in Egypt, "have been greatly exaggerated," Famagusta Gazette reported. "We believe there is still a good market in Egypt both for internal consumption and for exports and we are working hard to make it a success in terms of coming to agreements," he stressed.

## Egypt's Sino Tharwa Wins Algerian Bid



Ahmed Anwar, Chairman of Sino Tharwa, has informed Egypt Oil & Gas that the company has tendered for and won an international bid round in Algeria. The move is part of the company's effort to enter the international market, and has the added benefit of promoting Egypt's name abroad. The

company won the contract to lease two rigs, ST-14& ST-15, each with a capacity of 1500 HP. The project is worth investments of \$77m, over a period of three years. Currently, work is about to commence on the ST-14 rig, while ST-151 will be ready for drilling in the coming two months.

## Oil and Water Ministries to Cooperate on Minya Irrigation Project

The Ministry of Petroleum and Mineral Resources has signed a protocol with the Ministry of Water Resources and Irrigation to cooperate on drilling 500 wells in the area of West Minya, to access underground water for irrigation, Ahmed Anwar, Chairman of Sino Tharwa, told Egypt Oil and Gas. According to Anwar, based on the protocol signed, the Egyptian General Petroleum Company (EGPC) signed an agreement in August 2015 with the Ministry of Water Resources and Irrigation to carry out the project, where the EGPC later assigned Sino Tharwa all tasks related to drilling. The estimated cost of drilling the 500 wells is EGP 1.125b, Anwar explained, adding that the company issued a bid to lease 20 rigs with the ability to reach depths of 1,200 to 1,500 feet with the required rigs becoming available within the next two months. The project began on October

28th, and Sino Tharwa used currently available equipment to begin work, completing the first well by the October 30th. The first phase of the project includes supplying underground water to 1.5m acres, while other phases will see the project expanded to cover 4m acres.



## Oil spill in Al-Sinbellawin

The Egyptian Environmental Affairs Agency (EEAA) released a statement announcing the discovery of an oil spill in the Al-Bouhiya Canal near Al Sinbellawin, in the delta governorate of Dakahlia. According to the statement obtained by Daily News Egypt, the spill consisting of gas oil and gasoline, is 90 centimeters wide and extends for 6 kilometers. EEAA's regional office has

started their investigation into the matter, which may be linked to a nearby factory. Precautionary efforts are being taken, including closing water processing facilities in the canal. Last August gas oil leaked from a power plant in Assuit into the Nile. The leak was 15 meters long, 3 meters wide, and 2 to 5 cm in depth.

## Tarek El Molla Speakes at Adipecc

Tarek El Molla, Minister of Petroleum and Mineral Resources, is attending the Abu Dhabi International Petroleum Exhibition and Conference (Adipecc), according to a press release by the ministry. Billed as the premier speaking platform for the Middle East and North Africa, the Adipecc conference program invited government decision makers such as El Molla, to the stage Monday in a ministerial panel session that focused on driving innovation through investments in research and development, and stakeholder collaboration. Speakers include, besides the Egyptian minister, Suhail bin Mohammed Faraj Al Mazroui, the UAE

Minister of Energy; Dr. Mohammed bin Hamad Al Rumhy, Minister of Oil and Gas for Oman; and Etienne D. Ngoubou, Minister of Petroleum and Hydrocarbons for the Gabonese Republic. Held this year under the theme 'Innovation and Sustainability in a New Energy World', Adipecc 2015 marks its 18th edition by breaking its previous records with the largest event to date, bringing together 2,000 exhibiting companies, including the world's leading national and international firms, 600 speakers, 7,000 delegates and 85,000 attendees from more than 120 countries, Khaleej Times reported.

## \$48m Investment for the Storage and Distribution of Butane in Upper Egypt

EGPC is implementing two projects to store, transfer and trading of LPG in Upper Egypt, at a total cost exceeding \$48m, reported Al-Mal. As for the details of the ongoing projects, the first is targeted at increasing the butane storage capacities in Sohag, with an investment of about \$15.7m, scheduled to start early next year. The second project is for the establishment of LPG line connecting the provinces of Assiut and Sohag, an investment of about \$33m, with a capacity of about 1,500 tons per day. It is scheduled to start operation by June 2017. As for projects already completed, sources at EGPC revealed that the petroleum products transmission line connecting Beni Suef and Minya was carried out, with investments equivalent to \$55m. The line became operational in June, at a length of about 145 km and with 6,000 tons per day carrying capacity. The sources added that the upgrading of the petroleum infrastructure in Upper Egypt will facilitate the movement both of crude and petroleum products, meeting needs and alleviating choke-

points during peak times. The sources also said that Assiut Oil Refining co. (ASORC), which is responsible for meeting the needs of the whole of Upper Egypt, is working on the new butane production unit. ASORC's investments exceed \$20m, with a capacity of 228 tons per day, making total butane production 75,000 tons per year.



## Egypt to Import Fuel Oil from RosNeft

The Egyptian General Petroleum Corporation (EGPC) has agreed to import six shipments of fuel oil (mazot) from Russia's RosNeft, by the end of 2015, Petroleum Minister, Tarek El Molla, told Reuters. Egypt signed a deal in July with Rosneft for the supply of benzine, bitumen and 24 LNG cargoes for state gas company EGAS over two years starting from the fourth quarter of 2015. According to Zawya, Rosneft has also been an accredited supplier to Egypt's state-owned EGPC since early 2015. The company had won bids to supply EGPC with \$150m of products over April, May and June of 2015.

## Eni to Produce 70,000 Boepd from Nile Delta



Eni has announced in a press release the success of the appraisal well "Nidoco North West 3," in the Nooros exploration prospect, located in the Abu Madi West license in the Nile Delta. The field, which is estimated to contain about 15 bcm of gas, was discovered in July this year, and put into production after only two months. The field currently produces more than 15,000 boepd, and production from the new well will begin by the end of November 2015. Within 2015, Nooros field is expected to reach 30,000 boepd, reaching a plateau of 70,000 boepd in the first half of 2016. The gas and condensates are sent to Abu Madi's treatment plant, about 25 kilometers from the discovery, and then routed in the Egyptian network. Eni, through its subsidiary IEOC, holds a 75% stake in the Abu Madi West licence, while BP holds a 25% stake. The operator is Petrobel, held equally by IEOC and by the state company Egyptian General Petroleum Corporation (EGPC).

## Actis to Fund \$350m Wind-Power Plant in Gulf of Suez

Egypt has signed a Memorandum of Understanding with London-based investor Actis LLP to establish a wind-powered electricity plant in the Gulf of Suez at a cost of \$350m, The Cairo Post reported. The deal was announced by Egyptian Presidential Spokesperson Alaa Youssef. Actis is a multi-asset emerging market investor with investments across Asia, Africa and Latin America, including various renewable energy projects. Over the past seven years, the company has operated projects in Egypt worth around \$500m. Egypt has launched a plan to establish more reliable supplies of electricity for domestic use, including investments in a broader mix of energy sources, with renewables playing a key role. The signing of the new deal came as President Abdel Fatah Al-Sisi began a two-day visit to the UK aimed at enhancing bilateral relations between the two countries. Sisi met with Actis CEO Actis Torbjorn Caesar, who stated that the company will continue to make investments in Egypt's renewables sector.



# DRILLING

## KHALDA

KHALDA, a joint venture company between EGPC and Apache, has completed drilling new oil-development wells in its concession area in the Western Desert. The production rate of KHALDA was 4,839,494 barrels of oil as of October 2015.

### NRQ-255-11

The new well was drilled at a depth of 8,160ft. utilizing the EDC-61rig. Investments surrounding the project are estimated to be \$1 million.

### AG-114(ST)

The new well was drilled at a depth of

10,500ft. utilizing the ST-10 rig. Investments surrounding the project are estimated to be \$1.116 million.

### WD 33-16

The new well was drilled at a depth of 12,000ft. utilizing the EDC-50 rig. Investments surrounding the project are estimated to be \$1.065 million.

### AG-124

The new well was drilled at a depth of 10,000ft. utilizing the ST-6 rig. Investments surrounding the project are estimated to be \$2 million.

## QARUN

QARUN, a joint venture company between EGPC and Apache, has completed drilling new oil-development wells in its concession area in the Western Desert. The production rate of QARUN was 1,173,592 of oil as of October 2015.

### WON C-305

The new well was drilled at a depth of 7,300ft. utilizing the EDC-63 rig. Investments surrounding the project are

estimated to be \$900,000. It is worth noting that the well is being placed on production.

### AMANA E-3

The new well was drilled at a depth of 7,435ft. utilizing the ST-2 rig. Investments surrounding the project are estimated to be \$961,000. It is worth noting that the well is being placed on production.

## BAPETCO

BAPETCO, a joint venture company between EGPC and Shell, has completed digging new oil-development wells in its concession area in the Western Desert. The production rate of BAPETCO was 1,572,553 barrels of oil as of October 2015.

### SITRA 8-BK

The new well was drilled at a depth of 11,175ft. utilizing the EDC-52 rig. Investments surrounding the project are estimated to be \$3.373 million.

OBA D-AN(ST)

The new well was drilled at a depth of 15,939ft. utilizing the EDC-42 rig. Investments surrounding the project are estimated to be \$9.318 million.



## NORPETCO

NORPETCO, a joint venture between EGPC and Sahari oil company, has completed drilling a new oil-development well in its concession area in the Western Desert. The production rate of NORPETCO was 300,162 barrels of oil as of October 2015.

## PETROSANNAN

PETROSANNAN, a joint venture between EGPC and Ukraine's Naftogaz, has recently completed drilling a new oil-developmental well in its concession area in the Western Desert. The production rate of PETROSANNAN was 219,404 barrels of oil as of October 2015.

## SUCO

SUCO, a joint venture between EGPC and DEA, has completed digging new oil-development well in its concession areas in the Gulf of Suez. The production rate of SUCO was 374,105 barrels of gas as of October 2015.

## AGIBA

AGIBA, a joint venture company between EGPC and IEOC, has completed drilling a new oil-development well in its concession area in the Western Desert. The production rate of AGIBA was 2,177,373 barrels of oil as of October 2015.

### RAML-33

The new well was drilled at a depth of 6,300ft. utilizing the WF-161 rig. Investments surrounding the project are estimated to be \$1 million. It is worth noting that the well has already been placed on production.

### GANNA W-2

The new well was drilled at the depth of 8,000ft. utilizing the ECDC-2 rig. Investments surrounding the project are estimated at \$1.043 million. It is worth noting that the well has already been placed on production.



### HG 34/14

The new well was drilled at the depth of 11,000ft. utilizing the SHAMS-2 rig. Investments surrounding the project are estimated at \$2.700 million. It is worth noting that the well has already been placed on production.



### ZB-B10

The new well was drilled at a depth of 5,000ft. utilizing the ZOSER rig. Investments surrounding the project are estimated to be \$1.02 million. It is worth noting that the well has already been placed on production.



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## West Libya's National Oil Declares Force Majeure at Zueitina Port

Libya's Petroleum Facilities Guard halted crude shipments from Zueitina port indefinitely amid an escalating conflict between the divided country's rival governments, putting the OPEC member's oil exports at risk, Bloomberg reported. Zueitina will be closed until further notice, and tankers seeking to load crude there must register with the National Oil Corp. loyal to the internationally recognized government in eastern Libya, according to a Petroleum Guard spokesman Ali al-Hasy. Vessels registered with a rival NOC administration in Tripoli, seat of an Islamist-backed government in western Libya, are "illegitimate" and won't be permitted to load at the eastern

port, he said. The Tripoli-based NOC, which has been in charge at Zueitina, declared force majeure and said in a statement that the port was closed for all exports due to a "deteriorated security situation." Force majeure is a legal status protecting a party from liability if it can't fulfill a contract for reasons beyond its control. Zueitina resumed loadings on October 5th, boosting the country's export capacity after a five-month halt due to protests, a port-workers union said at the time. Zueitina had only recently reopened, helping the OPEC member country boost crude oil exports to around 450,000 bpd last month from closer to 350,000 bpd earlier this year.

## Israeli PM Meets Italy's Eni to Discuss Regional Cooperation

Eni issued a press release on the recent meeting held in Jerusalem between its CEO, Claudio Descalzi, and the Israeli Prime Minister, Benjamin Netanyahu, and the Infrastructure, Energy and Water Minister, Yuval Steinitz. Eni's CEO illustrated the importance of sharing future resources as well as the export and transportation infrastructures of Israel, Cyprus and Egypt, hoping to transform the area into a regional gas hub bolstering European energy security. According to the press release the meeting was a follow-up of previous meetings that Descalzi had held on this subject with the Egyptian President Abdel Fattah Al-Sisi and also the President of the Republic of Cyprus, Nicos Anastasiades. The Jerusalem Post added that Steinitz had suggested to Eni that it is considering investing in two yet to be-developed Israeli gas reservoirs, Karish and Tanin. This is in the event that the settlement between the Israeli government, Delek, and Noble Energy is finally resolved, which would prompt the two companies to sell the Karish and Tanin reservoirs to a third party. Also in attendance was the Energy Ministry, Director-General Shaul Meridor, who presented Eni's executives with estimates of the potential for discovery of large natural gas fields in Israel's economic waters, as well as the advan-

tages of regional cooperation. Steinitz told The Jerusalem Post that "It's quite clear that there might be very close cooperation between Israel, Egypt, Cyprus, Jordan, and maybe also in the future, Greece and Turkey." The Jerusalem Post also revealed that Netanyahu's met with Descalzi after the CEO's visit to the Energy Ministry, with Steinitz in attendance, along with National Security Council head Yossi Cohen and Prime Minister's Office director-general Eli Groner. "As part of the growing strategic cooperation between Israel and Italy in a variety of fields, I see great importance in cooperation with Italy also in the field of energy," the Prime Minister said.



## Iran Drills New Wells, Moves into LNG Carrier Construction

Iran's plans to drill 22 new wells in South Yaran Oilfield by March 2016, reported Trade Arabia, citing Mohammadreza Takayedi, Deputy Head of National Iranian Drilling Company (NIDC). Up to 60,000 b/d of crude oil is expected to be recovered from the field's Sarvak layer once the wells are drilled. He explained that drilling in South Azadegan and Yaran fields is 50% complete. Takayedi added that NIDC is expected to see the number of its onshore and offshore drilling rigs exceed 70 in the year to mid-March. In other news Press TV reported that Iran has signed preliminary agreements with Korean, German and Chinese shipbuilders to construct high-tech LNG tankers. "An MoU has been signed with a respectable German company which possesses the technology to build LNG tankers, with preliminary accords also reached with several South Korean and Chinese firms," said Esmail Sadeqi, the man in charge of the project. Iran has already prepared two dry docks in Bandar Abbas to design and build natural gas delivery vessels, Sadeqi added. "The

possibility of building LNG tankers and Very Large Crude Carriers (VLCCs) exists in the country. Hence, we plan to pave the way for construction of LNG ships through cooperation with a foreign company." "Through transfer of technology, we can begin constructing LNG carriers which have a complex technology," Sadeqi said.



## Libya: Fire at Two Oil Storage Tanks at Abu Tifl Field

Two oil storage tanks at the Abu Tifl field, south east of Jalu and some 300km south of Benghazi, were badly damaged in a fire. However, according to National Oil Corporation (NOC) in the East, the fire was brought under control. The field operated by Mellitah Oil and Gas, NOC's joint venture between Italy's Eni, had an average

production of 70,000 b/d before the revolution. This went to 32,000 b/d when production was restarted after it. However, it was then stopped when Ibrahim Jadhraan closed the eastern oil terminals; Abu Tifl feeds into Zuweitina terminal. It said that the blaze was the result of technical problems, Libya Herald reported.

## Emirates Launches \$250m Project Falcon Pipeline

Emirates National Oil Company (Enoc) announced the launching of a pipeline to fuel aviation growth at Dubai airports, reported Khaleej Times. The so-called Project Falcon is a 58km jet fuel pipeline that links its storage terminal in Jebel Ali with Dubai International Airport (DXB), valued at approximately \$250m. The pipeline also includes provisions for future needs of Al Maktoum International Airport. The project is under the control of Enoc's subsidiary, Horizon Terminals Ltd. The project enjoys state-of-the-art oil terminal facilities with storage capacity of 140,000 cubic meters with an 850 cubic meters per hour pumping capacity. According to Aviation Business,

the pumping capacity of the pipeline will cover 55% of the ultimate fuel demand of Dubai International Airport. The pipeline has the capabilities to pump to fuel farms at both airports and when extended to Al Maktoum it will be able to meet 60% of Dubai Airports' combined demand in 2050. Saif Al Falasi, Group CEO, Enoc said: "The new jet fuel pipeline is part of our long-term investment strategy that is aligned with the broader vision of the Dubai Government to create a sustainable city that positions Dubai as a global hub and destination for travel, tourism, commerce, aviation, transport, construction and trade."

## Oil Prices, Post-Sanction Iran Prompt GCC Maintenance Cost Cutting

Industry sources have informed Reuters that Gulf oil producers are delaying some field maintenance until next year to keep production high and reduce costs, forecasting weaker oil prices in 2016. The sources, however, were not able to learn which fields were affected, given the sensitivity of the data. They told Reuters that OPEC members Saudi Arabia, United Arab Emirates and Qatar are rescheduling non-essential maintenance work at oilfields originally planned for the last quarter of this year later into 2016, again due to low oil prices. "The non-urgent maintenance is definitely being pushed. We see huge focus on production in Qatar, Abu Dhabi and Saudi Arabia," one industry source

revealed, adding, "They are delaying to keep production high, if they shut down now they will not produce, and they also have to preserve cash." A particular concern for the producers is Iran, when sanctions are finally removed. According to Trade Arabia delaying maintenance work is also a way to rein in spending, since such operations often involve bringing in specialist foreign companies. Even the other Arab producers were reviewing oil investments plans and asking for cost cuts. Iraq has already told foreign companies that they may need to slash development spending next year. Saudi Arabia and the UAE however, seem to be holding steady and sticking to their original schedules.

## Algerian Minister Calls on Sonatrach to Speed Production

Algerian Minister of Energy Salah Khebbri urged Sonatrach Group to increase its output, claiming that the company was behind schedule and causing delays in wider operations in the country. The minister said that Sonatrach must increase its output capacities to cope with the new circumstances marked by sharp fall of oil prices, APS reported. He said, production capacities have been in decline since 2009. "The government expects much from Sonatrach. Sonatrach has to seriously handle this aspect (increasing the production)," Khebbri told the new managers of the group. The minister blamed the group's manage-

ment for delays in the implementation of the projects, which had been designed to respond to the current slowdown of the Algerian economy. He also accused company heads of failing to respond to the plunging price of oil. He said that all planned projects for Sonatrach's development are late and that foreign oil companies are complaining about the sluggish response from Sonatrach, Middle East Confidential reported. Production objectives set in the development plan are not being respected, said the minister, nor are the timelines, a situation that is unacceptable in this period of crisis.

## Morocco Reports High Success Rate in Search of Gas

Morocco's Office of Hydrocarbons and Mining (ONHYM) announced that the drilling program at the Gharb-Chrarda-Beni Hssen region has been successful, with 19 out of 22 wells drilled testing positive for natural gas, Morocco World News reported. "This campaign has been very promising, since 19 out of the 22 wells drilled were considered positive," Amina Benkhadra, the director of ONHYM told the news agency MAP. He made the comments during a visit to the site CGD-13 wells, organized by ONHYM and its partner Ireland-based Circle Oil.

"Although these gas discoveries are small, they can power the industry of the region," Benkhadra said. CEO of Circle Oil, Mitch Flegg, highlighted the encouraging results of his company's drilling campaign, touting the absence of major incidents and environmental impacts. "We will now connect the gas to our pipeline in Kenitra, and will sell it directly to the end user," said Flegg, adding that Circle Oil plans to return next year to commence the drilling of several wells, Liberation reported.

## Saudi Carbon Capture Project to Boost Recovery Rates



Saudi Arabia's first carbon capture and storage pilot project, located at its Ghawar oilfield, may boost oil recovery rates by 20% points, Oil Minister, Ali al-Naimi said, reported Reuters. "This pilot will show us whether we can take the Ghawar field from 50% (oil) recovery to 70% recovery plus or minus," Naimi told a news conference in Riyadh last week. 50% is the current recovery rate for most Saudi oilfields, with some fields reaching almost 70% through water injection, Naimi explained. "It is hoped that this pilot project can demonstrate that it is possible to increase oil recovery at commercially sustainable costs," added Sadad al-Husseini, a former top executive at Saudi Aramco. According to Trade Arabia the Ghawar field produces almost half of Saudi Arabia's oil output and has been operating since 1951. It has estimated remaining proven oil reserves of 75b barrels. The Aramco-developed carbon project began operating this year with 40 mcf/d carbon dioxide to be captured at the Hawiyah gas recovery plant and then piped 85 km (53 miles) to the Uthmaniyah area. At Uthmaniyah it will then be injected into flooded oil reservoirs under high pressure to enhance oil recovery (EOR), storing an estimated 800,000 tons of carbon dioxide every year. Carbon storage schemes are being promoted globally as a means to combat greenhouse emissions and global warming. There are currently 15 carbon capture and storage projects worldwide.

## European Company to Invest \$6b in Iranian Gas and Wind Power



The Iranian government has signed an agreement worth \$6b with an unnamed European company to invest in Iran's power sector, reported the Tehran Times. Government spokesman Mohammad Baqer Nobakht made the announcement in a press conference on Tuesday. According to Press TV the deal is to add 4,250 megawatts of power capacity in the country. The agreement between Iran's Ministry of Energy and the foreign firm envisages developing gas-powered plants for 3,250 MW and wind farms for 1,000 MW of electricity, Nobakht said. "This big investment will be made in the current year (ending on March 20, 2016) under the existing political conditions where the Joint Comprehensive Plan of Action and the lifting of sanctions has not started yet," he added. It is widely believed that the company in question is Belgian UNIT International SA, which is already involved in gas-fired power plants construction in Iran.



## **Oil Prices Spark Tensions between US and Omani Pipe Makers**

Ahmed Hassan Al Dheeb, under-secretary at the Omani Ministry of Commerce and Industry said that his country is confident of winning an anti-dumping case against a local steel pipeline manufacturer that is being heard in the United States, reported the Times of Oman. "This is due to a misunderstanding of some of the US regulations by the local companies," he explained, adding that the company in question – Al Jazeera Steel – had won similar cases before. Bull Moose Tube Company, Exltube, Wheatland Tube Company and Western Tube and Conduit were the American companies filing the suit. Referring to the recent oil price fall and the consequent plunge in government revenue, he said the authorities would not discontinue

incentives given to industries. These include subsidized natural gas, he said, downplaying fears of an energy price hike. He also said the government had conducted a study on the impact of such a hike and found that the maximum impact would be only 7-8%. According to Al-Bawaba, the Omani company has charged that oil prices are also in part responsible for this anti-dumping suit, filed by the Department of Commerce, because rig drilling and the shale industry in the US have come to a standstill. Oil prices, likewise, have impacted the ancillary supply chain, including the pipe market. Hence the lawsuit against Oman, and four other countries, for under-priced steel pipes.

## **German Aid for Renewables and Refugees in Jordan**

Germany has allocated \$138m as additional aid that targets "substantially important sectors for Jordan", Jordan's Ministry of Planning and International Cooperation said, reported Al-Bawaba. The assistance addresses the water and sewage disposal, environment, renewable energy, solid waste management, and vocational training and technical education sectors. The German ambassador, Birgitta Maria Siefker-Eberle, highlighted her country's deep relations with Jordan, stressing that Germany is ready to continue supporting the Kingdom, especially in such high priority sectors. According to the Jordan Times Saleh Kharabsheh, the ministry's secretary general, and Andreas Jess of the German ministry of development and economic cooperation signed the

minutes of meetings, along with concerned ministries and institutions. The assistance comes in the form of soft loans, grants and technical assistance, with additional funds to be channelled through UNICEF as grants to support Syrian refugees and host communities in the fields of water, sewage disposal and education. Germany has doubled, for the past few years, its annual grants to Jordan because of the regional conditions and in an attempt to bring an equilibrium between development and humanitarian assistance, the ministry said. Fakhoury underlined the importance of Jordan's strategic partnership with Germany that serves the interests of both countries, thanking Berlin for its support.

## **Iran Signs 1,250 MW with Germans for Post-Sanction Electricity Demands**

Iran's Ministry of Energy signed an agreement with a German company to build 1,250 MW worth of solar energy projects, reported Press TV, citing the head of the Tehran electricity distribution company, Ali Barband. Barband, however, did not name the foreign firm, saying instead that the Germans will build several solar farms in Tehran, Tabriz and Isfahan as Iran embraces clean energy. Tehran is to enjoy 500 megawatts of solar projects, with 150 MW going to Kahrizak, 200 MW in Varamin and 150 MW in Malard, he said, adding that 750 MW will be installed in central Isfahan and northwestern Tabriz. "It was decided that the issue of land acquisition for construction of the plants is determined soon, after which a 20-year agreement for guaranteed purchase of power will be signed with the Germans," Barband said. According to Mehr News Barband insisted that "all funding for the construction of the new solar power

plant will be carried out by the German company." He added that "construction of the first solar power plant will begin in early 2016 and the first plant will become operational in May, 2016 in accordance with the defined schedule." The official also revealed that there were negotiations with Chinese financiers to build factories for making solar panels alongside talks "with a large number of Asian and European investors to build power plants with wind and solar energies at priority in Tehran province." He explained that "the envisaged plan is to increase power generation capacity during the post-sanction era by various means including foreign direct investment, construction of new solar, wind and incinerator plants as well as building small-scale plants with distributed generation", all to meet expecting rising electricity consumption in Tehran's industrial zones and factories in the future.

## **Mining to Make Major Contribution to Saudi Diversification**

Saudi Arabia's plans to diversify its economy away from oil gained additional impetus with the announcement that the country's mining sector is set to triple by 2030. Saudi Arabia's Minister of Petroleum & Mineral Resources, Ali Al-Naimi, made this proclamation at the opening session of the Saudi Mining & Minerals Exhibition in Riyadh, reported Trade Arabia. Mining's contribution to GDP is expected to reach \$69.32b in 15 years, explained Al-Naimi, adding "the ministry is aiming to raise the GDP even higher by 2030, and create more than 100,000 jobs for citizens." The ministry is developing a long-term plan for the kingdom's mining sector. It was at the exhibition, revealed the Saudi Gazette, that the possibility of slashing energy subsidies was announced. The Saudi Geological Survey president Dr. Zohair A Nawab, also in attendance, said that the kingdom plans to complete viability studies into 50 new mineral opportunities next year as part of a development strategy for the sector. "In 2016, studies will be made for confirmed reserves of more than 50 minerals in order to know their quantities and possible uses in industry," Nawab said. These will complement studies already completed about opportunities in

phosphates, bauxite, copper, zinc, precious metals, silicon and limestone. More than 2,000 delegates and visitors were expected at the exhibition with 50 exhibitors from 10 countries.



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## Shell Gives a Tentative No to Alberta Oil Sands

Royal Dutch Shell announced that it will not continue construction of its 80,000 b/d Carmon Creek Thermal Oil Sands project in northern Alberta, due to the lack of infrastructure, reported Reuters. Shell stated the decision was also the result of "current uncertainties" thanks to today's low oil price environment. "We are making changes to Shell's portfolio mix by reviewing our longer-term upstream options world-wide, and managing affordability and exposure in the current world of lower oil prices. This is forcing tough choices at Shell," Chief Executive, Ben van Beurden said in a statement. According to Bloomberg the company had already abandoned drilling in offshore Alaska indefinitely after it failed to find enough oil or gas in the Chukchi Sea. Previously Shell withdrew an application to develop the Pierre River oil-sands mine in northern Alberta. These decisions were also in part prompted by the expense of the BG buyout,

reveals Iain Reid, an analyst at Macquarie Capital Ltd. Shell needed at least one "high-profile exit" as part of its effort to pare back on projects. "Given the focus on reduced cost, this seems incompatible with a business such as oil sands, particularly the very costly mining operations, in which Shell has invested billions of dollars in recent years and which are likely to deliver a modest return, at best," Reid explained. "With this new Shell announcement, 18 future oil-sands announcements have been delayed this year," Jackie Forrest, Vice-President of Calgary-based ARC Financial Corp., he said in a phone interview. Shell, however, will not give up on Alberta oil sands entirely as it still retains the Carmon Creek leases and intends to hold onto some equipment. The 418 mmbbl of proved bitumen reserves tied to the project will also be reclassified as contingent resources.

## China and Mozambique to Develop New Oil Projects in Africa

China Petroleum Engineering and Construction (CPECC) and ENH Logística (ENHL) of Mozambique have established a partnership to develop oil projects in Mozambique, reports MacauHub, quoting an article from Chinese state news agency Xinhua. The partnership made up of subsidiaries of the China National Petroleum Corp and Mozambique's national oil and gas company ENH is the first ever established by state enterprises from China and Mozambique. The new company will provide services in the chemical and refinery areas, as well as in research, engineering, storage and long-distance supply, in the gas and oil sectors. Forum China plc reported the newly formed firm would explore building several oil and gas projects in basins within the African nation.



## Eni Discovers Gas at Congo Offshore Zone

The Italian energy company Eni has discovered gas at an offshore zone in Congo. The company announced that the exploration prospect of Nkala Marine, located in Marine XII block, found sufficient reserves of gas and crude oil. According to the preliminary estimates, the block has potential of 250-350m barrels of oil equivalent and over 300,000 cub m of gas per day.

Together with its joint venture partners, Eni will start studies for the prospect's commercial development, which is framed in the context of optimized exploitation of the oil and

gas discoveries in the Marine XII permit. The company will be starting the evaluation of Nkala Marine through new delineation wells, with active production expected to begin in 2017. Eni, through its subsidiary Eni Congo, is the operator of Marine XII block with a 65% stake. The other partners are New Age, with a 25% stake, and the Congolese state company Société Nationale des Pétroles du Congo (SNPC), with a 10% stake. The Italian company has been present in Congo since 1968 and its current production in the country is about 110,000 barrels of oil equivalent per day.

## Italy's ENI and Angola's Sonangol to Develop Gas Fields

Italian energy company Eni and Angola's national oil company Sonangol have strengthened their working relationship with a new agreement to explore gas fields in the Angolan Basin of the Lower Congo, with a view to providing gas for the domestic market, according to a report from agi.it. The new deal was agreed at a meeting in Rome between Eni CEO Claudio Descalzi and Sonangol chairman Francisco de Lemos Maria. The arrangement is intended to boost electricity supplies in the

African nation while supporting the national economy. The project could generate up to 1.5 GW of electricity for domestic use. The two parties are aiming to complete evaluation of the fields in the coming months, but they did not give a specific dates. The Lower Congo Basin on Africa's west coast covers 115,000 square km from the Republic of Congo to Angola. Oil output represents 40% of Angola's gross domestic product and over 95% of export revenue, according to Reuters.

## Mozambique to Launch New Bid Round

Mozambique will launch a new tender in 2017 for the exploration of oil and gas. José Branquinho from the National Institute of Petroleum Resources (INP) said the institute's strategy was to launch international tenders every two years, according to MacauHub. Branquinho, who is Director of Evaluation at INP, made the comments at a conference in Cape Town, South Africa. The INP also announced the results of the fifth tender for concession areas for research and production of oil and gas in 11 offshore areas and four onshore areas, which will represent an investment of \$700m over the next four years. Eni Mozambique, in partnership with Sasol Petroleum Mozambique Exploration and Statoil Holding Netherlands BV,

received the area of Angoche (A5-A area) for a period of four years. Meanwhile, ExxonMobil E&P Mozambique Offshore Ltd, in partnership with RN-Exploration LLC (Rosneft) and Mozambican state oil company ENH, received three areas for research and exploration in Angoche district (A5-B area) and in the Zambezi Delta (Z5-C and Z5-D areas), all in Mozambique's offshore. Sasol Petroleum Mozambique Exploration Ltd, partnering ENH, received the PT5-C area in Pande/Temane, and Delonex Energy Ltd in partnership with Indian Oil Corporation Ltd, received the P5-A area in Palmeira. The concession areas on land and at sea cover an area of 74,259 square kilometers, Footprint added.

## Indonesia Announces Bids for New Shale Gas Blocks

Indonesia is forging ahead with its strategy of developing unconventional sources of oil and gas, announcing bids for three new shale gas blocks, according to information issued by the ministry of energy and mines, reports Platts. The bids, which must be submitted by December 15th, are for: Blora, onshore Central and East Java, BatuAmpar in East Kalimantan, and Central

Bangkalan, onshore Central and East Kalimantan. The Indonesian government is investing in shale exploration to increase natural gas production in order to meet its energy export obligations and earn revenue through international sales. The Indonesian government initiated four shale gas study projects in 2012, with the aim of expediting shale exploration, according to Shale

Gas International. In May this year, the government signed four contracts for unconventional oil and gas exploration, Indonesia is ranked the world's 13th largest holder of proven natural gas reserves. However, in recent years, natural gas shortages caused by production problems and rising consumption have forced the country to buy spot cargoes of LNG to meet export obligations.

## Mauritania: Kosmos Energy Discovers Gas Reservoir

Kosmos Energy announced that the Marsouin-1 exploration well, located in the northern part of Block C-8 offshore Mauritania, has made a significant, play-extending gas discovery. This is the company's second major discovery of 2015, according to a press release. The latest discovered field, described as "a large gas resource," is preliminary estimated to have 5 tcf of gross resources

with substantial upside and is expected to boost the setting up of a Liquefied Natural Gas project for there are hopes that other commercial gas discoveries will be made as the exploration continues, The North Africa Post reported. Low global prices of hydrocarbons have forced many companies to suspend exploration activities but CEO Andrew G. Inglis of Kosmos said the "well-

to-seismic calibration has significantly de-risked the discovered resource base, as well as future prospects in the basin" still underexplored.

He added that the company will continue with its "disciplined exploration and appraisal program" to effectively explore the Mauritania and Senegal basins.

## Solar Energy to Represent 15% of Total's Assets

Solar energy could account for up to 15% of French oil major Total's assets by 2030, said the company CEO Patrick Pouyanne, adding that Total had already invested \$3b in solar, accounting for 3% of the group's assets. "We believe this is a growing market and that, in about 15 years, it will no longer 3% of our portfolio, but about 10 to 15%," he was quoted by Reuters as saying. He also revealed that Total tests the profitability

of all its investment projects by integrating a CO2 cost of 25 euros per ton. Pouyanne insisted that while oil and gas still account for about 40% of the world's CO2 emissions coal was by far the bigger polluter. Gas-generated electricity emits half as much CO2 as coal-generated power, adding that Total is becoming more and more focused on gas. According to Euronews Total entered the solar business with a \$1.3b 2011

takeover of American company SunPower Corp. This was one of the biggest moves by an oil and gas major into the renewable energy industry. Total currently enjoys a market capitalization of \$120b. Pouyanne said finally that he did not believe there should be a global CO2 price but instead a carbon-pricing mechanism in as many regions of the world as possible.

## Nigeria Approves \$2.1b Payment to Oil Marketers

Nigeria's government has approved the payment of \$2.1b to oil marketers as outstanding payment for fuel subsidy claims, the state-run Nigerian National Petroleum Corporation (NNPC), Reuters reported. The government had not announced a payment to oil marketers in Africa's biggest crude producer since July. "It is our belief that with the outstanding payment due to oil

marketers now assured, the marketers and other downstream players will join hands with the NNPC to guarantee that the nation remains wet with petroleum products all year round," the Corporation said in a statement, the Daily Post reported. NNPC said that it had injected additional volumes into the market in order to ensure zero fuel queues ahead of the festive season and beyond.



## Abengoa Extends Deal for Moroccan Solar-Gas Facility

Spanish renewable energy company Abengoa has signed an extension to its operations and maintenance agreement with the Moroccan Power and Drinking Water Office for the Ain BeniMathar solar-gas power plant, CTBR reported. Commissioned in 2010 and covering an area of 160 hectares, the plant generates

10% of the electricity consumed in Morocco. Ain BeniMathar is Africa's first STE plant, generating electricity from a combination of solar power and natural gas, with an installed capacity of 472 MW. It is the first plant to use Integrated Solar Combined Cycle (ISCC) technology, which first came into commercial op-

eration in 2010. The contract is worth approximately \$68.8m. AbenerEnergia SA built the power station in 2010, while Abengoa Solar designed the integrated 20-MW solar park, which uses parabolic trough collectors. Abener is a unit of Abeinsa, part of the Abengoa group of companies, according to SeeNews.

## Nigeria's NNPC to Invest \$20b in its Operations Next Year

Nigerian National Petroleum Corporation announced planned investments of around \$20b in its operations next year, with the aim of ensuring that Nigeria's crude oil production capacity hits 3m bpd by the end of 2016, This Day Live reported. The announcement was made by Dr. Ibekachikwu, minister-designate and Group Managing Director of the Nigerian National Petroleum Corporation (NNPC). Speaking at a luncheon organized by the Petroleum Club in Lagos, Kachikwu further stated that the

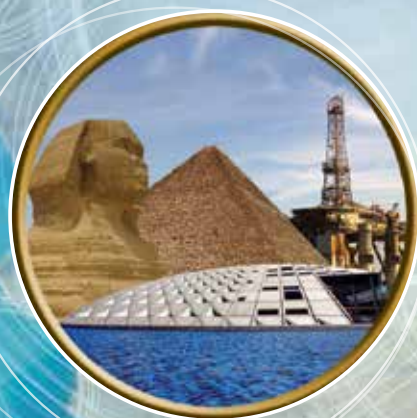
preliminary results of seismic studies conducted in the Chad Basin showed potentials for oil discovery in the area. He said he was optimistic that an announcement to that effect would be made by the year end. Kachikwu also unveiled his plan to source for \$500m to repair refineries, to be repaid over a period of eight years. He said NNPC would invest about \$20b in its operations in 2016, according to Vanguardgr. "I am looking at 2016 to raise about \$20b. Chevron is bringing in \$1.2b, though we expect more

from them. Luckily, the environment is right for investment. We are going to put the money on infrastructural development, production," he said.





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## Interview with the Vice Chairman for Gas Regulatory Affairs, **ENG. AMIRA AL MAZNI**

By Suzan Nour

To every storm there is an eye, a core to the problem. And for Egypt, the core is natural gas. The Egyptian energy mix is heavily skewed towards natural gas, which is used for electricity generation, feedstock for factories, processing petroleum products, transportation and for residential and commercial venues.

While needed for several industries, the country is experiencing a significant shortage, and imports a large portion of its needs. To help ease the burden on the state budget, the Egyptian Natural Gas Holding Company (EGAS) alongside the Egyptian General Petroleum Corporation (EGPC) announced during the month of May the decision to allow private companies to use the state-owned national gas grid to import and transfer natural gas to their facilities.

Egypt Oil & Gas sat with the Vice Chairman for Gas Regulatory Affairs, Eng. Amira Al Mazni, to get a better understanding of the new regulatory system and the potential it represents for the Egyptian economy.

Al Mazni began by explaining that the purpose of the new gas regulatory body is to provide Egypt with a new legal and regulatory framework, in order to promote competition and facilitate additional gas supplies which are needed to sustain Egypt's growing demand. "Under the new design of the gas market, conditions for a level playing field are established and eligible consumers can freely choose their own supplier," says Al Mazni.

The status of eligible consumers will be determined on the basis of criteria set and updated by the Government, she explained. Eligible consumers can spontaneously agree on prices, and quantities with licensed suppliers.

On the other hand, EGAS and EGPC will no longer be the only gas supplier operating in the country, as other players will have the possibility to sell directly to eligible consumers the gas which is produced in Egypt or imported from abroad, using the national gas grid, in exchange for tariffs.

### Structure

The main purpose of ensuring an effective gas market in Egypt is to boost the available supply of natural gas, thus enhancing the performance of different sectors. The gas regulatory authority (GRA) is a key factor to ensure the achievement of this goal.

"The GRA is vested with the mission of regulating, monitoring and ensuring the competitive and transparent functioning of the gas market," states Al Mazni. Some of its functions include setting methodologies for calculation of tariffs for different services (i.e. transmission, distribution, storage, etc), issuing of licenses, settlement of disputes, consumer protection, and establishment of restrictions on the combination of activities by gas market participants.

When asked about the model the regulatory authority was structured on, Al Mazni explained that the draft law developed is an umbrella law focused on downstream activities, and is based on international practices. "The draft law covers all aspects that are essential for providing the best chances for the development of a gas market in Egypt," Al Mazni said.

The draft law clearly defines market participants, such as the transmission system operators, distribution network operators, shipping companies, suppliers, consumers (both eligible and non-eligible). The draft law also states the rights of and duties from every participant.

### Licensing

"A licensing regime is set up for gas downstream activities, administered by the GRA with a view of separating regulated activities from market activities," explains Al Mazni.

There are four types of licenses to be issued, Transmission System Operator (TSO) license, Distribution Network Operator license, shipper (direct user of the grid) license, and supplier license. According to Al Mazni, in the future if the Egyptian gas market requires it, specific licenses for storage and LNG activities could also be developed.

"A full set of license templates, as well as a set of rules concerning requirements, compatibility and the license fees to be paid to the GRA have been prepared by a working group in charge of preparatory work for Regulator establishment," says Al Mazni.

When asked about the expected commencement of the private gas import activity, Al Mazni explained that since the announcement last May, any company or factory can officially apply for import approvals; however, only 4 private entities have shown real interest, and have filed the needed forms.

### Tariffs

One of the key functional aspects for the GRA are tariff calculations. When discussing the tariffs, Al Mazni explained that the adoption of a transparent, and cost-reflective methodology for the calculation of tariffs for usage of Egyptian gas infrastructure was required. She added that after careful analysis of the Egyptian transmission grid, the working group has developed a model for the calculation of a gas transmission tariff, based on the so-called "allowed revenue methodology," which comprises the consideration of the relevant regulatory asset base (i.e. pipelines, compression stations, and other instrumental assets), depreciation, operational expenditure, and adequate rate of return.

"A preliminary postage stamp tariff – as in equal for all territories, and not distance related – has been adopted. This model, which is the simplest solution to calculate, is easily understood by stakeholders, and is intended to be applied for the first years of market opening of the transitional period," notes Al Mazni.

### Network Codes

Network codes are sets of technical, and commercial rules that govern the relationship between operators, and users of the grids, in addition to ensuring the smooth functioning of the gas transmission systems and facilities.

"The working group, in strict coordination with the relevant operators, has prepared a full-scale draft Transmission Network Code and a Model Distribution Network Code. The former is being reviewed by the designated transmission system operator (TSO), and is expected to be approved by the Regulator, while the latter will be the reference model for all distribution network operators, who can introduce variations to the model if justified by the specific characteristics of their distribution low pressure grids," Al Mazni notes.

The codes are expected to be used in communication between parties, parties' liabilities, capacity booking and transfer, nominations, measurement, physical and commercial balancing, invoicing, and emergency procedures.

### Role of the Transmission System Operator

The TSO is the entity responsible for the transmission of gas, operation, maintenance, and development of the transmission system. The role of the TSO is to ensure that transparency and nondiscrimination exists between users of the grid.

When the regulation is fully operational, the TSO will be a separate entity from any other undertaking, and will carry out activities related to gas supply, whether the origin of the gas is local or through import.

If the TSO carries out non-regulated gas activities, such as gas processing, petrochemical processes or equipment engineering or inspection, a clear accounting separation is implemented in order to guarantee a correct calculation of the transmission tariff.

In conclusion, Al Mazni noted that the Ministry of Petroleum will continue to coordinate with the government on a number of issues, including defining and updating criteria for eligible consumers, market opening steps and timeline, setting prices for non-eligible consumers, and designating the supplier or suppliers for non-eligible consumers.





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## INVOLVING THE EXPERTS: Consultancy Firms and Egypt's Petroleum Sector

By Emad El-Din Aysha, PhD

A very distinguished petroleum expert, on condition of anonymity, revealed that he had been brought in by the petroleum ministry, in the days of Sameh Fahmi, to advise them on certain matters, he did not provide any details; however he did say that it was all very hush, hush and not a frequent practice.

When it comes to the pricing of seismic data packages for bidding rounds a petroleum ministry official did use the word *istishara* (counseling in Arabic) during a telephone interview, then explained that this just meant getting the "opinion" of leading figures from the private sector on such matters.

Consulting firms, whether managerial or engineering, are key to the smooth running of the petroleum sector in any country, so why this reluctance to bring in outside help and in a formal, professional fashion where reports are compiled, recommendations made and results of deliberations made open to public inspection? Since the January revolution auditing firms have been used by the petroleum ministry to check on the expenses of international oil company (IOCs) for cost-recovery purposes. Relying on consultancy firms is a measure of transparency and even the oil majors call on internationally accredited consultancy practices like McKenzie and Grant Thornton to help them out with their accounts and to upgrade and restructure their staffing and administrative practices.

A series of related questions, then, need to be answered: What is the current state of Egypt's consultancy sector? What are the factors holding it back? What can be done to ameliorate this situation, taking country examples as a guide? We also have to bear in mind that Egypt is on the verge of an energy transformation thanks to the Suez Canal Industrial Zone. As the Petroleum Minister, Tarek El Molla himself has outlined, the focus of government policy is now on promoting small and medium-sized enterprises (SMEs) in petrochemicals. At minimum they will supply local markets and so reduce the fuel products import bill, and absorb the unemployed.

The grander objective, of course, is to make Egypt a regional energy hub, and SMEs are the building blocks of this strategy. Consulting firms, as we shall see below, will aid this process considerably. So resolving the questions listed above has never been more pertinent in the petroleum sector.

### Engineers in the Industry

Engineering consultancy firms are the true unsung heroes in the Egyptian oil sector. They deal with such a huge range of issues – reserve estimation and structure, stratigraphy and new acreage evaluation, engineering and production facilities, pipes and storage, etc.

They also make a valuable contribution to the cost accounting of oil companies when it comes to concession evaluations and determining the cost of surface equipment and matching equipment requirements to reservoir characteristics. Moreover, bank loans for particular investments or extensions to existing projects demand "certification" from such technical studies. Local consultancy firms are hired all the time and are employed by the private sector, foreign and domestic, and by joint ventures. As for the pool of expertise they rely on, apart from their

own seasoned staff there are the "Associated Consultants," usually very experienced university professors who have worked in oil companies before, hired on a weekly basis. Many university professors themselves set up consulting offices, along with former government officials in the energy sector, on condition that they work out of hours.

So while the talent is out there, explains an engineering consultant who prefers to go unnamed, there are problems holding back the consultancy industry in Egypt. One is cultural since, as he puts it, Arabs are mistrusting of software and are only willing to spend large amounts of money on hardware. Arabs, not just Egyptians, like purchasing "tangible" items – engineering equipment, office buildings, computers, oil rigs, etc. Knowledge, however, is a no-go area. An Arabic businessman or public official simply is not willing to spend a million pounds on a study, in marked contrast to the rest of the world.

Then there is the problem of "pitching"; oil companies don't contact the consulting firms, you have to go and "convince" them, to use his own words. It is difficult to get into the petroleum market in general, he added. It certainly was hard tracking these technical firms down since only a tiny smattering of them were listed in the business and petroleum directories. Most were only willing to speak once assured that they would not be quoted by name. A great many Egyptian oil service companies also carry out some of the functions of consultancy firms, one finds, evidence that the engineers are incapable of covering the demands placed on them by the petroleum sector by themselves.

There certainly are important gaps in the functions provided by the engineering consultancy sector. According to Abd Al-Maguid Marouf of Egyptian Petroleum Consultants (EPC), there are almost no engineering consulting firms in Egypt that deal with tertiary or enhanced oil recovery (EOR), an incredibly complex, risky and costly enterprise, as he explains. The same holds true of optimization, since his firm is practically the only one in the market that deals with the nuts and bolts of optimization – sucker rod pumps, well studies, surface facilities, fluid levels, concept design, etc.

Other gaps abound, he added, since some firms deal with HR services, hiring engineers and oilfield workers, while most do not. Some actually go out in the field to help with operations, other don't. Some firms train engineers and oil workers but most do not. Very few firms deal with seismic surveys while some firms commission for startups and others don't.

### The All-Inclusive Approach

Engineering consulting in Egypt is clearly a segmented and piecemeal enterprise, with duplication of effort between oil companies and consulting firms, offices and freelancers, and little to no channels of communication between the different components of the petroleum sector. Speaking to petroleum studies professors a common complaint you hear is that there is no coordination from the petroleum ministry in this regard, with individual efforts from the private sector but no fully worked out strategy to direct these efforts.

Sources add that the pay for outside consultants from the petroleum ministry is not so good either, as it creates "sensitivities" with their counterparts in public service, and the tasks are tiresome given the red tape. Consultants are underappreciated in Egypt, they admit, adding that the bureaucracy insists on leaving this issue to resolve itself with time. As one anonymous source said, this reflects the usual approach that is taken here in almost every sector.

A very interesting example of how the state can rectify such dilemmas and direct consultancy work towards country-specific needs is Indonesia, to cite Lanti Nia Sutedja, Head of Information and Socio Cultural Affairs at the Indonesian Embassy. The government of Indonesia (GOI) openly invites prominent figures from these firms to discuss policy options and how to introduce and implement new regulations. As she explains, the GOI does not hire consultancy firms as such but "rather we ask them to be part of government related partners (established by the GOI) such as the National Energy Council, The National Exploration Committee, etc."

The exploration committee in particular is in charge of boosting exploration and finding the best way to improve the investment climate. It does this by studying the condition of oilfields and coordinating between government agencies and authorities at the national and regional level.

Egypt does not have the oil and gas reserves of a country like Indonesia but, as we have argued in these pages before, both countries are net fuel importing nations with very mature oilfields and facing the slump in oil prices. This means tertiary oil recovery and optimization (cost-cutting without sacrificing quality), priorities the consulting sector in Egypt is not currently capable of fulfilling, through no fault of their own. All the more reason to learn from the Indonesian example.

### Bringing the Managers In

This, of course, is not to downplay the role played by managerial consultancy, especially when it comes to Startups and SMEs. It's the management consultants who help such newcomers get loans, pay their taxes, deal with legal problems or problems with customs, tell them where to invest their money, who to partner with, etc., explains independent business consultant Ayman Hadhoud.

Bureaucracy is a problem holding SMEs back, he adds, but not the fundamental one. It's more to do with financial limitations, a lack of entrepreneurial motivation and capabilities, and – critically – managerial issues. Sadly, from speaking to managerial firms in Egypt, you find a similar pattern of functional gaps and implicit restrictions to those suffered by engineering firms.

Most are not involved in the petroleum sector and they by and large do not deal with Startups and SMEs. Those that want to enter the petroleum sector likewise confess that it is difficult to get in and get noticed, even for local firms with a proven track-record. We can add "foreign ownership" to the list of problems, says Riyadh Nour, a freelance managerial consultant in the manufacturing and textile sectors. With franchising the system is already set for the Egyptian managerial staff from the home

company. Some Egyptian oil companies do hire managerial consultants to help them restructure and upgrade their workforce and the pay is good, by Egyptian standards, he noted, but it isn't a frequent occurrence.

Even firms that deal with IT services and streamlining businesses do not deal with optimization. Freelancers fill this gap, says Hadhoud. This extends to supply chain management and other SAP services that large managerial firms specialize in, adds Riyadh Nour.

The Gulf Arab countries are a model worth emulating here. They are in the early stages of their own SME managerial transition to offload job creation onto the private sector and diversify the economy away from oil. Even in business savvy Emirates, SMEs rely on the professional help of firms like Deloitte Corporate Finance and PricewaterhouseCoopers (PWC). The UAE, already a regional energy hub, has been so successful promoting SMEs that even oil-rich Saudi Arabia has been trying to catch up with it.

Oman, very wisely, has also been using "local content" stipulations to create jobs and employ resources, and getting oil majors like British Petroleum (BP) to underwrite SME promotion programs and train and fund aspiring entrepreneurs. This is an example of "backwards linkages," says energy expert Dr. Magdi Nasrallah, where multinationals are prompted into helping local communities but in an economically and technologically sound way. This means feasibility studies and technical specifications – consultancies again.

This also recalls the localization and cluster-based development model advocated by Bain partner John McCreery, using the North Sea's petroleum hub, Aberdeen, as a model. This is more suitable for the Suez industrial zone than we think. The advantage of SMEs, explains Hadhoud, is that they are sustained by what is known as "external" economies of scale. Instead of doing everything in-house in a factory you outsource and build relationships with other small-scale entrepreneurs. The problem with "internal" economies of scale, such as mass production, is that you need a large and thriving consumer market – what exists in already "developed" countries.

Smaller firms, however, can specialize and focus on niche markets instead, and go global in search of sustainable opportunities during adverse economic circumstances. That is precisely what Aberdeen did, says McCreery, citing engineering services company Wood Group as a stellar example. Look at Dubai Ports World and how it almost got the contract to manage America's harbors. Where engineering and exploration firms go, consultancy firms will follow, as Aberdeen has also been exporting its HR and other manpower and training services abroad too.

There's nothing wrong with a little ambition. When queried about the new Suez Canal, managerial consultancy firms here said they were optimistic about the opportunities it will open up for them but – given the restraints on the business – were not making plans to head to the Suez Annex any time soon.



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- The role of OGS.
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- The role of academia in Egypt.

21<sup>ST</sup> JANUARY 2016





## Paris Climate Change Conference: The Urgency of a Difficult Deal

### Interview with the EU Commissioner for Energy and Climate Action, *Miguel Arias Cañete*

By Amanda Figueras

An orchestra's work is never easy, it is quite a challenge to coordinate so many instruments to create even the simplest melody. Between the 30th of November and the 11th of December, the leaders of over 200 countries will gather in Paris with a similar challenge, to coordinate their efforts in engaging the challenges of climate change, and hopefully, unifying their tune.

In a city trying to recover from several horrendous terrorists attacks, amongst high security measures, the UN Paris Climate Change Conference, referred to as Cop21, will be held. Key officials from all over the world will sit together under one roof to reach a deal, an agreement to reduce global greenhouse gas emissions (GHG), and a commitment to address the threat of climate change.

In an effort to get an insider's view of what the world can expect, Egypt Oil & Gas reached out to one of the world's most accredited voices, the European Union Commissioner for Energy and Climate Action, Miguel Arias Cañete, to discuss the possible outcome of the conference.

He began by explaining that climate change represents one of the biggest challenges to our planet and its inhabitants. Raising sea levels, droughts, floods, and extreme weather conditions that are already affecting many communities around the world, threatening the livelihood of millions of people. "Science is very clear on the threat that climate change poses. If we want to palliate the most extreme consequences of global warming, we need to act urgently and decisively now," says Cañete.

According to the widely accepted theory, if the emissions continue in the current progression – heading to a rise of about 5 degrees Celsius (5C) – there will not be a way back from global warming. That threshold is estimated as a temperature rise of 2C above pre-industrial levels. It does not sound like much, but as The Guardian published, the temperature difference between today's world and the last ice age was about 5C. Small changes can mean big differences for Earth.

"Two degrees Celsius warming will pose a long-term, existential danger to many great coastal cities and regions," Ben Strauss, Vice President for Sea Level and Climate Impacts at Climate Central, a US-based research group, told The Telegraph.

Even though, sadly, according to Gallup data, about 40% of adults worldwide have never heard of climate change. This rises to more than 65% in some developing countries, like Egypt, Bangladesh and India.

For the Commissioner, "the urgency of the situation requires world leaders to be ambitious and courageous. We need to capitalize on the momentum reached in the climate negotiations to adopt a comprehensive, robust and ambitious agreement for the future."

When asked if he believed that COP21 is the last hope to save the world from catastrophic climate change? Cañete replied "I am confident that together at Paris, we can transform the challenge of climate change into a unique opportunity to address global warming effectively. For the first time in two decades, we are witnessing a shift from a process where only a few participate to one where everyone commits to address climate change."

To illustrate this point, whilst under the Second Period of the Kyoto Protocol, 35 countries representing about 14% of global greenhouse gas emissions, adopted emissions reduction targets, today over 160 countries, representing around 93.5% of global GHG emissions, have submitted their Intended National Determined Capabilities (INDC) to cut emissions. The INDC process is a remarkable success story in itself that signals the seriousness that national governments attach to the fight against global warming.

In fact, according to an expert consulted by Egypt Oil & Gas, real progress has been made regarding the intended nationally determined contributions (INDCs). Almost 80% of the world have come forward with their intended commitments in the context of the Paris Agreement. This is a clear commitment by many to a multilateral climate regime that includes action by all states.

On the same line, according to what UN Climate Chief, Christiana Figueres, said in an interview with Deutsche Welle, "it is the last opportunity to do so in a cost effective manner. Global greenhouse gas emissions in theory could continue to increase over the next few decades; but then, we will have no other option but to reduce global greenhouse emissions at a much higher cost."

When asked about the obstacles that could impede reaching an agreement, Cañete admitted that although huge progress has been made since the COP15 negotiations in Copenhagen in 2009, a gap remains between the political and the technical process that needs to be bridged. "Over the last weeks we have worked to overcome part of this gap during meetings held in Bonn and Paris, where we have advanced on the draft agreement. The package that we will work on during the COP21 negotiations in Paris is now starting to take shape, but there are too many

options on the table and many key issues remain unresolved," he said.

Cañete believes that a good agreement should include a long-term goal, a common vision of the place where we want to go. It should also include clear transparency, and accountability rules that provide credibility to the agreement. "We are in favour of including a mechanism that helps us increase ambition over time. This mechanism should allow countries to come together every five years to take stock of the progress made, see whether we are still on track of meeting our targets, put us back on track if we have deviated from our path, and identify areas where we can increase our levels of ambition over time," explained Cañete.

More specifically, talking about money, the International Energy Agency (IEA) concluded in its annual assessment of markets that the plunge in oil prices risks undermining efforts, and if crude remains around \$50 a barrel until the end of the decade, conventional fuels would hold back the development of electric cars, and biofuels that are helping curb carbon emissions, Bloomberg reported.

The IEA report states "lower oil prices alone do not have a large impact on the deployment of renewable energy technologies in the power sector, but only if policy makers remain steadfast in providing the necessary market rules, policies, and subsidies."

Determination is for sure a must. Questioned about the importance of climate change in EU's agenda, the Commissioner was clear "Addressing climate change has been and remains a key priority. We remain committed to provide our share of climate finance – the largest amongst developed countries – to assist developing countries in their efforts to curb global GHG emissions."

In fact, the EU's contribution has experienced a substantive increase in 2014, where authorities provided €14.5b (\$15.4b) in climate related financing. According to Cañete EU's budget will more than double grants for climate action in developing countries by 2020, increasing to €2b (\$2.12b) per year, in addition the European Investment Bank will provide a further €2b (\$2.12b) per year. Member States have also made pledges to increase climate finance. The UK will deliver £5.8b (\$8.8b) between 2016 and 2022; France will increase its annual climate financing to €5b (\$5.3b) by 2020; and Germany will double its climate finance from 2014 levels to reach €4b (\$4.25b) through grants and €3b (\$3.19b) through loans a year by 2020.

Egypt Oil & Gas asked about when the movement towards low carbon economies started to become a priority for the European Union. Cañete replied "since 1990, the European economy has grown by 46% and at the same time, the EU has reduced our GHG by 23%." In his opinion this shows that climate action and economic development can go hand in hand. He added "we are also well on track to meet our 2020 targets, through which we seek to reduce our GHG emissions by 20% (with regard to 1990 levels), to increase 20% in the share of renewable energies in our energy mix, and to improve by 20% our energy efficiency. We have also approved our 2030 energy and climate strategy, committing ourselves to reduce our GHG emissions by at least 40% (compared to 1990 levels), to increase the share of renewables in our energy mix to at least 27%, and to increase our energy efficiency by at least 27%."

And what about Egypt? How is the country facing the challenge? At this point, the Commissioner welcomed the submission of Egypt's national plan, its INDC, setting GHG emission reduction targets; pointing out that the EU and Egypt have worked closely together with other Mediterranean partners to foster renewable energies (RES) and energy efficiency (EE) in the Mediterranean region.

Egypt's share in the total world GHG emissions was 0.4% in 1990, about 0.58% in 2000, and at 0.67% in 2012. The energy sector is the primary contributor to emissions of GHGs in Egypt (60.13% in 2000), followed by agriculture (16.46% in 2000), industrial processes (14.37% in 2000), and then the waste sector (9.04% in 2000).

Egypt has set itself an ambitious strategic target to increase the use of renewable energy and the country's energy efficiency. Egypt's potential is renewable energies is huge, in particular in solar energy, wind energy, and biomass generated energy.

Cañete concluded with his plan to visit Cairo next year to launch a Mediterranean Platform on Renewable energy and Energy Efficiency, together with the Egyptian authorities. "This platform will help to promote the development of renewable energies and energy efficiency in the Southern Mediterranean countries, which have a huge but unexploited potential for generation of renewable energy resources and for energy efficiency improvements," he affirmed.



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## PROFITS & GOOD WILL: CORPORATE SOCIAL RESPONSIBILITY

By Amanda Figueras

Business is full of acronyms, but there is one in particular that is shaping the oil industry. CSR, stands for Corporate Social Responsibility, and its importance lies in its ability to respond to the world's constantly growing demand for accountability.

Despite not being a new concept, more effort has been invested in CSR in recent years, and the petroleum sector is by no means an exception. According to experts, the trend's importance is easy to explain: it has an impact on the bottom line.

As Professors Michael E. Porter and Mark R. Kramer, Harvard University, explained in an article recently published by the Harvard Business Review, "myriad organizations rank companies on the performance of their CSR, and despite sometimes questionable methodologies, these rankings attract considerable publicity."

Companies were not always eager to embrace CSR; many were obliged to rush to do so to respond to crisis on public image after being surprised by public outcry related to issues not previously recognized as part of their business responsibilities.

Nike, for example, faced an extensive consumer boycott after the New York Times and other media outlets reported abusive labor practices at some of its Indonesian suppliers in the early 1990s. Eventually, to counter this Nike poured its marketing expertise into its own corporate reputation, and sought to portray a caring company that was concerned about working conditions in its contractors' factories. It hired a former Microsoft executive to be vice president for corporate and social responsibility, and expanded its CSR division to 70 people, according to Sharon Beder, "Putting the Boot In," The Ecologist.

Other example of sudden awakening to CSR's important came after Shell Oil's decided to sink the Brent Spar, an obsolete oil rig, in the North Sea leading to Greenpeace protests in 1995, and subsequent international headlines.

Similarly, pharmaceutical companies discovered that they were expected to respond to the AIDS pandemic in Africa even though it was far removed from their primary product lines and markets; and the academics also point out that fast-food and packaged food companies are now being held responsible for widespread obesity and poor nutrition.

"CSR is valuable because it results in the construction of a strong corporate reputation, in attracting and retaining motivated people, in the reduction of risk, the reduction of operating costs, the reduction of regulatory oversight by working closely with regulatory agencies to meet or exceed guidelines, an increased appeal to investors, and the strengthening of strong

community relationships," explained Dr.Hamed M. Shamma, BP's Endowed Chair and Associate Professor of Marketing at The America University's Cairo School of Business.

A report carried out by Spain's ESADE Business School noted that "today, the competitive scenario where companies operate is defined by two driving forces, economic continuity in a highly competitive context, and the greater social pressure that requires the private sector play a more active role in its contribution towards sustainable development."

Internationally, a lot of companies have strengthened their commitment with regards to the environment and the communities affected by their activities. Energia16, a Spanish publication, recently reported that those who were quickest to take the initiative on social and sustainability policies were generally European companies such as Norway's Statoil. In the Latin American energy scene, such was also the case with companies like Repsol, and Iberdrola.

Egypt is not too far behind, in fact "over the past five years, more and more companies have been executing CSR policies in response to society's growing expectations from companies", affirmed Shamma.

Philanthropic activities, sports clubs, fellowships for brilliant students, charity donations, infrastructures and increasing the green footprint are some of the examples of what is being doing by Egyptian companies.

Despite that, the work isn't easy. "Companies have to be genuine in what they do. Doing something to cover up for something else will be easily understood by people," Shamma cautions.

The expert explained that previously in Egypt most CSR practices started as a result of a reaction to public pressure. These activities were effective on the short term, but once they ended, the pressure began building up again, proving this approach unsustainable. Nowadays, CSR is becoming part of the business strategy and is reflected in the values of said organization. It should not be thought of as a reactive approach to what companies do, but rather considered as a strategic priority that is embedded within the company values. This has a more long term effect and is thought to bring long term trust and reputation in the minds of stakeholders.

CSR gives a controversial sector the opportunity to put its best foot forward, and to boost its reputation. No one would like to miss the boat on this, especially given that these initiatives are generally not very costly.

Companies need to explain themselves. "Success is about more than finding and producing oil and gas. We need to understand how our operations

affect the environment and do all we can to minimize the impact," according to Dana Petroleum's website. "The Group's environmental strategy focuses on the prevention and minimization of impacts on the environment through the implementation of adequate measures, practices and technologies throughout the product cycle," states Hellenic Petroleum.

There is an international clear framework for CSR which was established only in 2010. Since then ISO 26000, following five years of negotiations between many different stakeholders across the world, began providing guidance on how businesses, and organizations can operate in a socially responsible way. This means acting in an ethical and transparent way that contributes to the health and welfare of society.

Nevertheless, ISO 26000:2010 provides guidance rather than requirements, so it cannot be certified to unlike some other well-known ISO standards. Instead, it helps clarify what social responsibility is, helps businesses and organizations translate principles into effective actions and shares best practices relating to social responsibility, globally. It is aimed at all types of organizations regardless of their activity, size or location.

According to Shamma, "Awareness about CSR in Egypt remains focused on the philanthropic dimension. What needs to be developed is a comprehensive understanding of CSR. Being responsible to people, shareholders, customers, government, environment as well as the community. This requires a different approach to doing business. It requires integrating CSR as your core strategy, linking to all dimensions of business and including it in evaluating performance. This mindset should not only apply to corporations, but should apply to other institutions including the government and society."

Strategic CSR moves beyond good corporate citizenship and mitigating harmful value chain impacts to mount a small number of initiatives whose social and business benefits are large and distinctive. Thus strategic CSR involves both inside-out and outside-in dimensions working in tandem. It is here that the opportunities for shared value truly lie.

Many opportunities to pioneer innovations to benefit both society and a company's own competitiveness can arise in the product offering and the value chain. Toyota's response to concerns over automobile emissions is an example. Toyota's Prius, the hybrid electric/gasoline vehicle, was the first in a series of innovative car models that have produced competitive advantage and environmental benefits. Hybrid engines emit as little as 10% of the harmful pollutants conventional vehicles produce while consuming only half as much gas. Toyota has created a unique

position with customers and is well on its way to establishing its technology as the world standard, as explained in the Harvard Business Review.

On the other hand, one of the most asked questions regarding CSR is how to measure the impact of its execution. Repsol, which recently won the Petroleum Economist's CSR Program of the Year award, was clear in its response to Egypt Oil & Gas "As we see every day in the news, it is the absence of CSR that can truly harm an income statement."

This winner explained that they have publicly adopted "commitments in the form of corporate policies on health, safety and environment, human rights, people management, corruption, indigenous communities and other matters. And these policies are developed in rules and procedures that have introduced real changes in our management systems, besides to set targets for improvement aligned with variable remuneration systems for employees to get them."

According to Shamma, the best way to measure CSR's impact is by taking into consideration three aspects. First, CSR helps build profits. It does this by reducing costs, and risks, reducing waste and increasing efficiency, attracting and retaining investors, potentially higher growth and creating new business opportunities. Second, CSR also helps build people. It helps to attract staff, easier to retain and motivate staff, and helps build creativity and innovativeness in the way people think. Third, CSR helps in building a company's reputation. It builds customers' loyalty, enables easier access to markets, building political capital and government support, and results in cooperation with local communities.

Last but not least, the decision to market a company's CSR activities. The issue of publicizing CSR efforts is an important one. Most companies prefer a major marketing campaign of their CSR activities; consumers need to know what they do. It is by marketing these activities that the benefits of CSR will be gained in terms of enhancing consumers' perception of a company, increase in sales, attraction of employees, investors and suppliers. However, Shamma says "we have evidence to prove that the public are starting to realize that this is a marketing gimmick. Many Egyptians are starting to doubt what many companies claim to be CSR activities. People need to feel that what is being communicated is true. In fact, many of the CSR budgets of companies end up being spend in marketing of the activity than the activity itself."

Today, for companies CSR seems to be less of an option, but rather a premise to survive in a world where liability goes beyond fairness and became a clear asset.





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# A LOW OIL PRICE WORLD: Driving A Creative Approach to Investment in the Industry

With a lower for longer oil price prediction, and mounting concerns regarding the potential cost of decommissioning, striking deals in the upstream market remains extremely challenging, yet possible.

We are increasingly seeing a willingness to embrace a more creative approach in the market, with businesses closing the value gap through deal structure, risk sharing, and even creating new ventures to solve the funding gap.

At the moment, it appears that the chances of unlocking the traditional Mining and Acquisitions (M&A) cycle remain a long way off; however it is not that there is a lack of appetite for investment, but rather how difficult it is to strike a deal. This is mainly due to lingering pessimism amongst the sector, cost pressures or the immediate cash cost of delivering DSAs.

Financial pressures are also at play, with funders still trying to adopt a restructuring model, manage the downsides, seek security and returns that are extremely difficult to deliver alongside existing capital structures.

## Grounds for optimism

The ingredients are in place to unlock investment with private equity, banks and funds – and the odd strategic investor – engaging in conversations at the deal table.

The challenge early in the year was that, with some notable exceptions, a lot of the teams backing this new money were relatively inexperienced in oil and gas – they had the investment and structuring sophistication, and the ability to put structures to work that help them to manage risks in an environment like today's, but had yet to

apply this to the North Sea. The good news, however, is that the sophistication around this new money is maturing fast, driven by the number of deals they have worked on so far, and their engagement with management and technical teams. They are therefore now actively developing structures, including high degrees of debt, that offer adequate return for the risk. This is a key factor in unlocking many of the stalled deals across the sector.

The way the market is valuing oil field services businesses is creating a seller buyer price expectation gap, resulting in a hiatus in deal completions over the past 12 months. Forecasts are hard to make in a volatile market but there are clear drivers, and themes emerging.

In order to free up this M&A gridlock, more creative solutions need to be found. This includes:

- More risk sharing between the buyer and seller, across the capital structure, and across stakeholders.
- A clearer distinction between production and pre-production risk and reward for asset backed lending.
- Looking to the supply chain as a source of investment.

Innovation against this challenging backdrop is key. One solution that is increasingly being used when trying to get a deal away is to bring in supply chain funding. This is a far lower risk approach and a more cost effective source of capital and it is really working well.

Opportunities in Adversity-Strategies for a

## Lower Oil Price

The 60% collapse in the oil price that had occurred since July 2014 raised many viewpoints of Opportunities in Adversity. At the time, there was no clear consensus about what shape the price recovery would take. In the past, the price has sometimes rebounded quickly, for example after the 2008-09 collapse, but at other times has stayed depressed for a prolonged period, such as after 1986. We believe that this second scenario, of the oil price staying lower for longer, is the most likely at present given the current and anticipated future supply glut in the market. In this paper we take a critical look at what this means for the sector and focus on two key imperatives to success in a prolonged low oil price environment: Developing a business strategy truly driven by a company's capabilities, and "Right-sizing" the cost base to sustainably deliver the chosen strategy.

## Market Developments and Oil Price Outlook

Over the past six months, the oil market has been on a rollercoaster ride. By May 2015, the oil price had recovered by almost 50% from its lowest point in January, but this turned out to be a "false dawn" for those hoping for a quick recovery. In August it dipped towards the \$40 mark and, at the time of writing, remains below \$50.

Gas prices have followed the trajectory of the oil price, albeit with a lag in the case of LNG and to some extent European markets. However, the proportionately less severe drop has been partly due to the more fragmented and regionalized nature of the mar-

ket and longer-term contracts for LNG and natural gas in Europe. Nevertheless, the gas market as a whole, and LNG in particular, continues to be oversupplied and prices are likely to remain weak.

The same is true of the oil market where factors such as the so far relatively resilient shale oil production, the medium term potential for increased cheap supply from Iran and the slowdown in China and other emerging markets suggest that the price is likely to stay 'lower for longer' – even if remaining highly volatile.

## Supply

OPEC's decision to maintain production at 30m bbl/day has not curbed production elsewhere, with US shale-oil production proving far more resilient than OPEC had expected. While the US rig count has more than halved in the past 12 months, oil output from seven key US regions was up 10% year-on-year in August 2015. The picture is similar for US natural gas production. Such results have been achieved with deeper, more productive wells that go further horizontally, while fracking equipment and products have also decreased in cost.

With renewed pressure on the oil price, the resilience of US production will continue to be challenged – not least because many independent shale oil producers have weakening balance sheets and debt overhang. Nevertheless, non-completed shale wells have also risen in number and can act as natural storage. This, together with shorter exploration-to-production times, allows far quicker responses to market developments than conventional oil producers can manage.



Other non-OPEC production has been similarly resilient, with Russia producing above Saudi Arabia's output of 10.6m bbl/day in July and August 2015 to make up for the revenue shortfall from the lower price. Furthermore, around 600,000 – 800,000 bbl/day could be released onto the market in short lead-time throughout 2016/17 in response to an uplift of sanctions on Iran. The two big questions regarding Iran are:

How quickly can Iran increase its production by up to 1.2m bbl/day to realize its production capacity target of 5m bbl/day given the need for foreign investment in infrastructure? How will fellow OPEC countries respond as new Iranian supply will exert additional downward price pressure?

As the world's second largest oil importer after the US, China is crucial. As early as this year, Chinese annual economic growth is expected to moderate below 7% due to slowing capital investment and a gradual shift from energy heavy industries. The growth could eventually fall below 4% by 2020, with obvious implications for oil demand. The EIA expects China's oil consumption to grow around 300,000 bbl/day in 2015 and 2016; 100,000 bbl/day lower than in 2014 and far below the 2009 – 2011 average of 800,000 bbl/day.

China's dependence on energy imports and its slowdown also negatively impact commodity-exporting emerging markets such as Russia, Brazil, Indonesia, South Africa and the Gulf countries.

#### Demand

The scale of the actual and anticipated supply growth has not been mirrored by demand. The US Energy Information Administration (EIA) recently downgraded its forecast for growth in global oil demand in 2016 by 0.2m bbl/day to 1.3m bbl/day. This was largely due to ongoing signs of weakness in China and other Asian economies. As a result, we can clearly see why the outlook for both supply and demand has led analysts to conclude that a low oil price will recover over the medium term – as evident from the futures market. However, the future price trajectory remains uncertain due to financial market adjustments on the demand side, following an eventual tightening of US monetary policy, declining growth rate of emerging markets, the Eurozone debt crisis, and the ongoing unrest in the Middle East.

Growing anticipation of an important deal on climate change at the UN meeting in Paris this December provides an additional source of uncertainty. Oil majors called for a cross-border carbon pricing system earlier this year, but a range of other policy responses are possible.

In summary, the "false dawn" for oil prices

was short-lived and the industry must recognize the very real prospect of a 'lower for longer' scenario and adjust accordingly.

#### Industry response to date

Oil and gas markets are inherently cyclical. Hedging physically or financially, cutting costs and raising new finances are popular ways to 'smooth' cash-flows through periods of volatility.

#### Hedging

Oil majors, which operate across the entire value chain, can hedge against some of the fall in upstream revenues with increased margins in refining and downstream retail business. The performance of US-based refineries is a particularly good example of this. Furthermore, companies with trading arms can find further advantages in market volatility.

The development of financial instruments, such as energy futures and options, has also enabled smaller players without operations across the value chain to hedge a portion of their production. The Bloomberg Intelligence North America Exploration and Production Index found that payments from hedges accounted for at least 15% of Q1 2015 revenue for nearly half the 62 US oil players they follow.

#### Cost-cutting

Faced with declining revenues and uncertainty about the future market direction, IOCs have so far concentrated on predictable, tactical efforts to reduce costs, rather than strategic changes. Most E&P companies, with a few notable exceptions, have focused on 'low hanging fruit' across three main baskets – planned CAPEX, contractors and workforce size and remuneration. These interventions reduce a business's scale and scope, but do not fundamentally alter ways of working or the underlying cost structure.

The capital intensity of exploration means future CAPEX projects are almost always one of the first costs to be reviewed. Compared to 2014, IOC cut their global E&P CAPEX by over 25% in 2015. Estimates suggest that up to \$200bn worth of long-term capital projects have been deferred or cancelled. These projects have largely relied on a higher oil break-even point, and lie towards the right of the supply cost curve. Oil sands in Canada and deep-water projects have been the biggest targets for this reduction.

#### Financing

Debt issuance for industry companies in Q1 2015 was the highest recorded since at least 2009. We looked at debt issuance since the oil price started to decline in July 2014 by 66 integrated and E&P focused O&G com-

panies with a combined market capitalization of over \$1.6 trillion. Our sample alone has raised \$150bn of debt between August 2014 and July 2015 – almost two thirds of it since February 2015, and more debt has been placed on the market at the time of writing this piece.

In some cases, oil majors with good credit ratings used new debt to maintain their capital expenditure, dividend payments and gather 'dry powder' for potential acquisitions. Loose monetary policy across advanced economies also means that debt offers very competitive rates of financing compared with previous oil price periods.

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# Role of Pressure Regime Evaluation in Well Planning and Formation Evaluation Process

By Saber Moustafa Selim, Suez Oil Company (SUCO).

An adequate calculation and prediction of the pore pressure and better understanding for the pressure regime model of an oil field are very important prior to drilling any well. The pressure regime modeling is an important integral part of the well planning and formation evaluation process and can play an important role in:-

- 1) Deciding where the proposed wells can be drilled, as oil and gas can be driven upwards by buoyancy or downwards and horizontal by pressure differentials.
- 2) Enable the well planner to anticipate the location and potential magnitude of possible abnormal pressure and consequently avoid lost valuable rig time and equipment problems.
- 3) Minimizing the drilling cost as the pressure regime model can be used as a guide to estimate the pore pressure and fracture pressure, so that the mud density can be optimized to provide sufficient overbalance while being low enough so that formation integrity is not compromised.
- 4) Enable the well planner to seat the casing seats in the proper depth.
- 5) Avoid environmental pollution, loss of reserves and loss of human life or injuries resulting from abnormal pressure problems.

But it is worth mentioning that, it is very important to recognize and evaluate any changes in the Estimated Pore Pressure data during the drilling of a new well. The updated information can be used to implement the new well proposal.

## General Outline about Ras Budran Field:

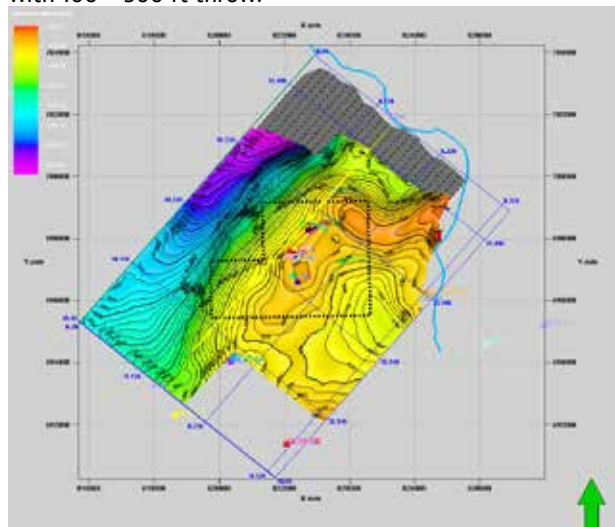
Ras Budran Offshore Oil field is located in the northern part of Gulf of Suez (Belayim offshore concession area), approximately 4 kms west to Sinai coast of Gulf of Suez and 13 kms northwest of Abu Rudeis at water depth of approximately 140 ft. The field was discovered through the drilling of the Exploratory well "EE 85-1". The well reached its total depth of 12564 ft after penetrating multiple oil-bearing reservoirs with oil water contact at 12350-ftss and cumulatively produced about 12000 BOPD from five Cretaceous and Paleozoic Nubian sandstone reservoir.

The commercial field production has been started on May 1983 with average production rate about

Location  
15000 BOPD. The initial STOIP estimated for the field was 700 MMSTB of which 240 MMBBL has been produced.

Structurally, Ras Budran structure is considered as identical complex pre-Miocene model as it is severely strained by faults of different throws and aligned in various directions.

The faulting pattern of the field comprises two types of faults, the gravitational faults trending to the northwest - southeast direction having angles ranging from 37 to 70 degrees with 300 - 200 ft throw. The second type is the cross Gulf faults with northeast - southwest alignment having angle ranging from 76 to 85 degrees with 100 - 500 ft throw.



Structure Contour Map

## Main Geological Cross-section for Ras Budran Field

The stratigraphic succession of the field is similar to the sequences presented elsewhere in the northern part of Gulf of Suez where

a sedimentary sequence ranging in age from Paleozoic to recent with non-depositional and erosional hiatuses is represented in Ras Budran field. The Precambrian basement was penetrated only in (RB-A2) well.

## Ras Budran Stratigraphic Sequence

Nubian Sandstone of Paleozoic to Lower Cretaceous age forms the main reservoir in the Ras Budran field. These reservoirs are divided into four units, from bottom to top they are: - U-I, U- IIa, U-IIb and U-III.

In addition to these, some reservoirs of secondary importance are present in sandstone of Raha and Matulla formations.

## Theory and Methodology:

The authors follow this sequence to calculate the Estimated Pore Pressure and consequently, the Pressure Regime Model of Ras Budran.

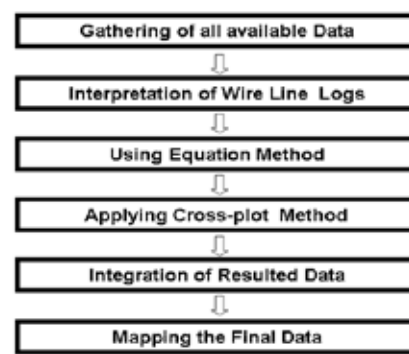


Fig. 5 Sequence of Applied Technique

First, all available data of about the fifteen wells had been collected. The data included formation tops, composite well logs, survey data, mud log sheets, wireline logs, logging while drilling, various pressure evaluation logs, production tests and direct pressure measurements. The geological setting of field and the different problems encountered while drilling these wells were taken into consideration while evaluation.

Second, since the Geopressure zones are mainly originated in Clay intervals as a result of dehydration process (Montmorillonite alters to Illite, water between layers is desorbed, liberated and transferred as free water and overburden pressure can then flush water from the sediment along with hydrocarbons) so, the clay sections had been adequately identified.

This identification had been done by the assistance of CGR (Gamma Ray corrected for uranium content). A Shale baseline (which is more-or-less vertical lines) had been defined and a Normal Compaction Trend Line (NCTL) had been established.

Relative porosities for each lithology had been calculated as the porosity varies with any change of lithology and pore pressure, which were noticed to be abnormally high and deviated from the Normal Trend Values in the hydrated Clay intervals. The porosity log values opposite Clay intervals (especially from the density logs) have been taken and Normal Compaction Trend had been established to calculate the Estimated Pore Pressure.

Density and neutron logs had been used as porosity logs and Geopressure indicators. Decreasing in the observed density log values from the Normal Trend Values were interpreted as an indication to the presence of abnormal pressure. However, the neutron logs showed the changes in the hydrogen index reflecting the Clay type where, Montmorillonite showed high hydrogen index values while Illite showed low hydrogen index values.

Sonic logs had been used as a reasonable Geopressure indicator as Interval Transit Time (Dt) is usually increased with depth in constant Clay intervals due to the increase in the porosity (Pore Pressure Gradient) and observed to be steadily moved to the highest values with depth in the transition zone. Increasing in the observed sonic log values from the normal trend values had been taken as an indication to the presence of abnormal pressure.

Borehole rugosity was taken into consideration, as it is an indicator to Clay hydration where "cycle-skipping" was observed opposite Geopressure zones.

Resistivity logs had been used as another reasonable Geopressure indicator, where decreasing in the observed resistivity log values from the Normal Trend Values had been taken as an indication to the presence of abnormal pressure.

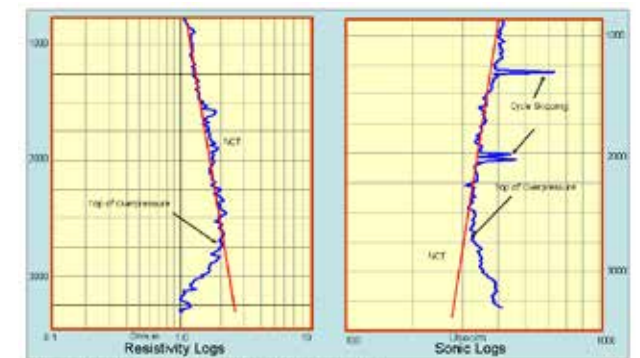


Fig. 8 Calculation of Estimated Pore Pressure

Third, the authors used two methods applying different software to calculate the Estimated Pore Pressure and consequently the Field Pressure Regime. These methods are summarized as follows:

## 1. Cross-plot Method

The difference between the observed sonic log value and the Normal Trend Values had been computed to calculate the Estimated Pore Pressure in the Geopressure zones. Also, the observed resistivity log value was divided by the normal one. The values obtained from the comparison of the NCTL to the actual one were used in an empirical cross-plot relationship to determine the Estimated Pore Pressure. The cross-plot was entered from the X-axis and the pressure gradient value was determined from the pressure model.

## 2. Equation Method

Equation method has been formulated and applied by Eaton (1975, 1976) to determine the Estimated Pore Pressure in Geopressure zones. The equation has been formulated by dividing the Observed Resistivity and Sonic Log Values by the Normal Trend Value.

The general form of equation for predicting Pore Pressure from resistivity is:

$$P = S - [S - P_o] [R_o / R_n]^n$$

Where

P : is the Estimated Pore Pressure.  
S : is the Overburden Gradient  
P<sub>o</sub> : is the Observed Pressure Gradient.  
P<sub>n</sub> : is the Normal Pressure Gradient.  
R<sub>o</sub> : is the Observed Log Resistivity Value.  
R<sub>n</sub> : is the Normal Compaction Trend.  
and n is an empirically derived exponent.

The general form of equation for predicting Pore Pressure from sonic is:

$$P = S - [S - P_o] [Dt_o / Dt_n]^n$$

Where

Dt<sub>n</sub> : is the Normal Compaction Trend  
Dt<sub>o</sub> : is the Observed Transit Time

Finally, the obtained data were integrated and correlated with which was obtained either while drilling or from pressure measurement techniques. The integrated data had been mapped on top of Rudeis Formation and the Pressure Regime Model for the studied area had been constructed.

## Applications and Results:

As the applied technique to calculate the Estimated Pore Pressure depends on the presence of Clay intervals so; the Clay sections had been identified adequately.

In Ras Budran field those Clay sections are well represented in



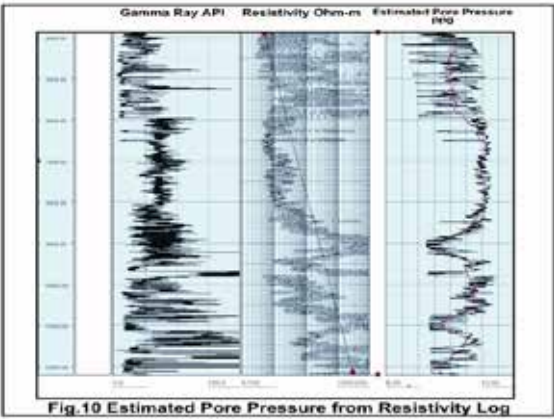
Kareem Shale, Rudeis Shale, Esna Shale and Abu Qada. Hence, CGR logs (Gamma Ray corrected for uranium content) had been used to detect the Clay interval and to determine the Rudeis Shale.

The resistivity log values corresponding Rudeis Shale had been taken and the Estimated Pore Pressure had been calculated. (fig.10) The Normal Trend values had been determined by using this equation:

$$R_n = R_o ((S - P_o) / (S - P_n))^{-0.833}$$

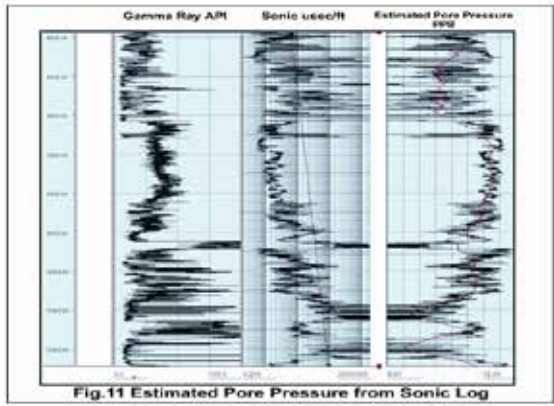
The Estimated Pore Pressure had been calculated by using this equation:

$$P_o = S - (S - P_n) (R_o / R_n)^{1.2}$$



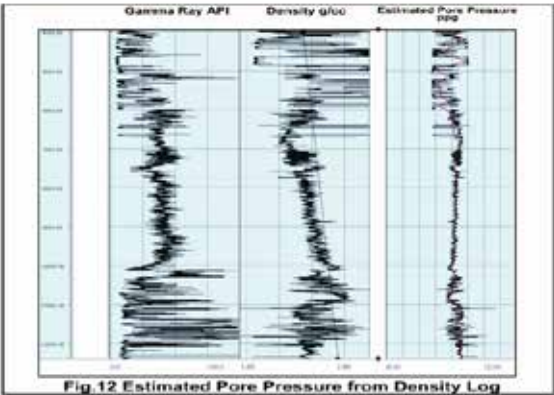
Then, the sonic and density log values corresponding Rudeis Shale had been taken and the Estimated Pore Pressure had been calculated. The Normal Trend values had been determined by using this equation:

$$Dt_n = Dt_o ((S - P_o) / (S - P_n))^{0.333}$$

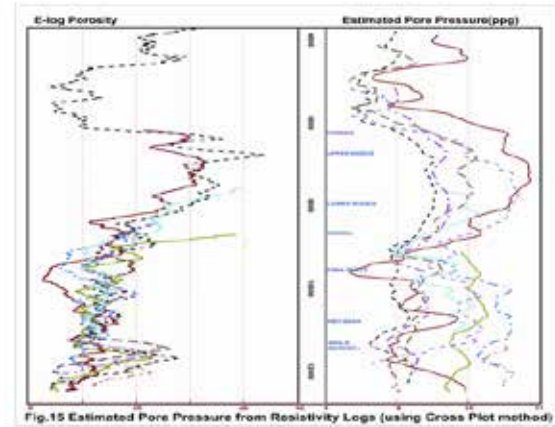
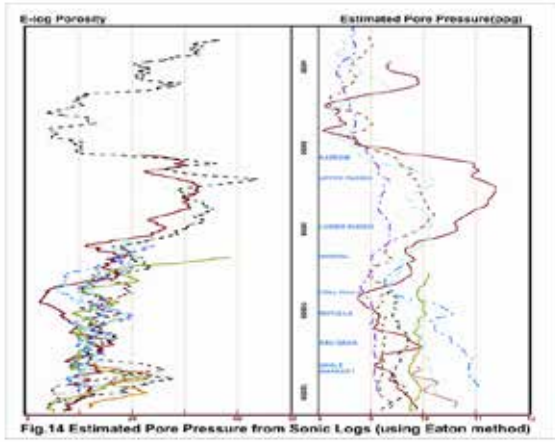
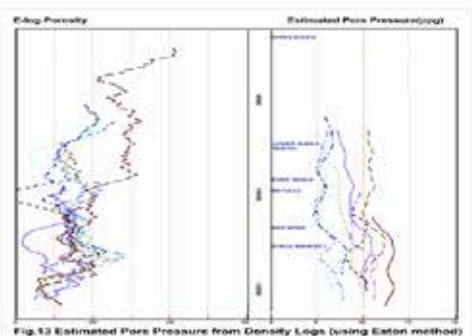


The Estimated Pore Pressure had been calculated by using this equation: -

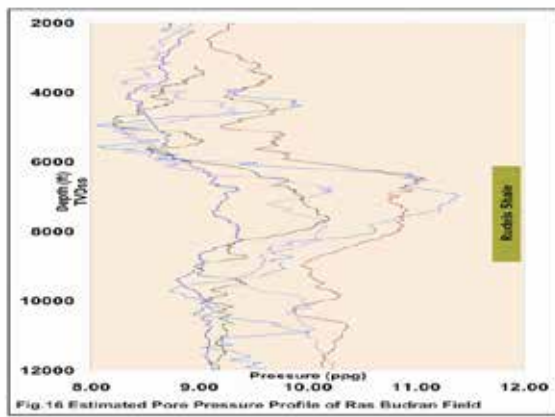
$$P_n = S - (S - P_o) (Dt_n / Dt_o)^{3.0}$$



Eaton Equation and Cross-plot method had been used applying different software to calculate the porosity and the Estimated Pore Pressure values from resistivity, density and sonic logs for the selected wells in the studied area.



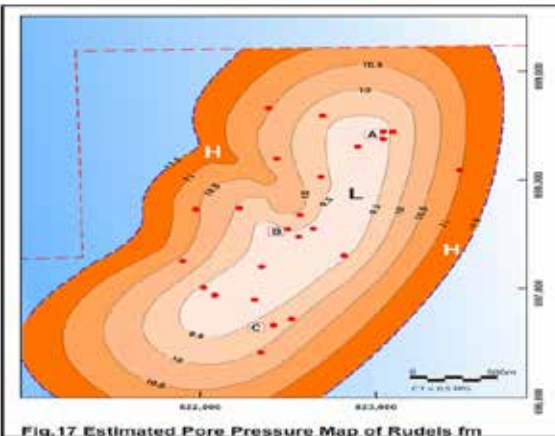
The Estimated Pore Pressure values resulted from this application were integrated and Cross-plot for these integrated values had been conducted.



This cross-plot revealed the following points:-

- The Estimated Pore Pressure values vary from well to another, but the general trend behaves the same.
- An increase in the values of the Estimated Pore Pressure is observed corresponding the Shale of Kareem, Rudeis, Esna and Abu Qada Formations.

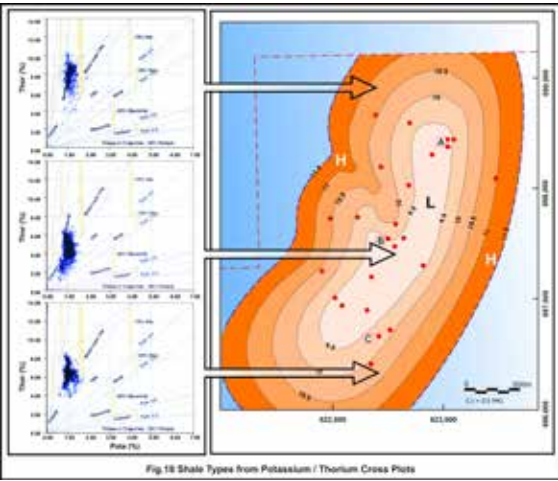
As the authors empathized this study on Rudeis shale so, the Estimated Pore Pressure values corresponding the Rudeis Formation were averaged, correlated with each others and mapped.



The distribution of the Estimated Pore Pressure values on this map exhibits considerable changes from the crestal part of the field structure and down dip position towards the flanks. The minimum Estimated Pore Pressure values are observed at the crest and increased towards the flank. Hence, Two Pressure Regime values are distinguished (One High at the Flanks and One Low at the Crest).

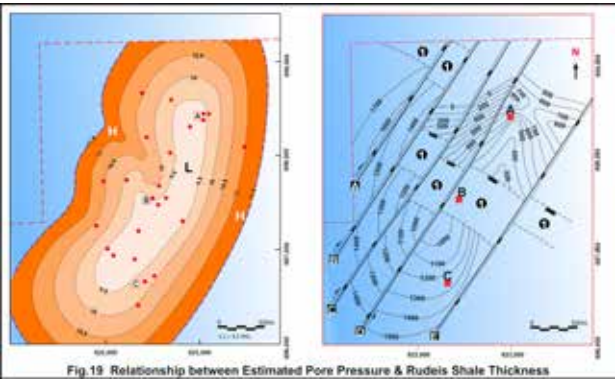
To support evidence and back-up for the resulted Estimated

Pore Pressure maps, Potassium/Thorium cross-plots had been established and correlated with this map .



This geoscience's application revealed that there are two types of shale; the Montomorillonite is localized at the flanks while the Illite is localized at the crestal part of the field. This explained the exhibition of considerable changes from the crestal part of the structure and down dip position towards flanks.

To find out the relationship between the Constructed Estimated Pore Pressure maps and the geological setting of the field, a thickness map had been constructed for the Rudeis Shale.



The comparison between the maps revealed that the Estimated Pore Pressure values are matched with the field fault pattern and the Rudeis Shale thickness. This explains the presence of Two Pressure Regime values.

#### Conclusions and Recommendations:

The Pressure Regime Modeling play a vital role at several stages of Exploration and Development Process.

- In Exploration Phase, it helps in:-
  - Providing calibration to Basin Modeling.
  - Mapping Hydrocarbon Migration Pathways.
  - Assessing the "Seal" effectiveness.
  - Analyzing the "Trap" configuration and geometry for a Prospective Basin.
- In Development Phase, it helps in:-
  - Anticipating the location and potential magnitude of possible formation pressure problems.
  - Minimizing the drilling cost as it can be used as a guide to calculate the Estimated Pore Pressure and Fracture Pressure, so that the mud density can be optimized to provide sufficient overbalance and assure the suitable casing depth.
  - Avoiding environmental pollution, loss of reserves and life resulting from abnormal pressure problems.

The Constructed Pressure Regime Model of Ras Budran Field revealed the following points:-

- The Estimated Pore Pressure values vary from well to another, but the general trend behaves the same.
- An increase in values of the Estimated Pore Pressure is observed within Rudeis Shale then dropped back again.
- The distribution of Estimated Pore Pressure values exhibits considerable changes from the crestal part of the structure and down dip position towards flanks.
- The minimum Estimated Pore Pressure values are observed at the crest and increase towards the flank.
- The Estimated Pore Pressure values are matched with the field fault pattern and the thickness Rudeis formation.
- The geoscience's application explained the exhibition of considerable changes from the crestal part of the structure and down dip position towards flanks. The Shale of flanks is mainly Montomorillonite while the Illite is localized at the crestal part of the field.

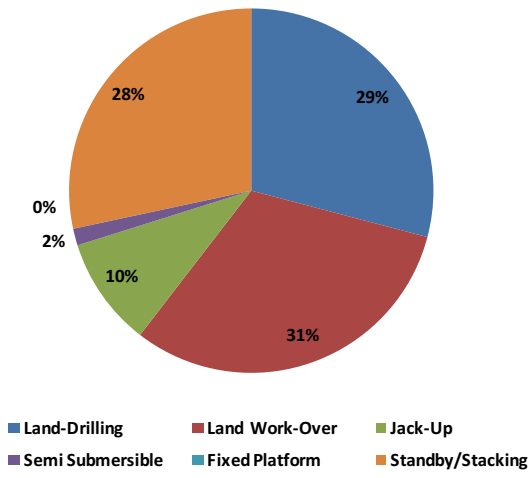
The Pressure Regime of Ras Budran field needs consultation and co-operation between all disciplines to:-

- Modify the well profile prior drilling to help in reducing down hole problems.

Select the Suitable Mud and Casing Programs to drill wells safely and economically



## Rigs per Specification November 2015



## EGYPT STATISTICS

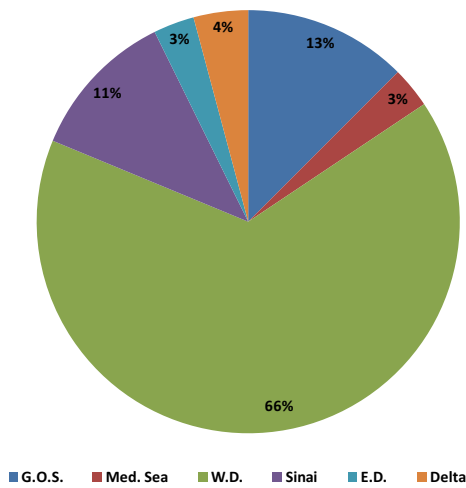
### Egypt Rig Count per Area - November 2015

Area	Total	Percentage of Total Rigs
Gulf of Suez	12	13 %
Mediterranean Sea	3	3 %
Western Desert	63	66 %
Sinai	11	11 %
Eastern Desert	3	3 %
Delta	4	4 %
Ganoub El Wadi	0	0 %
<b>Total</b>	<b>96</b>	<b>100%</b>

EGYPT  
OIL & GAS  
RESEARCH & ANALYSIS

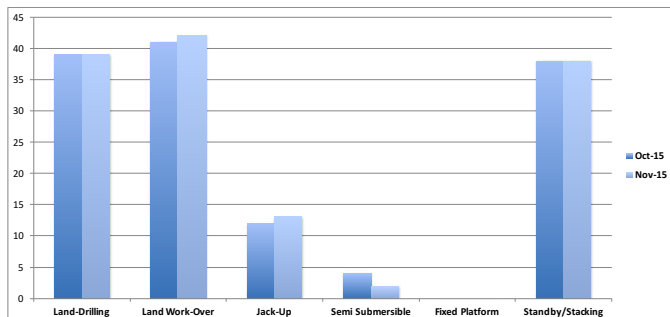


### Rigs per Area November 2015 (Total of 96 Working Rigs)

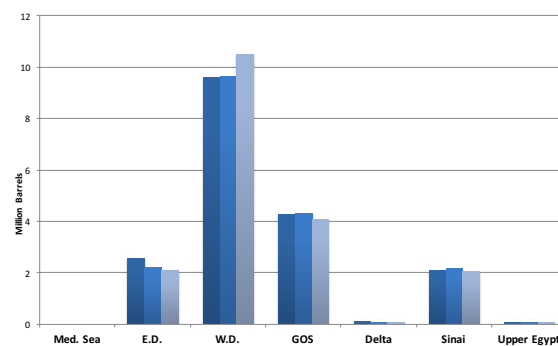


	Oil			Equivalent Gas			Condensate			Liquefied Gas		
	Barrel	Barrel	Barrel	Barrel	Barrel	Barrel	Barrel	Barrel	Barrel	Barrel	Barrel	Barrel
	October-13	October-14	October-15	October-13	October-14	October-15	October-13	October-14	October-15	October-13	October-14	October-15
<b>Med. Sea</b>				19969107	15776250	11916250	1159263	851908	668708	370797	310702	232280
<b>E.D.</b>	2524962	2191376	2064489	40893	36964	25000	3330	2763	1818	8622	5935	5314
<b>W.D.</b>	9570526	9617058	10478206	7128214	7146786	7889821	1395311	1490631	1658694	712143	714445	783924
<b>GOS</b>	4260446	4298733	4049827	316071	432857	604107	70758	82168	82150	229269	241501	263042
<b>Delta</b>	73476	41440	42041	2024286	2363393	2552500	180444	187661	178445	125260	108025	112832
<b>Sinai</b>	2067151	2138608	2029836	12679	1964	1071	33287	29823	29718	91216	67896	61464
<b>Upper Egypt</b>	12025	9823	9443									
<b>Total</b>	<b>18508586</b>	<b>18297038</b>	<b>18673842</b>	<b>29491250</b>	<b>25758214</b>	<b>22988749</b>	<b>2842393</b>	<b>2644954</b>	<b>2619533</b>	<b>1537307</b>	<b>1448504</b>	<b>1458856</b>

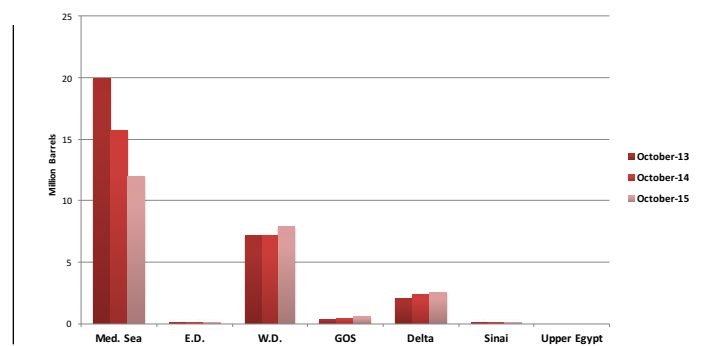
### Rigs per Specification October 2015 - November 2015



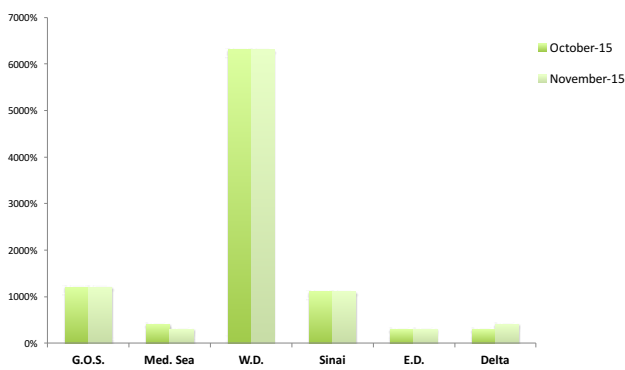
### Oil Production October 2013 - 2015



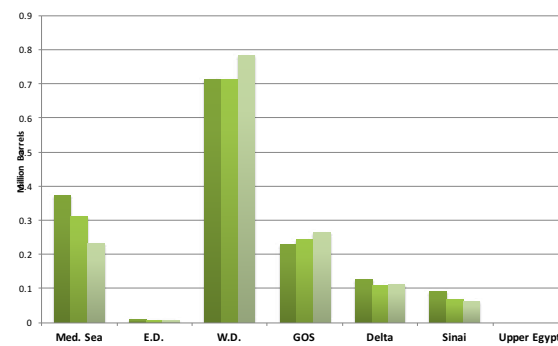
### Equivalent Gas Production October 2013 - 2015



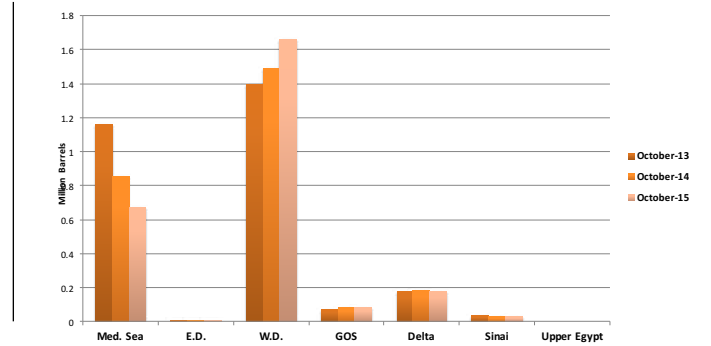
### Rigs per Area October 2015 - November 2015



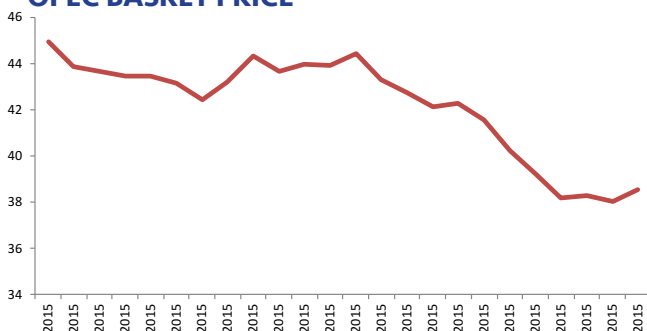
### Liquefied Gas Production October 2013 - 2015



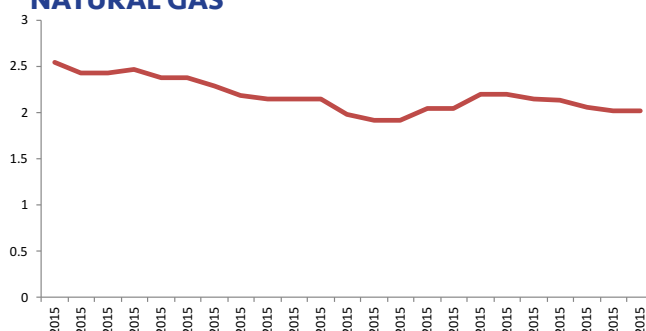
### Condensates Production October 2013 - 2015



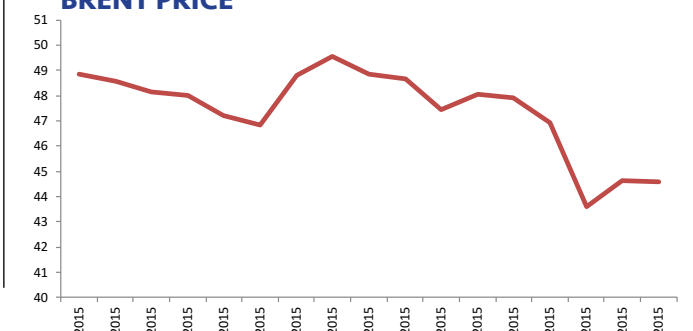
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A close-up, high-angle shot of three industrial drill bits, colored blue and yellow, converging on a target. The target is a circular plate with a red center and a green outer ring, set against a dark, textured background. The drill bits are positioned as if they have just struck or are about to strike the target, creating a sense of precision and focus.

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