Egypt's Leading Oil And Gas Monthly Publication
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EGYPT OIL&GAS NEWSPAPER

Egypt's

POSITION AMONG OTHER ARAB PETROLEUM EXPORTING COUNTRIES

EXCLUSIVE INTERVIEW

The Role of Digital Capabilities: an Interview with Matthias Heilmann, BHGE Digital Solutions' President & CEO

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- September 1, 2018 – Abstract submission
- September 15, 2018 – Notification of acceptance
- November 1, 2018 – Presentation submission

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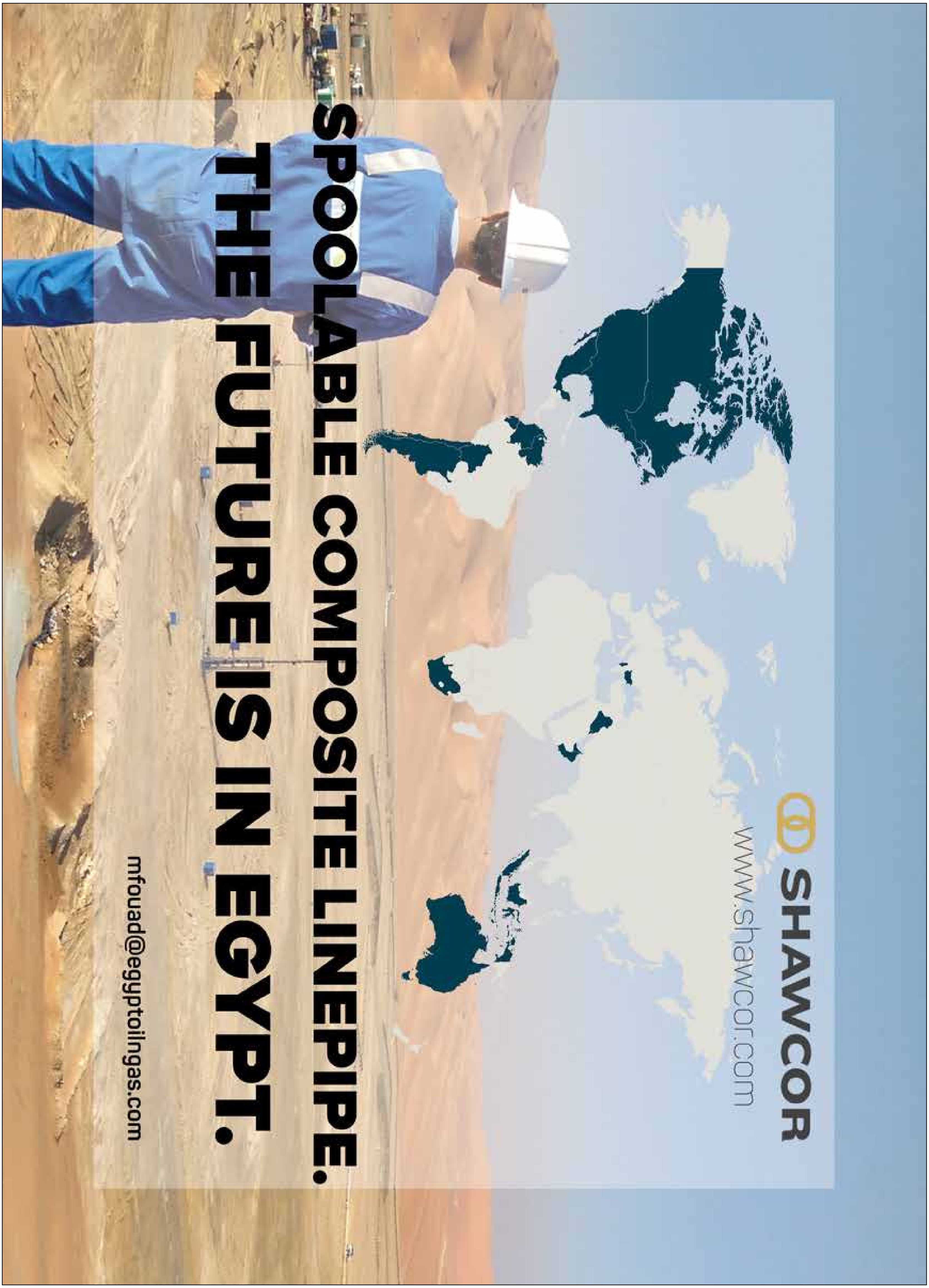

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EDITOR'S NOTE

Due to the economic and political turmoil in major oil producing countries, looking at the situation of their petroleum industry separately is essential to predict the effects in the global oil and gas market. Thinking of this, we have dedicated this issue to the analysis of international affairs and to Egypt's position as an Arab oil producing country.

This issue explores the industry challenges in three OPEC members individually. You can find a complete background of the economic crisis and the political instability that has crashed the oil sector in Venezuela; a panorama of the Libyan sector after Gaddafi's era; as well as the status of IOCs' operations and exports in Iran after the upcoming re-establishment of the US sanctions.

Our interview for this month is with Matthias Heilmann, BHGE Digital Solutions' President & CEO, who commented on Egypt's Upstream Gateway Project and the role of digitalization. Covering Egypt, we provide an article on the prospects of new significant discoveries in the Western Desert, in addition to a report comparing Egypt's petroleum sector to other OAPEC members. We also provide you with a brief of the Egypt Oil & Gas Research & Analysis report on the IMF economic program and its effects on the Egyptian oil and gas sector – the full report will be available shortly and you can contact us to get a copy.

In this issue, you will also find the coverage of the British-Egyptian Business Association's (BEBA) dinner in honor of the oil minister Tarek El Molla, which includes the minister's remarks on the Modernization Program, the Zohr natural gas field, and the ongoing fuel subsidy cuts.

We additionally bring you DEA's announcements made during a press conference in Cairo with the company's CEO, Maria Moraeus Hanssen, who introduced the new DEA Egypt general manager, Sameh Sabry.

We fully enjoyed working on the economic and political insights for this issue. As always, thank you for your readership and support.

EDITOR IN CHIEF

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Egypt to Resume Gas Exports to Jordan in 2019

Egypt will resume gas exports to Jordan on January 1, 2019, according to a Jordanian government official. Around 1 million cubic meters per day will be transferred through the Arab Gas Pipeline (AGP), the official said. Importing Egyptian gas via pipeline will allow Jordan to reduce their imports of liquefied natural gas, which are expected to stop by 2020. In March, Egypt's oil minister Tarek El Molla told his Jordanian counterpart Saleh Kharabsheh that Egypt will resume exporting oil to Jordan in 2019 without stating the date or the volume.

El Molla: Citizens Will Not Pay Interest on Gas Link Costs

Citizens will not be charged interest on the costs of connecting their houses to the natural gas grid. Oil minister Tarek El Molla said that customers will make interest-free payments of EGP 30 each month for a period of six years, which will be added to monthly gas bills. Houses in upper Egypt and over-populated areas will be prioritized, El Molla added. Households in 12 cities in eight different governorates were recently connected to the national gas grid as part of the oil ministry's plan to link 684,000 households across 18 governorates to the gas grid.

Egyptian Government Increases Gas Prices by Up to 75%

Egypt will raise natural gas prices for households and businesses by up to 75% from the beginning of August. The price for gas consumption of up to 30 cubic meters will rise from EGP 0.100 to 0.175 per cubic meter, an increase of 75%. Consumption of between 30-60 cubic meters will go from EGP 0.175 to 0.250 per cubic meter, a 42.8% rise. The price for consuming more than 60 cubic meters will also rise by 0.075, from EGP 0.225 to 0.300 per cubic meter. Parliament members requested on June 22 to send a letter to Prime Minister Mostafa Madbouly and Minister of Petroleum Tarek El Molla asking them to explain the reasons behind the latest increase in natural gas prices. Rep. Amr El Gohary told Al Mal that many members of parliament are questioning the decision to raise prices, despite the country moving towards natural gas self-sufficiency by the beginning of 2019.

Nooros Field: 15th Well Begins Production

The 15th well of the Nooros gas field has started production, oil minister Tarek El Molla announced. The new well, called Nedoko Southwest 3, is expected to produce 180 million cubic feet of natural gas and 1,500 barrels of condensate per day. Nedoko Southwest 3 will allow production from the Nooros field to remain steady at 1.2 billion cubic feet per day.

IMF: Fuel Price Mechanism to Strengthen Egyptian Budget

The IMF has said that the recently-approved automatic fuel price mechanism will protect Egypt's budget from movements in the global oil markets. The fund said in a staff-level report that the mechanism will adjust the prices of most types of fuel to reflect changes in global oil prices, the value of the Egyptian pound, and the proportion of imported fuel in national consumption. The reform will lessen the fluctuations in Egypt's fuel subsidies expenditure caused mainly by increases in global oil prices. Estimates of fuel subsidies as a percentage of GDP in FY 2018/19 almost doubled to 2.1%, up from 1.2% following the rise in global prices. The decision to implement the mechanism was approved by the prime minister in June 2018, and will be introduced by the end of 2018.

EGPC Hires HSBC to Raise $1B Loan

The Egyptian General Petroleum Corporation (EGPC) has hired HSBC to arrange a loan of around $1 billion, banking sources told Reuters. Two of the sources said that the loan is a result of requests made by Petroleum Export Limited (PEL), a special purpose vehicle through which EGPC has previously taken several loans. According to the sources, the loan will be a structured finance deal like previous PEL transactions, and the money will partly be used to pre-pay EGPC cargo deliveries. There have been no official statements made by EGPC or HSBC.

Oil Ministry Signs Three Exploration Agreements

The Ministry of Petroleum signed three new agreements for oil and natural gas exploration in the northern Sinai Peninsula and the Gulf of Suez on July 11. The first $6 million agreement was signed between South Valley Egyptian Petroleum Holding Company (Ganope) and Britain's GHP Corporation to dig six new wells in the Gebel El Zeit concession at the cost of $6 million. The Egyptian General Petroleum Corporation (EGPC) signed the second deal to explore oil in the Ras Fanar concession in the Gulf of Suez. The third deal is between EGPC and the Anglo-French Perenco oil company for exploring in the North Sinai maritime concession. The oil ministry is currently finalizing 18 new agreements, oil minister Tarek El Molla said, adding that the company has signed 83 agreements since November 2013.

ASORC to Build $1.85B Mazut Refining Facility

The Assiut Oil Refining Company (ASORC) will establish a $1.85 billion facility for conducting thermal cracking on mazut. The construction of the Assuit Hydrocracking Complex (AHC) will be carried out by ASORC subsidiary the Assiut National Oil Manufacturing Company. Petroleum minister Tarek El Molla said on July 10 that the newly-established company's founding assembly has appointed a board to manage the construction of the complex. The facility will produce around 2.25 million tons of mazut each year, the minister said.

Oil Ministry Connects Houses in Six Towns to National Gas Grid

The Ministry of Petroleum has connected houses in six different areas to the national gas grid since the beginning of July 2018.The recently-connected houses are located in the Dakahlia, Kafr El Sheikh, and Sharqia governorates. Around 11,000 households contracted with gas companies to install natural gas connections in these areas. Natural gas will also be connected to towns in the Giza governorate for the first time. These developments are part of the oil ministry's and the Egyptian Natural Gas Holding's (EGAS) plan to link 684,000 households across 18 governorates to the national gas grid.

Butane Production Slightly Increases YOY

Egypt produced 626,000 tons for butane in the first four months of 2018, an increase of 31,000 tons year-on-year (YOY), Egyptian General Petroleum Corporation (EGPC) head, Abed Ezz El Regal, stated. The country consumed 1.4 million tons of butane during the same period in 2018, consuming 60,000 – 100,000 tons less than in the first four months of 2017. Butane imports during the same period also decreased, falling to 887,000 tons from 940,000 tons. The Ministry of Petroleum aims to raise its daily production of crude oil and condensates to around 36 million tons – equivalent to 705,000 barrels – during the first months of FY 2018/19.

El Molla: NOCs to Pay All Debts to IOCs by End of 2019

Egypt's national oil companies (NOCs) will pay all debts owed to international partners before the end of 2019, oil minister Tarek El Molla announced. The minister said that debts owed to IOCs have now fallen to $1.2 billion, beating 2010's record low of $1.35 billion. The Oxford Institute for Energy Studies published contrasting figures in June that Egyptian NOC debts to IOCs fell from $2.3 billion in October 2017 to $2 billion in Q2 2018. However, it is not clear how the report's authors obtained their figures. NOCs also owe EGP 130 billion to government ministries, El Molla added. A committee has been established in collaboration with the cabinet to facilitate debt repayments.

Energy Committee Discusses Gas Law Amendment

The parliament's Environment and Energy Committee discussed on July 4 reallocating fines collected by the Natural Gas Regulatory Authority to avoid a conflict of interest. Article 10, clause six of the Gas Market Law grants the Natural Gas Regulatory Authority with powers to both issue fines and to retain them as part of its own budget. However, the committee voiced concerns that allowing the authority to use fines to partly fund its budget would generate a conflict of interest. The committee suggested that any fines collected will instead be allocated to the national budget. Should the parliament vote in favor of the amendments, the authority will have six sources of funding. These include licensing fees, a share of the national budget, donations and consultancy fees.

First Gas Import License to Be Issued in 2018

The Natural Gas Regulatory Authority will issue the first gas importing license to a private sector company by the end of 2018, an official source told Al Shorouk. The ministry source said that gas companies are currently filing papers to apply for the licenses, which will now be administered by the Natural Gas Regulatory Authority and not the Egyptian Natural Gas Holding Company (EGAS). EGAS previously gave BB Energy, Fleet

Energy, and Qalaa Holdings' TAQA Arabia preliminary permission for import licenses back in October 2017. However, these companies will now need to seek approval from the new gas authority before they obtain licenses.

Gas Regulatory Authority to Begin Operations

The newly-established Natural Gas Regulatory Authority will soon begin its operations. The authority's mandate as outlined in the July 2017 Gas Market Law includes issuing, amending, and suspending licenses for gas activities. It will also monitor companies to make sure that they are abiding with the terms and conditions of these licenses. The authority's board will work on finalizing the new body's organizational chart, financial bylaws, and mission statement, according to the law.

Egypt Produces 25 M Tons of Natural Gas in First Four Months of 2018

Egypt produced 24.6 million tons of natural gas during the first four months of 2018, Ossama El Bakly, head of the Egyptian Natural Gas Holding Company (EGAS), said. According to El Bakly, 24.9 million tons were consumed during the same period, slightly exceeding domestic production. He added that the country depends mainly on the North Sinai, Nooros, Atoll, and Zohr fields to meet domestic demand for natural gas. El Bakly also predicted that Egyptian consumption would be fully covered domestic production by the end of 2018 – especially as Eni increases Zohr production to 2 bcf/d by the end of 2018.

Oil Sector Doubles Net FDI during July/March FY 2017/18

More than half of Egypt's net foreign direct investment (FDI) during the first nine months of FY 2017/18 was invested in the oil sector, the Central Bank of Egypt announced. Net FDI recorded $6 billion between July 2017 and March 2018 in FY 2017/18, with $3.4 billion net FDI in the oil sector. During this period total FDI inflows reached $10.2 billion while total outflows recorded $4.2 billion. The increase in FDI was one of the reasons behind a 57.5% decrease in the country's balance of payments. Egypt's balance of payments recorded $7.2 billion during the period, down from $12.5 billion during the same period a year earlier.

Government Signs Contracts for $10.9B Petrochemical Complex

The Egyptian cabinet signed contracts on June 30 with the Cairo-based Carbon Holdings to build a $10.9 billion petrochemical complex. The Tahrir Petrochemical complex will extend over a 5 million m2 area in the Suez Canal Economic Zone (SCZone) in Ain Sokhna, making it the biggest facility of its kind in the Middle East. The facility is expected to take three years to build, and will increase Egypt's exports by $8 billion. Carbon Holdings CEO Basil El-Baz told Reuters a year ago that he believes that the project will double Egypt's exports within its first year.

Egypt Receives Third Cargo of Iraqi Crude in 2018

Egypt has received 2 million barrels of Iraqi crude, the third shipment of 2018, Iraqi commercial attaché to Egypt Hider Nori Gabr has said. The cargo is part of an agreement originally signed in 2017 and renewed in January 2018 in which Egypt receives 12 million barrels of Iraqi crude throughout the year. Iraq shipped two cargoes to Egypt in February and April 2018. There are no updates about whether the contract will be renewed next year.

Balteem Gas Field to Begin Production Mid-2019

Belayim Petroleum Company (Petrobel) and Eni will bring their South Balteem well online by mid-2019, helping the companies to achieve their target of pumping an extra 0.5 billion cubic feet per day of natural gas. The field production capacity was already known after Petrobel drilled two exploration wells.

Eni to Start Production from South Meleiha within 3-6 Months

Eni will begin production from the South Meleiha concession in the Western Desert's Faghur Basin within three to six months. The Italian company is planning to drill a third exploratory well in the concession before the end of Q3 2018, the source added. The development is part of the oil ministry's $2 billion investment plan to drill 230 wells in the Western Desert. Around 130 wells are already drilled and the remaining 100 wells are scheduled to be drilled by the end of 2019.

SDX Announces Gas Discovery in South Disouq Concession

SDX Energy has announced another gas discovery at its SD-3X well in the South Disouq concession. The well, which is located in Abu Madi and Kafr el Sheik horizons, will be completed as a producer and tested after drilling rigs are moved out of location. SDX owns 55% of the working interest and operatorship in the concession, the company added. Abu Madi testing is expected to start within 30 to 40 days after removing the rig depending on the availability of testing equipment. If successful, the well will be connected to the infrastructure located adjacent to the original SD-1X discovery, where production is expected to start at the end of 2018.

Apache to Drill Three Wells in Western Desert

Apache plans to drill three out of seven planned wells in the Western Desert by the end of 2018. The American company expects the initial productivity rates of the wells to be around 5,000 barrels per day. Apache signed a $9 million agreement with the Egyptian General Petroleum Corporation (EGPC) on July 18 to drill seven oil wells in the East Bahariya concession with a signature grant of $30 million.

Misr Petroleum Signs Refining Agreement with Petronas

Misr Petroleum and Petronas have signed a memorandum of understanding to produce 20,000 tons of first class oils and 10,000 tons of diesel annually. The production will take place at Misr Petroleum's refining complex at Amreya, while the Malaysian company will provide technological assistance. The two companies will create a joint venture to operate the project and to market its products domestically and in Africa.

UK Export Finance to Fund Egypt Energy Sector

The UK's export credit agency, UK Export Finance (UKEF), announced its willingness to fund Egypt's petrochemical projects. CEO Louis Taylor met Egypt's oil minister Tarek El Molla in Cairo on June 30, to discuss bilateral cooperation between Egypt and UKEF. They went through the updates on the Egyptian petroleum sector, with a focus on the ongoing refining projects in Cairo, Alexandria, Suez, and Asyut.

Dana Gas to Drill Two Wells in Egypt

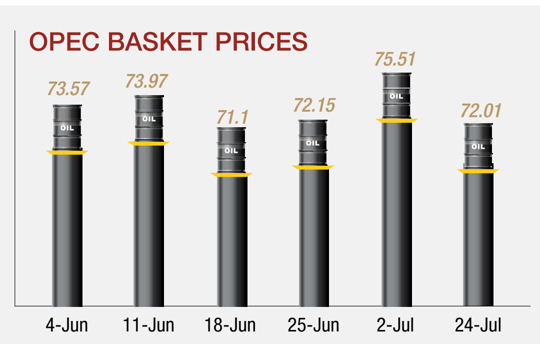
Dana Gas is to drill two new wells in Egypt, Mohammed Mubaideen, the company's head of investor relations, has said. The company will drill the Balsam-8 well in the company's onshore Nile Delta concession after it received $40 million from the Egyptian government in May. The Emirati company aims to return to its targeted production capacity of 200 million cubic feet through the new well, Mubaideen said. The second well will be located in sector in the Mediterranean Sea, close to the Gaza Strip. This will be Dana's first offshore well in Egypt.

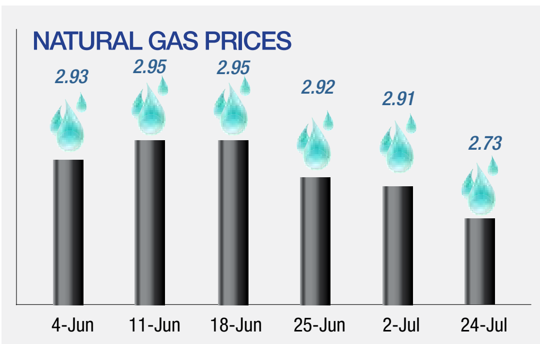
Israel-Egypt Gas Deal: Delek Shareholders Agree to Invest in EMG

Shareholders of Israeli energy company Delek Drilling have agreed to invest in the East Mediterranean Gas Company (EMG), the owner of the pipeline linking gas fields in Israel to Egyptian export terminals. Delek, along with its Texas-based partner Noble Energy, will invest $200 million to buy a 37% stake in EMG. This would make the consortium the largest voting bloc in the company, paving the way for them to pass a motion allowing them to use the pipeline.

Eni CEO Dismisses Noor Field Rumors

Eni has denied media reports that the company has discovered a new gas field in the eastern Mediterranean. "There are prospects and new [geological] structures in Egypt, but we still have not discovered anything," Eni CEO Claudio Descalzi told reporters on June 2. The statement came amid rumors that Eni had discovered a 90-trillion-cubic-feet gas field called Noor in North Sinai. Egyptian oil minister Tarek El Molla also said that the figures were baseless. He added that the parliament is still to approve the deal that gives Eni 85% and the state-owned Tharwa Petroleum 15% of the concession. The companies cannot start exploratory drilling without parliamentary approval, he further explained.



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SAUDI ARABIA

Saudi Aramco has 2 million barrels per day (b/d) in spare capacity, according to CEO Amin Nasser. Saudi energy minister Khalid al-Falih stated that OPEC and non-OPEC producers would pump a combined extra 1 million b/d in the coming months. "We have a healthy spare capacity … that will be availed to meet additional demand and any interruptions in supply if it happens," Nasser stated.

Saudi Arabia planned to pump 11 million b/d in July, a record high for the country, up from 10.8 million b/d in June, a source close to the situation told Reuters.

State-run Korean Electric Power Corp (KEPCO) is among companies shortlisted to bid for a nuclear project in Saudi Arabia. "We were informed by our Saudi counterpart, King Abdullah City for Atomic and Renewable Energy, that KEPCO was shortlisted for a nuclear project in Saudi Arabia," the South Korea energy ministry stated. **The winner of the contract is expected to be chosen in 2019.** Companies from South Korea, the United States, Russia, and China are being considered for the tender. In 2009, KEPCO won an $18.6 billion deal to construct four nuclear power plants in the UAE. The Saudi nuclear power plants are expected to be completed with a capacity of 2.8 GW by 2030.

Saudi Arabia is looking to increase its oil exports to Asia. The Arab kingdom will export more of its Arab Extra Light crude to at least two buyers in Asia in August along with the regular monthly contractual exports. One of the buyers has accepted the offer, but so far there have been no details about the volume of the supplies.

Saudi Arabian crude exports are expected to drop by roughly 100,000 b/d in August as the country refrains from oversupplying the market, the kingdom's OPEC governor stated on July 19. "Saudi Arabia would not like to see unmet customer demand, an oversupplied market repels potential investment in the oil industry, curtailing future supply and contributing to volatility," Adeeb Al Aama stated. He added that Saudi crude exports for the month of July would be close to those of June. An industry source has stated that Saudi Arabia's exports for June were approximately 7.2 million b/d. Official figures for May show that the kingdom exported 6.98 million b/d.

UAE

The Abu Dhabi National Oil Company (ADNOC) agreed to buy part of Saudi Aramco's stake in the $44 billion Ratnagiri refinery in Maharashtra, India. Aramco signed an agreement in April to buy a 50% stake in the refinery on the condition that it would sell some its equity to another investor at a later date. **"Saudi Aramco and ADNOC will together hold 50% stake. The terms are being discussed,"** Aramco CEO Amin Nasser told reporters. The Ratnagiri refinery project will be the largest in India at 60 million tons per year, and is expected to be operational by 2025.

ADNOC revealed on July 3 that it has the ability to increase oil production by several hundred thousand b/d. ADNOC plans to increase its output from 3.3 million b/d to 3.5 million b/d by the end of 2018. Industry sources have reported that the UAE pumped 2.87 million b/d in June, meaning the country has the potential to produce 400,000 b/d extra if it works at maximum capacity, with the possibility of adding around 200,000 b/d more by the end of the year.

ADNOC awarded contracts worth $1.6 billion to China National Petroleum Company (CNPC) affiliate, BGC Inc., for the world's largest onshore and offshore 3D seismic survey. The survey will cover an area of over 53,000 square km, according to an ADNOC statement.

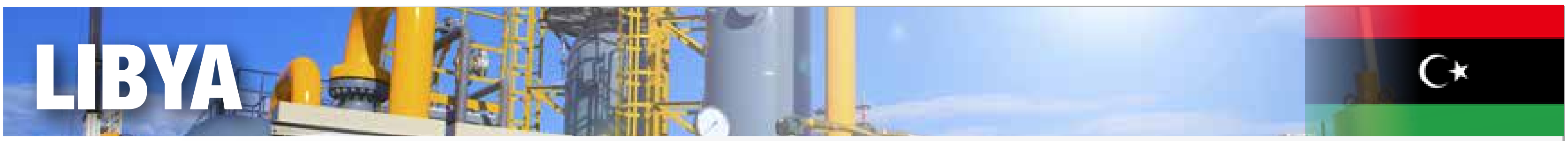
QATAR

Qatar Petroleum plans to invest $20 billion over five years in US oil and gas fields. Qatar will likely announce a deal with the US "before the end of the year," company CEO Saad Sherida al-Kaabi stated. He added that **the company plans to increase production "from 4.8 million barrels of oil equivalent a day to 6.5 million" within the next eight years.** Some of the investment is expected to be put towards gas supplies for the Golden Pass LNG terminal in Texas, a joint venture 70% owned by Qatar Petroleum, 17.6% by ExxonMobil, and 12.4% by ConocoPhillips. Qatar is also looking to invest an additional $5 billion in downstream assets including chemicals projects.

IRAN

Iran is looking towards private companies to export its oil as part of its strategy to counter US sanctions, state media and officials announced on July 1. "Iranian crude oil will be offered on the bourse and the private sector can export it in a transparent way," First Vice President Eshaq Jahangiri stated. "We want to defeat America's efforts … to stop Iran's oil exports," he added, "oil is already being offered on the bourse, about 60,000 b/d, but that has been only for exports of oil products." Iran currently has an oil and petrochemicals bourse as a part of its mercantile exchange.

Iran overtook Saudi Arabia to become the second biggest oil supplier to Indian state refineries between April and June 2018. Tehran's willingness to offer discounted oil meant that India imported 457,000 b/d (5.67 million tons) over the three months. Iraq remained India's top supplier, shipping 7.27 million tons of oil during the period. Saudi Arabia's shipments totaled 5.22 million tons, making it the third largest supplier. **The introduction of US sanctions on Iran's oil sector in November is placing India and other major buyers of Iranian crude under pressure to reduce imports from the country.** Overall, Indian imports from Iran for June were 16% lower than those for May, possibly indicating the start of a complete cut of Iranian crude in Indian refineries.



LIBYA

The Libyan Government of National Accord is providing each household with an extra $500 in subsidies cards starting from July 2018. Libyan central bank governor Saddek Omar Elkaber said that the measure aims to protect households as it begins to lift fuel subsidies in an attempt to curb smuggling.

Libya's Abu Attifel oil field has resumed production after operations were halted for two weeks. The field had been shut down due clashes at eastern export terminals between forces allied to the Libyan National Army (LNA) and the Libyan National Oil Company (NOC) loyal to Tripoli. Production is slated to start gradually, increasing towards the field's capacity of 70,000 b/d.

Libya declared a force majeure on two facilities exporting 850,000 b/d of crude. The NOC announced that loadings from Zueitina and Hariga ports would be temporarily suspended. The declaration came as General Khalifa Haftar's eastern-based LNA blockaded the ports of Ras Lanuf and Es Sider. The NOC previously warned that declaring force majeure on the ports would carry "significant short and long-term consequences for NOC-affiliate companies, the national economy and the Libyan people." In addition to the crude supply losses, **the NOC said that output of natural gas used for local power supplies would fall by 710 million standard cubic feet per day, more than 20,000 b/d of condensate would be lost, and the NOC would incur daily revenue losses of $67.4 million.**

OMAN

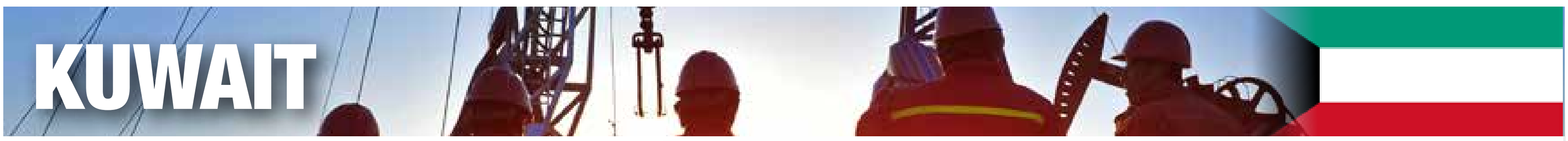
American engineering company KBR has been awarded a project management and consultancy contract by Oman LNG to build a 120 MW gas engine power plant. KBR stated it was also tasked with helping select an engineering, procurement, and construction (EPC) contractor for the plant during its three-year contract. The project will attempt to reduce fuel gas consumption and greenhouse gas emissions.

IRAQ

Shell has handed over its operations at the Majnoon oil field in southern Iraq to the state-run Basra Oil Company (BOC). Shell previously announced its plans to exit the field in November 2017, aiming to develop the Basra Gas Company instead; a joint venture between Shell, South Gas Company, Mitsubishi, and the Petrochemical Project NEBRAS. **The Iraqi oil ministry agreed a two-year contract on April 5 with Anton Oilfield Services to operate the Majnoon oilfield on behalf of BOC.** "Shell's exit will not have any effect on production operations and we can increase output without any hurdles," said an Iraqi oil official.

Petrofac has secured a new contract and multiple Iraq contract extensions worth a combined $110 million. Under the contracts, Petrofac will conduct construction management, engineering, commissioning and start-up services for international oil company clients in Iraq.

An oil tanker containing supplies of gas oil donated by the Kuwaiti government arrived in the Iraqi port of Basra on July 23. The donation of 18,000 tons of gas oil was ordered by the Amir of Kuwait to help in operating Iraqi power stations. Iran cut 1,000 MW of electricity supply to the Thi Qar, Basra and Maysan governorates at the beginning of July due to Baghdad's escalating debts. Power outages, poor services, and unemployment have resulted in the spread of protests across the southern Iraqi governorates. The Kuwaiti shipment also contained 17 mobile power generators and fresh water supplies.



KUWAIT

Kuwait started raising its oil output by 85,000 b/d from July 1, in accordance with the recent agreement to increase production between OPEC and non-OPEC nations. "Kuwait will raise its oil production [from July 1] to 2.785 million barrels, a daily increase of 85,000 compared to May, based on last week's production cut agreement," Minister of Energy Bakhit Rashidi stated.

The Khafji and Hout oil fields in the neutral zone jointly operated by Kuwait and Saudi Arabia will resume production in 2019, Japan's Toyo Engineering said. The Japanese firm announced that it had won its third renewal of the General Engineering Services Agreement from Al-Khafji Joint Operations (KJO), the venture through which the Gulf states operate the fields. The agreement will extend Toyo Engineering's work with KJO until 2023. **"Maximum oil production rate of the fields is 350,000 barrels per day,"** Toyo Engineering added in a statement. "Due to lower crude oil prices, the production of the oil fields was suspended at 2014. Because of [the] oil price recovery, KJO starts the preparation work to re-produce oil from the fields."

Wren House, the UK investment arm of Kuwait's sovereign wealth fund (KIA), has agreed to purchase the pipeline firm North Sea Midstream Partners (NSMP) from ArcLight Capital for roughly $1.7 billion. NSMP owns several natural gas pipelines in the UK, including a 67% stake in the SIRGE and FUKA pipelines which transport natural gas from North Sea and West of Shetlands basin fields, as well as controlling stakes in the St Fergus Gas Terminal and Teesside Gas Processing Plant. Wren House holds a 25% stake in Spanish gas and electricity giant, Natural Gas Fonensa, in which it has invested $550 million.

The Role of Digital Capabilities:

AN INTERVIEW WITH MATTHIAS HEILMANN,

PRESIDENT AND CEO OF BHGE DIGITAL SOLUTIONS

By Mariana Somensi

In late July, Baker Hughes, a GE company (BHGE), met Egypt's oil minister Tarek El Molla to discuss the launch of the country's first national data bank for the oil and gas sector. The Upstream Gateway Project represents a milestone in the modernization of the petroleum industry and a new beginning for another success story for BHGE, which has a long history of successful contributions in Egypt.

Egypt Oil & Gas talked to Matthias Heilmann, President and CEO of BHGE Digital Solutions, about the company's digital capabilities and how the digitalization of the sector can ensure a brighter future for the Egyptian petroleum sector.

IN GENERAL, HOW DO YOU SEE THE DIGITAL TRANSFORMATION PLAY A ROLE IN THE FUTURE OF THE OIL AND GAS INDUSTRY?

The traditional cycles of our industry have changed, and there is no going back. While things are improving in 2018, the oil and gas industry will continue being pressed to deliver new levels of efficiency. Higher productivity will reign, but that requires a holistic view of nonproductive time and production optimization. Digital is the bridge to this kind of operational excellence. Software solutions that utilize domain-specific analytics can make a huge impact in not just improved asset reliability but the reliability of processes across a business. Imagine an industry without nonproductive time – that is the type of future we envision with digital.

Getting to these big picture outcomes starts with the data. Estimates indicate that less than 2% of the oil and gas industry's data is being analyzed and used to inform decision-making. Using digital, and drawing on emerging technologies like artificial intelligence, processes like consolidating and aggregating data are no longer roadblocks to getting actionable insights from that data.

In Egypt, the ministry's Oil and Gas Modernization Program is clearly based on the vision that harnessing data and leveraging new technologies will improve operations and drive the next level of productivity for Egypt.

> Software solutions that utilize domain-specific analytics can make a huge impact in not just improved asset reliability but the reliability of processes across a business.

HOW DO YOU SEE THE ADOPTION OF DIGITIZATION IN THE OIL AND GAS INDUSTRY IN EGYPT AND THE MIDDLE EAST?

The Middle East has a reputation for large-scale innovation and an appetite for technology. Furthermore, many of these efforts do not require the reimagination of existing infrastructure, allowing leaders to move faster in adopting and improving operations. As a result of these dynamics, there are a series of programs across the region that address the need for digital to improve production, increase efficiencies, and better position the region for success as the industry comes out of the downturn. We're seeing this direction in countries like Egypt, where there is a need to drive digitalization across all sectors with strong initiatives likes the Modernization Program for the oil and gas industry, as well as in countries like Saudi Arabia, the UAE and Algeria.

> The Middle East has a reputation for large-scale innovation and an appetite for technology.

HOW DOES BHGE'S DIGITAL CAPABILITIES SUPPORT THE VISION OF THE MINISTRY'S MODERNIZATION PROGRAM?

BHGE supports the ministry's Oil and Gas Modernization Program, and we believe digital will play a big part in helping the ministry achieve these goals. For instance, the 'people pillar' comprehensively considers how to build the talent base and ensure the right workforce for innovation in Egypt. Talent acquisition and development will ensure a new generation of workers with the right digital skills are coming into oil and gas. When deployed appropriately, digital technologies will also help us scale the intelligence of the existing workforce. This is about merging the wealth of expertise with the abilities of modern technology, and we share this vision for the future of the oil and gas workforce.

The ministry is also looking at upstream and downstream performance, with production optimization, improving efficiency and adopting new technologies as key areas of focus. Digital can help across the board, from improving efficiency and lowering cost of operations to helping with specific issues like production optimization and reliability. We are committed as a partner in this journey to invest in a sustainable infrastructure and jumpstart these efforts.

BHGE HAS RECENTLY MET WITH MINISTER OF PETROLEUM TAREK EL MOLLA TO DISCUSS THE COMPANY'S COOPERATION IN THE OIL SECTOR. COULD YOU COMMENT THE PROJECT DISCUSSIONS AND THE TOPICS ADDRESSED DURING THE MEETING?

While it is not for us to comment on the specifics of this most recent meeting, we applaud the minister and the prime minister for the effort around the Modernization Program. BHGE is committed to partner with Egypt, and we see this as a tremendous opportunity for long-term growth and wealth creation for the country.

In 2018, BHGE signed a memorandum of understanding (MoU) for the "Upstream Gateway Project" with the Ministry of Petroleum to support the modernization and digitization of Egypt's oil and gas sector. The MoU, which is aligned to the

ministry's Modernization Program, focuses on driving efficiency across the oil and gas sector through the management of bid rounds using BHGE's advanced digital solutions for data consolidation and aggregation in a secure central data lake. The digital transformation of the ministry's National Data Center will further support the energy sector's growth and attractiveness to international investors.

The MoU demonstrates our continued support of the ministry's Modernization Program, with special focus on the upstream sector as a starting point. In the longer term, the project has scalability to support the digitization of Egypt's midstream and downstream oil and gas sector, leveraging BHGE's fullstream capabilities and solutions to drive further productivity and cost-efficiency across the value-chain.

HOW DOES THE DIGITALIZATION OF EGYPT'S UPSTREAM DATA ASSIST IN ATTRACTING NEW INVESTMENTS TO THE OIL AND GAS SECTOR?

Programs like that of Egypt's Ministry of Petroleum examine new efficiencies and productivity across the board. Digital will enable the country to drive even greater productivity and improved outcomes for existing assets. In furthering the project to expand into onshore and offshore exploration, I believe Egypt will set the tone to sanction projects at break-even points in a way the industry has never seen before.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Egypt's POSITION AMONG OTHER ARAB PETROLEUM EXPORTING COUNTRIES

By Mahinaz El Baz, Amina Hussein

Egypt is an active member of the Organization of Arab Petroleum Exporting Countries (OAPEC) since 1973. The organization was originally established on January 9, 1968 by Kuwait, Libya and the Kingdom of Saudi Arabia (KSA). The three member countries chose the State of Kuwait for the organizations' domicile and headquarters. OAPEC is considered as a regional inter-governmental organization.

Acknowledging the role of petroleum as a major player in its members' economies, OAPEC is concerned with the development and prosperity of the world petroleum industry by fostering close and fruitful cooperation among its members.

Furthermore, it believes in the importance of building an integrated petroleum industry as a cornerstone for future economic integration amongst Arab countries and contributes to the effective use of the resources of member countries through sponsoring joint ventures, according to OAPEC's official website.

As part of OAPEC, Egypt realized the importance of the crude oil revenues and divided its international trade transactions into oil and non-oil imports and exports.

This report aims to highlight Egypt's contribution in the regional petroleum industry as part of OAPEC. It covers the performance of Egypt's oil industry from 2010-2016 compared to other countries in the organization.

EXPLORATION ACTIVITIES

Egypt is leading oil discoveries in OAPEC, which reflects the importance of its upstream sector. The country comes on the top of oil discoveries in the organization from 2010-2016, with approximately 40 discoveries on average. Algeria comes in the second place with 17 oil discoveries on average.

In 2011, Egypt recorded an extraordinary number of 57 oil discoveries. Moreover, Egypt represented 61% of OAPEC's total oil discoveries on average from 2010-2016.

CRUDE OIL RESERVES

Arab petroleum exporting countries' oil reserves recorded around 713,810.84 million barrels of oil equivalent per year (boe/y) on average from 2010-2016. Egypt represented 0.56% of OAPEC's total crude oil reserves in the same period with an average of 4,007.87 million boe/y. In 2014, Egypt witnessed a significant decrease in oil reserves by 509 million boe/y. The declining trend remained until 2016, but with a slower pace.

On the contrary, OAPEC data shows that KSA is witnessing a steady trend of crude oil reserves, remaining at the top of the crude oil reserves list in OAPEC. Saudi crude oil reserves reached the highest level in 2014 with around 271,376.404 million boe/y and the lowest level of reserves in 2016 with around 269,277.288 million boe/y.

EXPLORATION (OIL DISCOVERY)

COUNTRY	2010	2011	2012	2013	2014	2015	2016
ALGERIA	14	10	8	12	18	10	17
BAHRAIN	0	0	0	0	0	0	0
EGYPT	40	57	57	41	34	26	27
IRAQ	0	2	6	1	1	0	1
KUWAIT	1	1	4	3	6	9	4
LIBYA	20	0	2	4	1	0	0
QATAR	0	0	0	0	0	0	0
SAUDI ARABIA	4	1	1	0	0	0	0
SYRIA	2	3	1	0	0	0	0
TUNISIA	1	4	2	0	1	3	1
UAE	1	0	0	0	0	0	0
OAPEC	83	78	81	61	61	48	50

Source: OAPEC

CRUDE OIL RESERVES (MILLION BARREL OIL EQUIVALENT)

COUNTRY	2010	2011	2012	2013	2014	2015	2016
ALGERIA	12,419.600	12,419.600	12,419.600	12,419.600	12,419.600	12,419.600	12,419.600
BAHRAIN	122.160	122.160	122.160	122.160	122.160	122.160	122.160
EGYPT	4,407.940	4,357.040	4,265.420	4,275.600	3,766.600	3,531.442	3,451.020
IRAQ	144,844.094	143,894.300	145,675.800	145,675.800	145,370.400	144,657.800	151,071.200
KUWAIT	103,327.000	103,327.000	103,327.000	103,327.000	103,327.000	103,327.000	103,327.000
LIBYA	47,944.746	48,878.252	49,344.496	49,234.552	49,295.632	50,407.288	49,233.534
QATAR	25,920.316	25,718.752	25,694.320	25,521.260	25,698.392	25,698.392	25,698.392
SAUDI ARABIA	269,277.288	270,182.290	270,635.300	270,573.202	271,376.404	271,251.190	270,999.744
SYRIA	2,545.000	2,545.000	2,545.000	2,545.000	2,545.000	2,545.000	2,545.000
TUNISIA	432.650	432.650	432.650	432.650	432.650	432.650	432.650
UAE	99,560.400	99,560.400	99,560.400	99,560.400	99,560.400	99,560.400	99,560.400
OAPEC	710,801.194	711,437.444	714,022.146	713,687.224	713,914.238	713,952.922	718,860.700

Source: OAPEC

OIL PRODUCTION

Egypt ranks the eighth oil producer amongst other OAPEC countries with an average of 214.0957 million boe/y from 2010-2016. The African country represented 2.6% of OAPEC'S total oil production during the same period. In 2015, Egypt reached the highest level of oil production with 221.546 million boe/y. However, the production declined by 10.866 million boe/y in 2016.

KSA is the largest oil producer in OAPEC, while the lowest oil production shares come from Tunisia and Syria. KSA is witnessing an increasing oil production trend since 2014, due to geopolitical reasons that are also affecting international oil prices. On the other hand, Syria was not the lowest oil producer in OAPEC until 2012; it was Tunisia. However, Syria's production decreased sharply in 2013 due to political and national security hazards.

OIL CONSUMPTION

Egypt is the second largest oil consumer in OAPEC after KSA. Egypt's crude oil consumption recorded around 293.3644 million boe/y from 2010-2016 on average, representing 14.1% of OAPEC's total oil consumption in the same period.

Egypt's consumption reached the highest level in 2016 with 317.014 million boe/y. Moreover, OAPEC figures show that oil consumption has been significantly increasing in Egypt since 2011, due to economic, political and demographic reasons.

Egypt has exerted strenuous efforts in the previous period to realize major progress in the oil domain, lure foreign investments and strengthen its regional position. As a result, the country recorded 61% of the oil finds of OAPEC member states in the period from 2010-2016. However, the country owns the third lowest oil reserves in OAPEC followed by Syria and Tunisia.

Although Egypt is not amongst the top five oil producers in OAPEC, it is the second biggest oil consumer after KSA.

CRUDE OIL PRODUCTION (MILLION BARREL OIL EQUIVALENT)

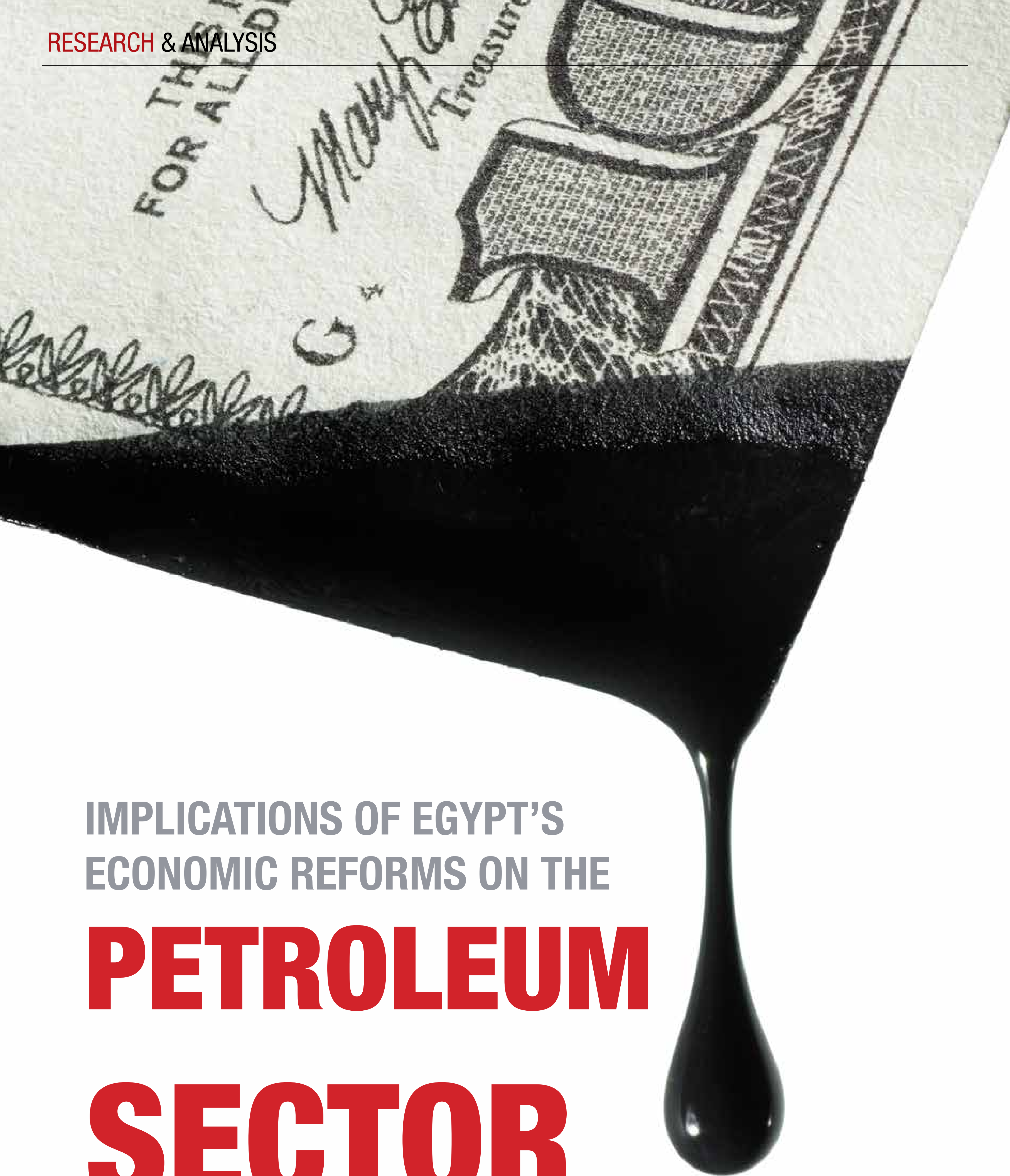
COUNTRY	2010	2011	2012	2013	2014	2015	2016
ALGERIA	442.168	431.764	446.999	446.999	443.283	429.906	425.819
BAHRAIN	67.626	70.598	64.282	73.199	75.057	75.057	75.057
EGYPT	208.339	210.309	211.944	215.362	220.490	221.546	210.680
IRAQ	876.534	876.534	1,093.159	1,107.279	1,155.583	1,391.158	1,547.217
KUWAIT	859.114	987.889	1,066.406	1,006.212	1,000.266	1,071.236	1,076.810
LIBYA	555.497	219.041	540.252	369.080	178.365	149.199	144.987
QATAR	272.509	272.732	273.476	269.017	263.443	241.160	216.254
SAUDI ARABIA	3,034.055	3,459.651	3,627.787	3,580.932	3,608.948	3,787.264	3,886.697
SYRIA	143.798	122.618	63.167	11.519	3.716	3.604	2.961
TUNISIA	27.842	23.903	23.518	22.349	18.429	17.501	18.085
UAE	863.529	952.705	985.589	1,039.281	1,038.167	1,110.586	1,147.520
OAPEC	7,351.011	7,627.745	8,396.577	8,141.228	8,005.747	8,498.217	8,752.087

Source: OAPEC

CRUDE OIL CONSUMPTION (MILLION BARREL OIL EQUIVALENT)

COUNTRY	2010	2011	2012	2013	2014	2015	2016
ALGERIA	175.601	170.820	153.406	151.912	151.984	157.494	152.532
BAHRAIN	10.044	9.353	10.207	10.409	10.700	11.150	11.629
EGYPT	272.909	270.428	280.028	298.926	306.343	307.903	317.014
IRAQ	200.284	220.153	236.178	254.086	232.370	231.496	240.626
KUWAIT	123.331	109.079	116.072	124.478	119.961	121.155	119.904
LIBYA	130.865	89.979	92.388	84.705	93.748	80.534	79.199
QATAR	33.700	37.560	41.405	43.484	49.922	57.550	65.407
SAUDI ARABIA	758.121	793.295	834.581	850.284	925.874	984.155	958.857
SYRIA	114.533	108.945	82.536	67.380	53.528	52.325	42.689
TUNISIA	33.260	30.871	32.246	33.425	35.785	37.169	37.340
UAE	118.694	117.483	124.357	155.089	148.304	155.386	159.600
OAPEC	1,971.344	1,957.967	2,003.402	2,074.177	2,128.519	2,196.316	2,184.797

Source: OAPEC



IMPLICATIONS OF EGYPT'S ECONOMIC REFORMS ON THE PETROLEUM SECTOR

By Matthew Hoare, Mahinaz El Baz

The landmark $12 billion loan agreement signed between the International Monetary Fund (IMF) and the Egyptian government in 2016 was conditioned on a set of economic reforms designed to return government debt to sustainable levels and revive the stagnating economy. Following the approval of the loan on November 11, 2016, the IMF said that the reform program would return financial stability and stimulate economic growth across the economy.

The agreement heralds the Egyptian government's ongoing development of a comprehensive reform plan for the energy sector. While the IMF's initial press release is fairly light on sector-specific information, it does highlight plans to address the unsustainability of the Egyptian General Petroleum Company (EGPC)'s finances. Included in this strategy are measures to reduce the state company's debts, improve operational transparency, and introduce efficiency savings.

Now, 20 months on, Egypt Oil & Gas examines the impact of current reforms on the performance of the petroleum sector.

TACKLING THE BUDGET DEFICIT

Right after implementing the reform program, Egypt's budget deficit for fiscal year (FY) 2016/17, which runs from July to June, fell to the lowest level in five years. It stood at 10.9% compared to 12.5% for the previous fiscal year, according to the Ministry of Planning, Monitoring and Administrative Reform (MPMAR).

In early July, the Ministry of Finance announced that Egypt had a primary budget surplus for the first time in 15 years. Finance Minister Mohamed Maait stated that Egypt achieved a 0.2% primary budget surplus, worth EGP 4 million ($223 million) in FY 2017/18. Moreover, it is planned to reduce the total budget deficit to 8.4% of the Gross Domestic Product (GDP) by end of the current FY 2018/19, while achieving a 2% primary surplus. The government recently expected its 2017/18 budget deficit to stand at 9.8%, slightly above the 9.1% it said last year it was targeting in the pre-budget report.

REDUCING EXPENDITURES

Along with social benefits, subsidies are the biggest ticket item in the budget, exceeding even wages and interest payments. In order to continue with the budget deficit reduction plan, Egypt's government decided to move forward with an energy subsidies reduction plan. In FY 2014/15, the government launched an energy subsidies reform program by reducing subsidies and increasing fuel prices in the budget. Since then, the government has committed to periodically increasing the pre-tax cost-recovery ratio on most fuel products in order to achieve 100% in FY 2018/19 and to eliminate electricity subsidies by FY 2020/21, according to the IMF.

In order to successfully reach the goals of the budget deficit reduction plan, the government announced a reduction in energy subsidies one day after floating the Egyptian pound in November 2016. A second reduction occurred in June 2017. Prior to the budget approval for the FY 2017/18, Egypt had earlier cut energy subsidies in a move that will save around EGP 35 billion compared to FY 2016/17, according to the State Information Service. The government has followed through on its plan for a fourth round of electricity subsidy reform, lowering its expenditures on electricity subsidies to EGP 30 billion.

In June, the government announced the third fuel subsidy cut since floating the Egyptian pound in 2016. This was few days after reducing electricity subsidies and raising prices by an average of 26% from July 2017.

The budget of FY 2018/19 has allocated EGP 1.4 trillion of spending. As a result, subsidies on fuel will be cut by around 21%, leaving total spending at around EGP 89 billion in the current budget. Electricity subsidies will witness a tougher cut of around 45%.

MONETARY POLICY

EXCHANGE RATE LIBERALIZATION

On November 3, 2016, the Central Bank of Egypt (CBE) took the radical decision to abolish Egypt's fixed exchange rate system. Now, instead of the central bank determining the exchange rate, the value of the Egyptian pound would be subject to the market dynamics of interbank currency trading. The pound fell sharply against the US dollar from 8.77 pound per dollar to 14.635 pound per dollar on the day of the devaluation, before falling further to 17.417 the following week. The IMF agreement loan – upon which the currency floatation was conditioned – was finalized the following week.

INFLATION

Since the CBE made its initial adjustment to the exchange rate in March 2016, the rate of inflation has fluctuated wildly. Following the initial currency devaluation, the headline Consumer Prices Index (CPI) rate of inflation – which includes more volatile commodities such as food and fuel – jumped from 9% in March to 10.3% in April. Headline inflation continued to rise steadily through the summer of 2016, peaking at 15.5% in August.

The floatation of the pound in November sent headline CPI surged to 19% - up from 13.5% in October – before climbing to 30% by the following February. After peaking at 33% in July 2017, inflation steadily declined to a pre-floatation low of 11.5%. Following government cuts to energy subsidies in the budget of the FY 2018/19, headline CPI jumped by almost 300 basis points to 14.4% in June 2018 – the first increase in 11 months. The CBE said after June's Monetary Policy Committee (MPC) meeting that it expects inflation to fall to single digits by the end of 2018 after the effects of the subsidy cuts dissipate.

INTEREST RATES

Since the first currency devaluation in March 2016, the CBE has followed a tight monetary policy, continuously raising interest rates in an effort to contain the inflationary effects of devaluation. The MPC raised the discount rate by 150 basis points to 11.25% in March 2016; 100 basis points in June 2016; 300 basis points in November 2016; 200 basis points in May 2017; and a further 200 basis points in July 2017 to reach 19.25%. Since inflation started on its downward trajectory in July 2017, the CBE has slightly reduced the discount rate to its current level of 17.25%. The CBE's monetary tightening succeeded in containing the effects of devaluation – albeit only after inflation reached levels not seen since the 1980s.

FOREIGN RESERVES

As a result of sealing the $12 billion deal between the CBE and the IMF, foreign reserves increased by 60%, reaching $31.3 billion in June 2017, according to a BNP Paribas' report. In general, international reserves in Egypt have averaged around $22.7 billion from 2003 until 2017, reaching an all-time high of $37 billion in December 2017 and a record low of $13.4 billion in March 2013, according to the CBE.

During the past 20 months since the floatation of

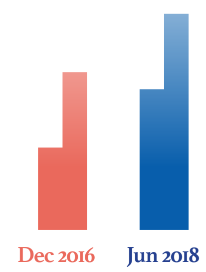
HIGHLIGHTS

The debts owed to IOCs have now fallen to $1.2 billion, beating 2010's record low of $1.35 billion.

HIGHLIGHTS

Egypt's international transactions ran an overall BoP surplus of $13.7 billion in FY 2016/17.

Egypt's Foreign Reserves



$24.26 million $44.25 million

82.4% ↑

the pound, increased foreign currency inflows have helped Egypt's foreign reserves to reach record highs. Reserves have almost doubled from $24.26 million in December 2016 to $44.25 million in June 2018, helped by a weaker currency and the first four loan disbursements. Government bond sales have also bolstered reserves - most notably in February 2018 when they jumped by $4.3 billion following a successful $4 billion Eurobond auction.

DOMESTIC AND EXTERNAL DEBTS

While both domestic and external debts have experienced rapid increases this decade, data suggests that the pace of debt accumulation appears to have slowed since the government embarked on its economic reform program.

Data for gross domestic debt shows that debt reached EGP 3.414 trillion from July-December 2017 representing 83.8% of GDP - compared to EGP 3.053 trillion during the same period in 2016, according to the CBE.

External debt data – available until Q2 2017/18 - demonstrates a similar trend. Debts rose from $67.3 million to $82.88 million (a $15.5 million increase) during the IMF period (Q2 2016/17 – Q2 2017/18). In comparison, debts increased by $19.5 million during the year before the IMF agreement (Q2 2015/16 – Q2 2016/17).

Under the IMF program, government debt as a percentage of GDP continued to increase in 2017. According to the fund's latest figures, gross government debt/GDP reached 103.3% in 2017, increasing from 96.8% in 2016.

ARREARS TO IOCS

The exchange rate adjustment, in addition to the increasing foreign reserves have helped in freeing up resources to pay for part of the accumulated arrears to international oil companies (IOCs), which stood at $2.2 billion at the end of January 2018 down from $3.5 billion at the end of 2016, according to the World Bank.

The debts owed to IOCs have now fallen to $1.2 billion, beating 2010's record low of $1.35 billion, according to a press release issued by the Ministry of Petroleum and Mineral Resources. Moreover, Egypt's national oil companies (NOCs) will pay all debts owed to international partners before the end of 2019, Egypt's Minster of Petroleum and Mineral Resources, Tarek El Molla mentioned on many occasions.

TRADE AND INVESTMENT

BALANCE OF PAYMENTS

Egypt's international transactions are depending on three main sources of revenue forming: tourism, the Suez Canal, and hydrocarbon exports. The three sources have not changed over the past decade, which makes the economy increasingly vulnerable to external factors.

In the light of the static structure of Egypt's Balance of Payments (BoP), the government had to take steps toward diversifying and strengthening revenue sources. The economic reform is mainly aiming to reduce the BoP's deficit and create more internal sources of revenues. Yet, the reform has negative effects in the short-run. Faced with higher import costs after floating the exchange rate in November 2016, importers had to choose between maintaining their margins or their market share. One determiner of this choice can be the scale of any depreciation.

A modest change would be easier to absorb in terms of costs, and the first partial depreciation in March 2016, of around 13%, did not result in a significant rise in inflation. However, after the second depreciation due to November's floatation, on top of the increase in prices for imported factors of production, most private corporates in the formal sector raised wages by 10-20%, making an increase in selling prices necessary, highlighted BNP Paribas's report.

On the other hand, the positive effects of the reform manifested in FY 2016/17 as Egypt's international transactions ran an overall BoP surplus of $13.7 billion. Of this, $12.2 billion were generated between November and June following the CBE's decision to float the currency. This is a large improvement when compared to the overall BoP deficit of $2.8 billion in the previous year. Positive BoP data continued into following fiscal year as well, as the government revealed an overall surplus of $11 billion between July and March in FY 2017/18.

As the current account continued its improvement, with a sharp contraction of 57.5% ($7.2 billion) in its deficit, posting $5.3 billion against $12.5 billion in the same period a year earlier. This improvement was an outcome of the increase in both services balance surplus by 138.2% and net current transfers by 23.2%, and the retreat in trade deficit by 1.3%, according to the CBE.

FOREIGN DIRECT INVESTMENT

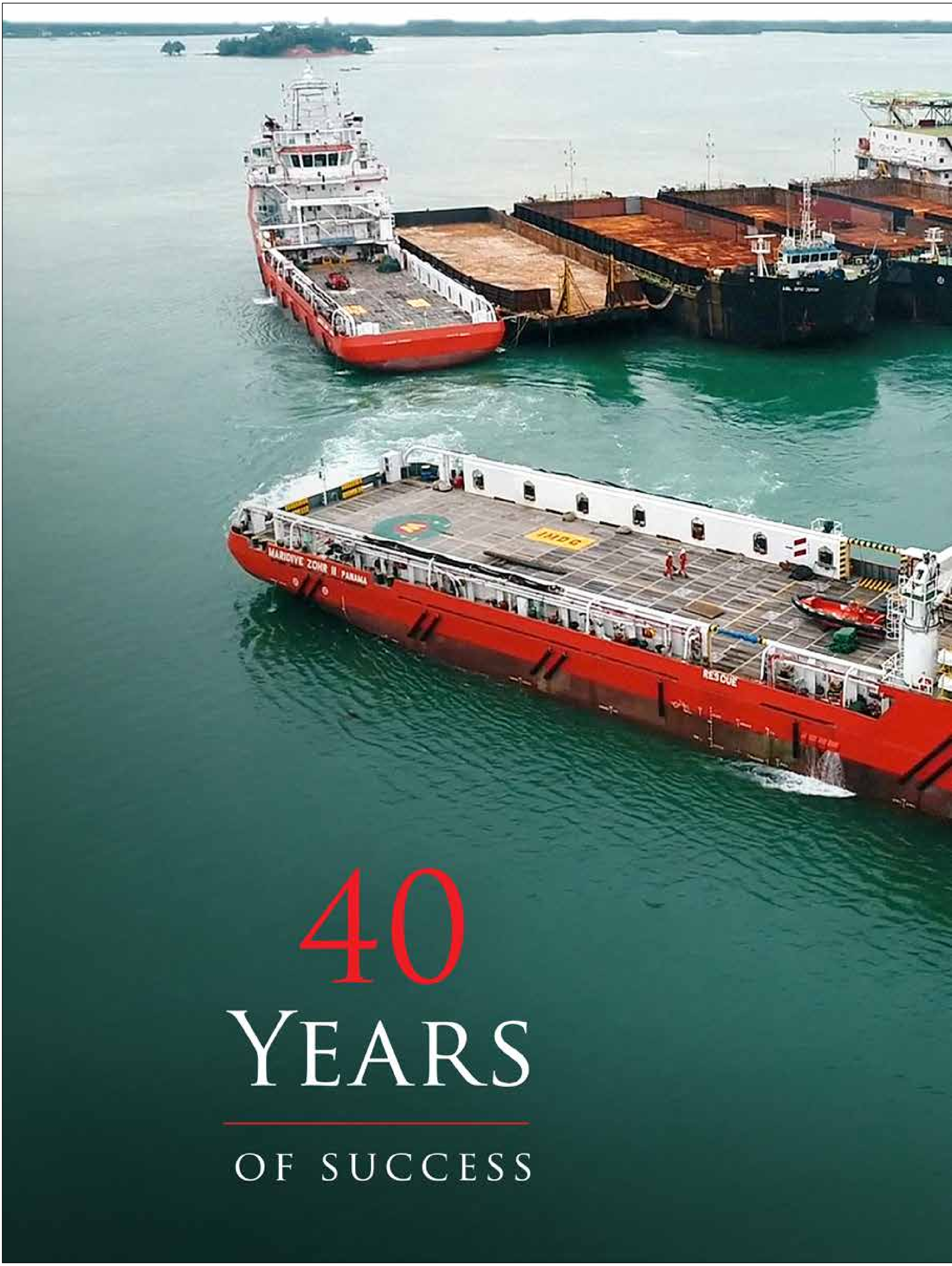
Inaugurating the economic reform, the state decided to float the exchange rate to eliminate the parallel exchange market, which helps in getting back foreign investors' confidence. As a result, the credibility of the new exchange rate regime and substantial increase in yields on government securities have attracted more than $10 billion in foreign portfolio investment as of July 2017, compared to virtually zero up until mid-2016, according to BNP Paribas's report.

Furthermore, foreign investors have returned to the Egyptian debt market in FY 2016/17, buying around $13 billion as of the end of June compared to $1 billion the year before, as hikes in interest rates boosted appetite in the country's domestic debt, according to a presidency statement. As an overall result of the economic reform, investments in FY 2016/17 jumped 27.5% from a year earlier, according to the Ministry of Finance's report. Foreign Direct Investment (FDI) in the petroleum sector increased by $1.3 billion to $8.1 billion in FY 2016/17, compared to $6.8 billion in FY 2015/16, according to the Ministry of Petroleum and Mineral Resources.

The latest available data show that total FDI inflows in Egypt recorded around $10.2 billion, while total outflows reached $4.2 billion in July-March FY 2017/18. Accordingly, net FDI in Egypt amounted to $6 billion of inflows, mainly due to the net investment of $3.4 billion in the oil sector, according to the CBE.

Egypt's economic reform program and hydrocarbon modernization strategies are aiming to retain the investor's confidence in the petroleum sector, in addition to unleashing the great potential of the sector. As a direct result, the decreasing debt encouraged IOCs to inject extra FDI, specifically into exploration and production (E&P) activities.

Since providing the petroleum industry's stakeholders with the full picture is our responsibility, Egypt Oil & Gas Research and Analysis is offering a full report covering the implications of the ongoing economic reforms on the petroleum sector. The full report will be available soon. To get your copy please contact Ayman Rady, Egypt Oil & Gas' Business Development Manager:
ayman@egyptoil-gas.com



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SANCTIONING IRAN:

THE COMING OIL EMBARGO & ITS EFFECT ON THE OIL MARKET

By Matthew Hoare

When, in July 2017, Total purchased a controlling stake in phase 11 of Iran's South Pars natural gas field - projected to produce around 2 billion cubic feet per day (cf/d) - it seemed almost inconceivable that the French oil giant could pull out of the agreement just a year later. Following the conclusion of negotiations, Total's chief executive, Patrick Pouyanne, lauded the deal as representing a "new page in the history of our partnership with [Iran]". Fast-forward to July 2018 and it seems that this deal has already been placed in the shredder.

The effects of President Donald Trump's dramatic rejection of the 2015 Joint Comprehensive Plan of Action (JCPOA) were felt almost immediately, as Total signaled their intention to exit the South Pars project should they fail to acquire a sanctions waiver from the US. Two months later, in July 2018, Middle East Economic Digest reported what most observers had long anticipated: that Total would indeed be pulling out of SP11 having been unable to obtain a sanctions exemption.

Total's departure from the project is both a blow to Iran's natural gas sector and to the Islamic Republic's attempts to downplay the potential effects of the upcoming sanctions. It also represents a microcosm of a wider, ongoing process that could have far-reaching implications for the global oil markets. As the US and its regional allies ramp up economic pressure on Tehran, Egypt Oil & Gas examines how the restoration of economic sanctions will affect the international oil markets.

TURNING THE SCREW

On May 8, US President Donald Trump delivered a confrontational statement from the White House, in which he announced the withdrawal of the US from the JCPOA – the hard-fought nuclear accord between the P5+1 and Iran - and the reimposition of Obama-era sanctions. Following the announcement, oil futures shot up more than 3% to reach a fresh four-year high of $77.20 per barrel.

Rather than immediately re-introduce the sanctions, the Treasury announced two wind-down periods of 90 and 180 days. During these grace periods, companies and countries with commercial ties to Iran are expected to prepare themselves for the restoration of the sanctions regime, and cease any activities that contravene US legislation.

Many of the toughest measures will not come into effect until after the 180-day wind-down period expires on November 4. These include sanctions on Iran's shipping sector, the Iranian central bank and the country's energy sector. After this date, any organization transacting with the National Iranian Oil Company (NIOC), Naftiran Intertrade Company (NICO), the National Iranian Tanker Company (NITC) and other state energy companies for petroleum, petroleum products or petrochemical products will risk punitive fines and being shut out of the US financial system.

GRANTING WAIVERS

The US government has made no secret about wanting to remove Iranian crude from the market completely, and at the end of June requested that all countries cease importing from Iran by November. An anonymous State Department official told Reuters that the US was unlikely to issue any waivers. This would mean that any country continuing to purchase Iranian crude past November 4 could be hit by punitive measures by the US. Oil futures responded by rising past the $70 mark for the first time since early May.

In the weeks since, several senior figures in the Trump Administration have rowed back on the initial hardline stance towards the issuance of waivers. Secretary of State Mike Pompeo said on July 10 that the US will consider sanctions exemptions for some countries on a case-by-case basis. The following week US Treasury Secretary Steven Mnuchin echoed Pompeo's remarks. "We want people to reduce oil purchases to zero, but in certain cases if people cannot do that overnight, we'll consider exceptions," Mnuchin told reporters.

It is not yet clear under what terms Washington will be willing to issue waivers. An Iranian news agency reported that the US was considering granting a waiver to South Korea following a request in mid-July. Similarly, Japan is also in talks with Washington to receive a sanctions exemption – although it appears unlikely that Tokyo will receive a positive response.

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>
> **VINOD RAGHOTHAMARAO, DIRECTOR OF CONSULTING AT IHS MARKIT**

The only waiver request that has so far been rejected by Washington was made by France. Minister of Finance Bruno Le Maire revealed to Le Figaro that the US Treasury had rejected their request to exempt French companies operating in Iran from secondary sanctions.

TO COMPLY OR NOT TO COMPLY?

How close it comes to achieving its ambitious goal of reducing Iranian crude exports to zero will hinge on the degree of pressure the US is willing to exert on Iran's biggest buyers.

China, in the midst of an escalating a trade war with the US, is one of the countries most likely to outwardly disregard Washington's attempts to enforce a global oil embargo on Iran – especially as the trade disputes between the two countries look to be entering the oil sector. US crude shipments to China are expected to total 9.58 million barrels in August, down from 12.32 million barrels in July, while an executive from Chinese refinery company Dongming Petrochemical Group said recently that the company would end all purchases of US crude.

India, the second largest buyer of Iranian crude after China, is yet to make any public statements about its position. The past few months have seen mixed data regarding India's imports. The latest government data showed that Iran overtook Saudi Arabia between April and June to become the country's second-biggest supplier. However, industry data revealed that Indian imports dropped by a notable 16% in June, down to just under 600,000 barrels per day (b/d).

Vinod Raghothamarao, director of consulting at IHS

Markit, told Egypt Oil & Gas that both China and India are likely to keep importing Iranian crude. "China and India are both posting successive records for crude imports, with expanding downstream capacity coming online that is optimized to crude grades that are relatively heavy and sour, like much of Iran's oil output," he said.

"With Tehran prepared to offer better terms on cargoes, both of these major export markets could actually increase their lifting of Iranian oil."

Russia, like China, is unlikely to march in lockstep with the US, and may act to reduce the effects of the sanctions on Iran's economy. While Moscow does not import hydrocarbons from Iran, it may invest as much as $50 billion into the Iranian oil and gas sector, a senior Iranian official said recently during a visit to the Russian capital.

There has been contradictory news coming out of Turkey - the fourth biggest buyer of Iranian oil according to Bloomberg's data. Industry analysts revealed in mid-July that the country's biggest importer of Iranian crude was reducing its purchases, signaling that Ankara may in fact be ready to cooperate with Washington on the matter. However, in a rebuke to US policy, Foreign Minister Mevlut Cavusoglu said at a press conference on July 24 that the Turkish government had told US officials that they will not be implementing the sanctions. "We will not bow down to such pressures, sanctions or threats," the minister said.

EUROPE'S CONUNDRUM

The EU finds itself in a more difficult position than it did in 2012 when it agreed to embargo Iranian crude. Now, it is faced with a balancing act of sorts; anxious to hold the nuclear accord together but reluctant to explicitly act against US policy and jeopardize the transatlantic relationship.

On June 6, the bloc adopted an updated form of the Blocking Statute, legislation that prohibits European organizations from complying with extraterritorial sanctions regimes imposed by other countries. This means that European companies may face penalties in their own countries should they comply with the Iran sanctions. This will, in effect, create a situation in which companies are forced to choose between breaching the US sanctions regime or ignoring the EU Blocking Statute. Given the comparative severity of fines handed out by the US, as well as the threat of being shut out of their financial system, it seems that the Blocking Statute will act as little more than a symbolic gesture to the JCPOA.

Although these rules will not come into force until the beginning of August, a number of major European companies have evidently already decided that continuing business in Iran is not in their interest. Industry sources told Reuters that, in addition to Total, Spain's Repsol and Cepsa, Italian companies Eni and Saras, and Greece's Hellenic Petroleum will end purchases of Iranian oil before the November deadline. Whether the EU agrees to the embargo or not, it seems that Europe is destined to decline as one of Iran's chief export markets.

180 DAYS LATER

As yet, the threat of incoming sanctions does not seem to have affected Iranian oil production or exports. OPEC figures show that production fell only very slightly from 3.822 million b/d to 3.799 million b/d between May and June, while exports of petroleum and condensate rose from 2.6 million b/d to 2.7 million b/d in May – the highest level since the signing of the JCPOA.

However, looking beyond November 4, there are differing views regarding how successful the sanctions will be in reducing Iran's exports.

Iman Nasseri, managing director of FGE's Middle East unit, told us that US ambitions for zero exports "will not be achieved whatsoever".

"The market will hardly cope with it and there will be intentional misfollow [sic] of the US sanctions as well as some waivers from the US government to a few companies", she said.

FGE is instead forecasting Iran's total oil exports (including petroleum, products and condensate) to fall by around 2 million b/d to under 1 million b/d in 2019. According to their latest estimations, Iran will continue to export 700,000 b/d of crude to China, India and Turkey, 150,000 b/d of petroleum products, and 100,000 b/d of condensates.

In this scenario, FGE Chairman Fereidun Fesharaki has predicted that the prices will hit $100 per barrel in 2019, not helped by falling production in Venezuela, a deteriorating situation in Libya, and the limited spare capacity of oil producers to cover this shortfall.

IHS's projections are comparatively conservative. "We believe that up to 250,000 b/d could be removed in the first six months after the imposition of sanctions, and growing compliance with increasingly strict US sanctions could take a total 500,000 b/d off the market over the course of a year," Raghothamarao tells us.

PLAYING THE WAITING GAME

How the sanctions affect the oil markets will of course depend on how much Iranian crude, condensate and petroleum products the US succeeds in removing from the market. Although the White House has said that it will attempt to set up a total embargo on Iran's oil sector, this is highly unlikely to occur in the short or the medium term.

Washington's traditional allies in Europe, Japan and South Korea are the countries most likely to fully cooperate with US policy. However, these countries account for only around 1 million b/d of Iran's exports – less than half of the 2.7 million b/d Iran exported in May.

Complicating the picture further is Washington's fractious relationship with Beijing, which given the current tensions, is unlikely to make significant cuts to its imports of Iranian oil. This raises the prospect of the US threatening China with sanctions come November 5, an act that surely will only strengthen Chinese resolve to maintain its trading relationship with Iran.

Without Tehran's biggest customer on side, the US will almost certainly have to dial back its ambitions and perhaps rely on acquiring India's full cooperation in order to exert maximum pressure on the Iranian government.

Despite the contradictory information currently being reported in the press, the picture will become clearer over the coming months as the US clarifies its position on waivers and new trade data becomes available. Until then we will all need to play the waiting game.

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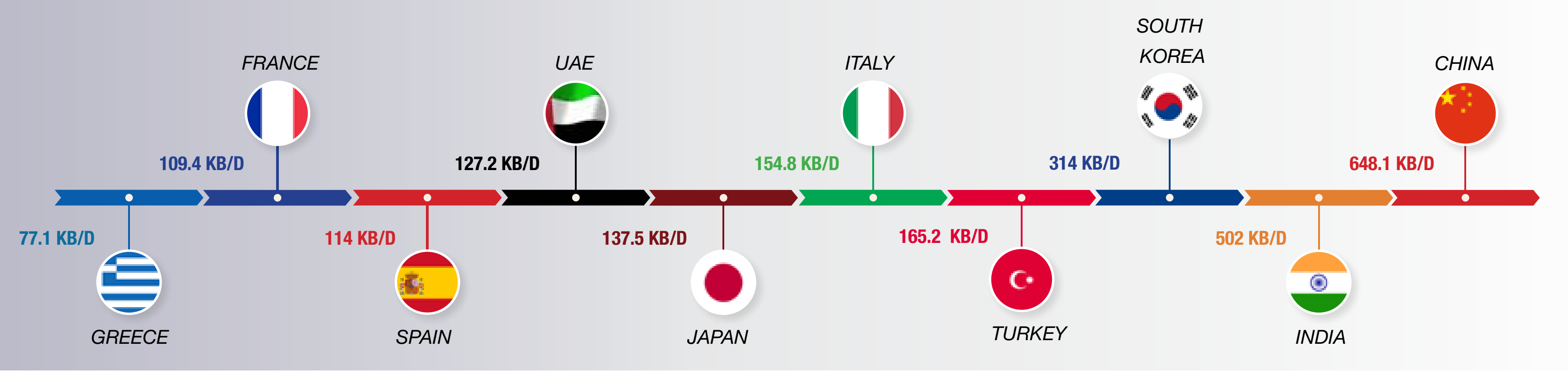
>
> **IMAN NASSERI, MANAGING DIRECTOR OF FGE'S MIDDLE EAST UNIT**

IRAN CRUDE AND CONDENSATE EXPORTS (MONTHLY AVERAGE BETWEEN NOV. 2017 AND APRIL 2018)

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Seven Years After Gaddafi:

WHERE DOES THE LIBYAN OIL MARKET STAND?

By Omnia Farrag

Libya possesses the largest proven oil reserves in Africa and the ninth biggest reserves worldwide with an estimate reserves of 47.1 billion barrels. The country used to be a main oil exporter to Europe for decades as its production reached a peak of 3 million barrels of oil per day (b/d) in the 1970s. Only seven years ago, before the uprising that ended the 42-year rule of Muammar Gaddafi, the north African country was pumping more than 1.6 million b/d. As the country is currently torn between rival governments and tens of militias, it is struggling to maintain a production level of 1 million b/d.

While 1 million b/d might sound little for a country with as huge oil reserves as Libya, this production rate is considered positive looking back to an average daily production of around 400,000 b/d that Libya stuck in between 2014 and 2016.

The country's production rates started to recover in 2017 with an output of 1.3 million b/d in July, a number that slightly decreased toward the end of that year. In the same month, the Libyan National Oil Company (NOC) declared an ambitious three-phase plan to reach production of 2.2 million b/d by 2023, yet due to the ongoing stability, this goal sounds very challenging.

CHALLENGES TO INCREASING PRODUCTION

Libya has been politically and economically unstable since toppling Gaddafi, who built a one-man-regime with no state apparatus able to manage the country's resources during crisis time. Additionally, as little urban development efforts were made in the country during Gaddafi's rule, the state was easily fragmented into tribes with easy access to weapons after Gaddafi's fall. With guns being already in Libyans' hands and the rise of the Islamic State in Iraq and Syria along with other small radical groups in the region that was already shaken by the Arab Spring, Libya became a failed state.

A study made in 2014 estimated that there are approximately 1,600 armed groups in the country, the Netherlands-based Clingendael wrote. There are two main rival governments in Libya now. The prime minister Fayez al-Serraj's UN-backed Government of National Accord (GNA) based in Tripoli, which has control over western Libya, and the Libyan National Army (LNA) strongman Khalifa Haftar - a military figurehead of the Tobruk-based government headed by Faraj al-Hassi - who controls the east.

CIVIL WAR RULE: GET THE OIL, GET THE COUNTRY

Since 1960, Libya started to intensify its oil investments making the country's economic growth exceed 20% throughout the 1960s, which was one of the world's highest rates, according to The Middle East Research and Information Project (MERIP). Directing all the state efforts to the oil sector had its bad economic impacts as other economic sectors were neglected. For example, agriculture's contribution to the country's total income recorded 25% in 1960. Only nine years later this share shrunk to 5% as investors and employees started to shift from economic sectors to oil, turning the country into a pure rentier economy.

Accordingly, since the eruption of the civil war in 2011, all the players know the rules of the game: whoever controls oil facilities and fields, controls the country. Even when oil selling is not internationally legal except through the NOC, militias and other local players know that controlling an oil field makes them have the upper hand during negotiations, as the NOC secures oil operations through periodical agreements, sometimes even weekly agreements, with tribes.

Following this, oil fields and facilities have been subject to many attacks in the past seven years, which was the main reason behind the country's output decline. Riccardo Fabiani, geopolitical analyst at Energy Aspects, believes that the civil war's impact on the Libyan oil sector is not only limited to reducing production rates. "There is a lack of investment and maintenance and facilities are routinely closed by armed groups to extract money from the government. Moreover, there is virtually no exploration taking place," Fabiani explained to Egypt Oil & Gas. Lack of exploration and maintenance represent another challenge to the government's plan to produce 2.2 million b/d by 2023.

TO WHAT EXTENT HAS THE WAR AFFECTED OIL PRODUCTION?

Although Haftar and the GNA had agreed in late 2015 that the NOC is neutral, Haftar announced the handover of oil facilities in the east to his allies in the east Libya administration instead of the NOC only few hours after the LNA had freed the facilities from the militias.

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Haftar's move halted production from facilities with capacity of 850,000 b/d, leading to a significant decrease in Libyan oil production.

"Today, production is 527,000 b/d, tomorrow it will be lower, and after tomorrow it will be even lower and everyday it will keep falling," Mustafa Sanalla, chairman of the Tripoli-based National Oil Corp, said in a video statement posted on the company's Facebook page commenting on Haftar's movement.

The fights to free the facilities from militia lasted from February until June, halving the country's production. Haftar reversed his decision and on July 11 struck a deal with the GNA that ensures publishing the central bank and oil facilities budget. However, the movement shows how unstable Libyan oil production is.

LIBYA'S IMPACT ON THE INTERNATIONAL OIL MARKET

The GNA's plan to increase production was not received as good news around a year ago, since back then oil prices were decreasing due to too much production. However, the Organization of the Petroleum Exporting Countries (OPEC) is currently easing production cap to cover shortages caused by falling Venezuelan and Angolan output along with concern about decreasing Iran's production after the US sanctions.

"Any lost barrel from Libya will be very painful," Commerzbank analyst Carsten Fritsch told Reuters. "It could not have come at a more inconvenient time."

On the other hand, Fabiani believes that decreasing Libyan production is no longer a surprise in the international oil market. "The oil markets are resigned to the idea that Libya's spare capacity has fallen to zero and that there are considerable downside risks to production. Libya is another problem that adds to an already tightening market where spare capacity is becoming a real source of concern," he said.

THE GNA'S 2023 PLAN

The GNA's 2017 plan is to increase production gradually within six years until it reaches 2.2 million b/d in 2023. The target was to increase production by 1.32 million b/d by the end of 2017, a number that was only recorded in the same month of the plan announcement. It fell to 871,000 b/d in August and then kept an average of approximately 900,000 b/d in the remaining four months of 2017.

By the end of 2018, the GNA aims to increase production to 1.5 million b/d, a target that was already exceeded in February as 1.7 million b/d were produced. Yet, production fell to the 900,000 b/d average in the following three months, subsequently falling to 708,000 b/d in June post the eastern facilities halt.

Fabiani believes that it is difficult for the government to keep up with this production plan in the following years. "There is a ceiling in production terms that is very difficult for the Libyan authorities to exceed – increasing output well beyond the 1 million b/d threshold is very challenging, because it would require a degree of stability and security in the oil sector and significant investment to carry out complex and costly repair work," he explained.

"There is not much else the GNA can do at the moment - they are under pressure from all sides and the NOC has so far done an exceptional job at keeping most facilities open and oil flowing. It is already a miracle that Libya is producing at close to 1 million b/d," Fabiani added.

In late May, political actors took an important step toward stability as representatives of the main four authorities in the country endorsed, but did not sign, a statement to hold a "credible, peaceful" parliamentary and legislative elections in the country on December 10. The GNA's al-Serraj, the LNA's Haftar, the president of the house of representatives, and the head of the council of state agreed to create the legal and constitutional basis necessary for the elections. However, news has been circulating that the parliamentary election will be postponed to the first half of 2019.

Fabiani believes that the elections will be postponed not only because of the power conflict between the two governments, but also because he believes that Hafter is not interested in it. "Haftar is uninterested in elections now, because his goal is to strengthen his own position after the mysterious hospitalization in Germany a few weeks ago and, more recently, the temporary loss of the eastern terminals – his priority now is to reaffirm his authority and only later to participate in elections," he added.

PEACE IS THE WAY TO GO

The geopolitics expert believes that ending the ongoing civil war is the key step to break the 1 million b/d ceiling for a long period. "[As] long as the country remains divided and war goes on, it is hard to imagine that the Libyan authorities will be able to increase output beyond that level – not to mention reach 2.2 million b/d, which is impossible in the current conditions," Fabiani added.

Looking at how much political stability and power conflicts affect the country's production, it is clear that the development of the Libyan oil sector does not only need a plan by the NOC but also need the political well of all the involved parties to end fights over power. "Only a peace deal and the formation of a unity government could help the energy sector gradually recover and slowly push up production beyond the 1 million b/d ceiling," Fabiani added.

THE COLLAPSE OF THE VENEZUELAN OIL INDUSTRY

By Felix Fallon

In 2001, Venezuela was the richest country in South America, as stated by the World Economic Forum. The country's economic position in the region was closely tied to its oil reserves, which - to this day - are the largest known reserves in the world. Under the reign of former President Hugo Chavez, the Venezuelan oil industry provided the capital to fuel large-scale socialist reforms. Now, five years after Chavez's death, the economy and energy sector have collapsed, and the country is in a state of penury.

Production from the state-run Petróleos de Venezuela, S.A. (PDVSA) has drastically fallen. As a member of the Organization of Petroleum Exporting Countries (OPEC), Venezuela's downturn in production affected the outcome of the production cut deal carried by OPEC and other major oil-producing countries out of the cartel, as Venezuela was not able to meet its agreed output. Brent crude reached $80 a barrel in May, leading OPEC to increase production from July to account for Venezuela and other under-producing nations on pressure from the US and other countries to balance soaring oil prices.

OIL ECONOMY AND DOWNFALL

Crude oil comprises roughly 95% of total Venezuelan exports. However, more than half of what is produced does not garner profit; it is sold at a loss to the domestic market or used to repay government loans to Russia, China, and others. These loans constitute a total of $80 billion in debt, on top of which, the country also owes about $60 billion in outstanding bonds issued by the government and the PDVSA, as stated by Reuters last June. However, US sanctions on Venezuela prevent the country from restructuring its debt, as it could be seen as illegal financing by Washington.

As the country's debt has been mounting, Venezuelan oil production has been accelerating downward over the last five years; from 2.39 million barrels per day (b/d) produced in 2013 to its lowest point of 1.92 million b/d in 2017, a 19.7% decrease, according to an OPEC assessment of secondary sources - primary PDVSA figures show a drop of 25.8% from 2.79 million b/d to 2.07 million b/d over the same time-span.

The local oil industry collapse and high foreign debt obligations have led to a severe economic downturn over the last two years. Venezuela's foreign exchange reserves have fallen from $16 billion in 2015 to $11 billion at the end of 2017. As more than 90% of the country's hard currency is obtained through exports, the government in 2013 - in an attempt to offset low oil prices and combat an already growing inflation rate (45.4% in August 2013), - increased the printing of 100 bolivar notes by 79%. Since then, inflation has risen steeply, so steeply in fact, that predictions of inflation rates have consistently fallen short of reality.

In May 2017, while inflation was 700%, the International Monetary Fund (IMF) predicted it would reach 2000% by 2018. In January 2018, inflation was over 4000%. In April 2018, the IMF forecasted inflation of just under 13,000% for 2018 year-end. By May 30, inflation breached 25,000%, and as of June, inflation was over 43,000%.

In July, the IMF predicted that Venezuela's inflation will accelerate to 1 million percent by the end of 2018 as the government continues to print money to cover the growing budget hole, Bloomberg reported.

The economic collapse has resulted in a humanitarian crisis. Large swathes of the Venezuelan population have limited access to food and medicine, imports of food and other necessities were cut by 30% in 2017 to meet $10 billion in debt payments.

The average Venezuelan lost 11 kilograms in 2017 due to food shortages, according to a March Gibson Dunn Report. On top of which, an over dependence on the country's oil resources means that no other industry is strong enough to subsidize the PDVSA's current lack of productivity.

REASONS FOR THE CURRENT SITUATION

Between 1999 and 2015, the Venezuelan government earned nearly $900 billion from petroleum exports, with about half earned between 2007 and 2012 as oil reached its peak of $133 a barrel in July 2008. Under Chavez's presidency, the nationalization of the PDVSA allowed him to use oil profits to give food subsidies, and increase education enrolment and access to healthcare for the largely poor population. Chavez used the oil money to restructure the country under his socialist revolution. Under Chavez, Venezuela's GNP doubled.

Yet, Chavez's tenure as president was not without trouble. In December 2002, members of the PDVSA went on strike, as the Coordinadora Democratica (an umbrella group of Venezuelan political parties and organizations opposed to Chavez) called for a general civic strike in an attempt to force a presidential election, with the stoppage of the oil industry intended to have the greatest effect. The strike led oil production to fall from 3.1 million b/d to 100,000 b/d - the minimum production level needed to maintain pressure in the pumps. The decline in production during the strike meant that Venezuela - a country with crude reserves of roughly 300 billion barrels - had to import oil from Brazil to keep up with domestic needs. Venezuela lost approximately $20 million ($13.5 million direct and $6.5 million indirect) as a result of the lack of production during the strike. As a disciplinary measure after the strike, 18,000 out of 40,000 PDVSA workers were let go, including specialists and staff in managerial positions. ExxonMobil and ConocoPhillips withdrew from the country as a result.

Some of the PDVSA's problems are due to ideology; as the company is a wing of the government, supporting the government is a requirement of employment. With the socialist regime remaining ideologically divisive, the PDVSA's recruitment policy has continued to lose the company many more specialist and technically skilled workers.

The 2014 oil price crash was a major contributing factor to the current state of the PDVSA and Venezuela's broader economic woes. Successor to Chavez, Nicolas Maduro, appointed in April 2013, was poorly equipped to handle the oil crash. Chavez's government had not used the country's vast oil profit to increase exchange reserves or sovereign wealth funds that would mitigate fluctuations in oil prices.

The Venezuelan economy contracted by an estimated 35% between 2012 and 2017, and the Maduro government has been funneling much of the government's profit into repaying debts out of fear of legal challenges from creditors. As the value of Venezuelan exports fell by 67% from $82.7 billion to $27 billion in the period from 2013 to 2016, the government has very little money to re-channel into domestic growth or the PDVSA.

Yet, the problems caused by mismanagement and oil instability have been exacerbated by US sanctions on Venezuela. In 2017, the US government imposed economic sanctions on the Bolivarian Republic that prevent the country from obtaining long term credit in the US and restrict dividends from CITGO Petroleum Corporation (a PDVSA-owned, US-based, refinery). In addition, targeted sanctions have been imposed on 40 Venezuelan individuals, including President Maduro and Vice President Tareck Zaidan El Aissami Maddah, under the Foreign Narcotics Kingpin Designation Act, which deemed them responsible for human rights violations, money laundering and other crimes. Both amounting in an economic, financial, and trade blockade against Venezuela.

The individual and economic sanctions further reduce any possibility of an upturn in the Venezuelan situation as the government cannot call on US financial firms to aid in restructuring its debt and US entities will have great difficulty in dealing with the PDVSA as some of its leadership are sanctioned parties, meaning options for external oil investment are slim.

A White House statement in August 2017 affirmed that the US government would not "stand by as Venezuela crumbles." After imposing further sanctions on the country in May 2018, US president Donald Trump stated that the executive order would prevent Venezuela's government from conducting "fire sales" of its asset, adding that "[this] money belongs to the Venezuelan people," presumably referring to the Venezuelan government's current policy of focusing cash flow on foreign debt.

HIGHLIGHTS

The IMF predicted that Venezuela's inflation will accelerate to 1 million percent by the end of 2018 as the government continues to print money to cover the growing budget hole.

OPEC & GLOBAL RAMIFICATIONS OF COLLAPSE

On June 23, OPEC and non-OPEC countries agreed to raise production by roughly 1 million b/d, although no specific figures were released. The decision came 18 months after the OPEC agreement that enforced supply cuts of 1.8 million b/d.

The recent rise in oil prices is largely because of Venezuela's inability to produce enough oil, not the OPEC production caps, according to Nick Butler, Chair of the Kings Policy Institute at Kings College London. Butler added that the only reason for prices not rising higher than they already are is the unexpected surge in the US shale industry.

POTENTIAL TO RECOVER

There are limited options for Venezuela, one of which is privatization of the oil industry. Speaking to Venezuelanalysis, Carlos Mendoza Pottella, economist and oil expert at Venezuela's Central Bank (BCV), stated that the privatization of the PDVSA as a whole potentially breaches Article 303 of Venezuela's constitution, but would be legally possible through privately owned subsidiaries of the PDVSA. Privatization would take pressure off the limited financial resources of the Venezuelan government and potentially give needed financial leeway for the country to recover from the current crisis.

"When you have a plan that requires $60 billion in investment and your income is $5 billion per year, what are you implying? That you are looking for someone to come and invest. That is the logic of privatization," he added. "So the conditions for privatization are here. The Venezuelan state seems incapable of managing oil production now. On the other hand, I would not say that the tendency toward privatization is planned. I think it is involuntary. I think it is the result of a perfect storm."

However, the possibility of private companies taking over operations such as exploration, servicing, exploitation, distribution is marred by two problems. Firstly, the staunch ideology of the Venezuelan regime. "We are in a political context in which, when a critical voice emerges, then that person is categorized as opposition, as the enemy" Pottella stated. "There is no capacity to reflect scientifically from above, and those with critical perspectives within do not want to get involved in the game, as it may have negative political consequences," he added. Secondly, the US sanctions are designed to dissuade any external cooperation and investment in Venezuela.

Pottella provided another potential option to aid recovery: changing the oil production strategy. "For the last decade and a half, or even longer, the focus of oil exploration and exploitation has been the Orinoco Belt (located in the eastern part of Venezuela)," the crude from which makes up the majority of Venezuela's provable reserves, but is made up of unconventional fields containing a heavy grade; expensive and difficult to pump and refine. "A cost-benefit analysis indicates that we must shift our investment away from the Orinoco Belt and back to the conventional wells. That alone would help to stabilize production."

"The exceptionally high oil prices 10 years ago led us to neglect our limited but real and important production capacity. We forgot that our conventional fields produce 30, 24, and 20 API oil that goes directly to the refinery, and that we should focus on stimulating that kind of light oil exploitation. The fields in the Maracaibo Lake and elsewhere [conventional wells with lighter oil] are indeed declining. Perhaps they will last for only another 50 years, but five decades of profitable production is very good."

MINIMAL HOPE

Following the June 23 OPEC meeting, Venezuelan oil minister Manuel Quevedo stated that the PDVSA will raise production to 1.9 million b/d before the end of the year - a 400,000 b/d increase bringing Venezuela near to the OPEC quota that it failed to fulfill last year.

The China Development Bank raised hopes of an increased production by pledging a $250 million to Venezuela, according to Finance Minister Simon Zerpa, with an additional $5 billion loan from China to finance the Venezuelan oil industry being discussed.

Yet, neither promises to OPEC, nor further loans, address the systemic problems afflicting the PDVSA; production reliant on high oil prices, an exodus of qualified workers, a lack of equipment maintenance, and general poor management. Not to mention the worthlessness of the Venezuelan Bolivar severely hindering both the internal economy and any purchases of foreign goods. But most of all, US sanctions remain in place, sanctions that proliferate Venezuela's internal problems and quash most prospects of changing the failing Venezuelan system.

EL MOLLA HIGHLIGHTS OIL & GAS ACHIEVEMENTS DURING BEBA'S HONORARY DINNER

BY MATTHEW HOARE

The British Egyptian Business Association (BEBA) held a dinner on July 9 in honor of the Egyptian Minister of Petroleum and Mineral Resources, Tarek El Molla. The event, that took place at the Intercontinental Hotel in Cairo, saw El Molla deliver a speech to prominent figures from Egypt's domestic oil and gas sector, international oil companies (IOCs), and members of BEBA. The minister commented on the latest achievements of the Egyptian petroleum industry and the development of the sector's Modernization Program.

BEBA chairman, Khaled Nosseir, also delivered a short speech addressed to the departing British ambassador to Cairo, John Casson. Nosseir praised the ambassador for being "very instrumental and very active" in helping to attract investment and solidify trade relations between Egypt and the UK. For his part, Casson said that the oil and gas sector "is at the heart" of the unique British-Egyptian business relationship, and thanked BEBA for its effort to forge closer business ties between the two nations.

BEBA is a non-governmental and non-profit organization established in 1996 to facilitate trade and investment between Egypt and the UK. It counts with over 700 members who promote extensive trade missions, seminars, and business workshops. Egypt Oil & Gas was among BEBA's guests in the event and had the opportunity to follow up with the topics highlighted by minister Tarek El Molla during his speech.

> *"Modernization is not just a word. We are not imitating anybody. We are doing something really new."*
>
> **ENG. TAREK EL MOLLA**
> Minister of Petroleum and Mineral Resources

"MODERNIZATION IS NOT JUST A WORD"

El Molla's first remarks centered on the structure and importance of the ministry's Modernization Program. Positioning the project as one of necessity, the minister said that without reform the country "will not be able to defend, sustain or manage the sizeable wealth that we will be having in our discoveries."

The modernization strategy – which encompasses projects such as the liberalization of the gas market and the reform of the sector's structure – is an ongoing process. During his speech, El Molla discussed the six key components necessary to achieve the sector's full modernization: increasing the performance and attracting further investment into the upstream sector; improving the efficiency and performance of the downstream operations; reforming the structure of the sector; enhancing HR management; realizing Egypt's ambitions to become a regional energy hub; and developing the decision support and data flow for companies working in the sector.

Highlighting the plan's innovative qualities, the minister said: "Modernization is not just a word. We are not imitating anybody. We are doing something really new."

ZOHR FIELD: BREAKING RECORDS

Commenting on the country's latest achievements, El Molla confirmed that Egypt's giant Zohr gas field is on track to produce 1.75 billion cubic feet per day (cf/d) by August 2018. The ministry expects Zohr to produce around 2 billion cf/d by the end of the year, before moving into the third phase in early 2019. The short amount of time to reach the third phase of the project, he said, would represent a world record. The worldwide average timing to reach this stage is around 48 months, while Zohr – should the production estimates be accurate - will have achieved this in just 18 months.

TAKING THE DIFFICULT DECISIONS

El Molla closed his speech commenting on the economic importance of the country's recent fuel subsidy cuts. Keen to stress that this was an Egyptian – not an IMF – initiative, El Molla highlighted the importance of reducing government expenditure on subsidies. "We have to operate economically, we have to be driven by profits, not only by social aspects," he said.

The cost recovery ratio on all fuel types – the ratio of revenue to operating costs – still lags behind 100%; 95 octane is the closest to breaking even at 92%, 92 Octane is at 88%, 80 Octane sits at 83%, while gasoil is the most cost-inefficient at 69%. Although the government continues to spend more on fuel than it generates in revenue, El Molla stressed that "great progress" has been made in reducing the burden of subsidies on state finances.

Because of the government's approach to government finances, subsidies as a percentage of gross domestic product (GDP) have fallen from 5.9% in fiscal year (FY) 2013/14 to 2.7% in FY 2016/17. Government figures project that it will fall still further to 1.7% by June 2019.

The minister also promised that there would be more action against subsidies to come. "We are continuing on without hesitation," he said. "We are committed to reducing the subsidies until we reach a point where we get rid of them."

CEO HANSSEN:
DEA TO DOUBLE PRODUCTION IN EGYPT

BY YOUSSRA EL-SHARKAWY

The Hamburg-based DEA Deutsche Erdoel AG, which is currently investing $500 million on its facilities in Egypt, has announced in July that it will double its production in the country in the coming couple of years.

"We are going to ramp up the production – double the production, in the next couple of years, which is very good news. Most importantly, it is very good news for our employees," DEA's CEO, Maria Moraeus Hanssen, said.

Hanssen's remarks came during a press conference in Cairo as the company named Sameh Sabry as new general manager of DEA Egypt. Sabry, who is succeeding Thomas Radwitz, who had been general manager for nearly three years, takes over the responsibilities starting August 1.

MERGER WITH WINTERSHALL

DEA's operations in Egypt started in 1974. During the last 30 years, it has produced over 650 million barrels of crude oil in the Gulf of Suez. Currently, there are discussions to merge the company with the German oil firm Wintershall, making it a bigger entity.

According to Hanssen, the merger would benefit Egypt indirectly in the future as it will be a much bigger company. The merged entity is expected to be the biggest independent oil and gas firm in Europe with output of around 600,000 barrels of oil and gas equivalent per day and estimated annual earnings of more than $2.4 billion.

FRIENDLY MARKET

As for the major challenges that faces DEA, Hanssen said that in the past couple of years many companies experienced a downturn of activities in Egypt. "They needed to reduce costs, slowdown some activities to get back the cash flow, and wait for the market to improve".

However, she added that the situation in Egypt has currently improved. "We notice a lot of good news about the situation of receivables and we are still having discussions with the Egyptian General Petroleum Corporation (EGPC) and the Egyptian Natural Gas Holding Company (EGAS) about this matter."

For Sabry, significant changes have happened in the investment climate in Egypt and the oil and gas in particular. "This is mainly because of the modernization program and the liberalization of the natural gas market in Egypt".

COMMITMENT TO EGYPT

During her third visit to Egypt within six months after joining DEA as CEO, Hanssen met with the Petroleum Minister Tarek El-Molla to reinforce DEA's continued commitment to the country. She mentioned that there are ambitious work programs which are currently under execution for the Gulf of Suez and Disouq assets.

She added that DEA has negotiated the renewal of two concession agreements in the Gulf of Suez and is waiting for the parliamentary ratification of them, according to Hanssen. However, this does not stop DEA from starting the investment in the area.

"We already started our investment in the Gulf of Suez with the assumption that the agreement comes on time, and this is a message of trust in the Ministry of Petroleum and in the Egyptian government," Sabry added.

In respect to further plans, the CEO renewed DEA's interest to look into further opportunities, such as exploration licenses. DEA is currently evaluating the blocks offered in EGAS' latest bid round.

Not only DEA cares for its projects and operations, it is also committed to its CSR program.

In 2018, the company started a medical convoy in Ras Badran and during the past three months, the convoy covered different villages around the company's concession area. About 600 people were examined. The convoy will continue until the end of August.

PROMISING FUTURE

Hanssen additionally confirmed that Egypt is very well placed to become an energy hub in the region. "Egypt has export capacity; it has a lot of new gas coming on, including our gas. Egypt is well located and has a big internal domestic market. From our prospective, we see the support of Egypt as a gas hub as very logical," she added.

During the press conference, Hanssen thanked former general manager Thomas Radwitz for his achievements. "During his assignment, DEA made lots of progress in a time when Egypt is getting ready to become a regional energy hub," she said.

From his side, Sabry explained that he is looking forward to DEA's upcoming tasks in Egypt. "One of my priorities will be to execute our existing projects in the country in order to deliver sustainable growth," he explained.

> *"We already started our investment in the Gulf of Suez with the assumption that the agreement comes on time, and this is a message of trust in the Ministry of Petroleum and in the Egyptian government."*
>
> **SAMEH SABRY**
> General Manager at DEA Egypt

WHAT SHOULD THE E&P SECTOR DO WITH A WALL OF CASH?

BY SIMON FLOWERS, CHAIRMAN AND CHIEF ANALYST

The biggest lottery prize of 2018? A contender is the windfall oil and gas companies find drops into their bank account.

Unlike the lucky punter with a winning ticket, the industry has worked hard to get to this position. Three years of the brutal re-setting of costs and a re-evaluation of how future business needs to be done set the sector up to reap the benefits of an oil price rally. It's just come around much earlier than most expected.

Companies began 2018 ready to cope with low oil prices, repair balance sheets, tighten capital discipline, and free cash flow break-evens averaging $50/bbl. Things were primed for any price upside to flow straight to the margins, and then Brent took off. Upstream cash margins at $75/bbl are 65%, higher than at the $112/bbl peak of 2012.

This is the extra free cash flow generated by the 48 companies in our corporate service (majors, NOCs, independents) at current investment budgets, post-dividends and interest. The majors alone will deliver around $70 billion of additional cash flow.

This is all good - but what should companies do with all the money? Aside from stashing it on the balance sheet, Tom Ellacott, Head of Corporate Analysis, thinks there are three main options.

FIRST, GIVE IT TO SHAREHOLDERS.

Paying out $160 billion would almost double current dividends, though buy-backs are the most likely vehicle.

SECOND, M&A.

Access to capital could accelerate the gradual repositioning underway. Majors have begun to focus portfolios around advantaged assets, and other IOCs and NOCs will join in. The flip side is that the rally in oil price opens up the bid-ask spread, making it difficult for buyers and sellers to find alignment on price.

THIRD, ORGANIC INVESTMENT.

We already expect global E&P budgets to rise by around 10% in 2018, from the lows of 2016/17, before adjusting for any windfall. Most of the increase is in the US Lower 48, which is brimming with a low-breakeven tight oil pre-drill inventory. Investors might allow operators to ease up on the tight rein of capital discipline if there's a compelling value case.

Outside the US Lower 48, the opportunity set is much thinner. The recent uptick in FIDs reflects conservatism as companies seek to build resilience into portfolios.

Domestic gas projects and incremental developments tied back to infrastructure have been typical of new sanctions. Few larger, oil price-sensitive projects meet the tough economic hurdle rates of the present climate, typically 15% IRR at $50–60/bbl Brent.

As a result, the industry isn't spending enough to sustain itself. The investment rate is just $9 per barrel of production – down 55% from the peak of $22/bbl in 2013. Lower costs account for around 25% of the drop. This suggests spend is around one-third less than is needed to maintain production; though there is no shame in shrinking if the alternative destroys value.

In the past, a rally in oil prices like this has been a siren call for the industry to launch into a new cycle of investment. This time, it may be different.

Credibility through capital discipline has been hard-won, and few will want to give it away easily. The lack of robust investment opportunities is reason enough to justify returning cash to shareholders.

The nagging sense, though, is that companies need to start investing more. It's one thing to be protected on the downside, but - as any fund manager knows – it's quite another to be under-invested when the market goes on a bull run. Few think we're quite at that point in the oil market, but it probably will happen. And investors will be the first to turn on management if the portfolio is underweight.

Given the uncertainties the sector faces, not least the energy transition, it would be rash in the extreme to commit investment to high-cost projects. But upstream companies do need to beef up the pipeline of future projects that meet two criteria: make money at low prices, and leverage the commodity price upside.

NEW OIL DISCOVERIES BOOST WESTERN DESERT PROSPECTS

BY YOUSSRA EL-SHARKAWY

Egypt is both one of the major oil-producing non-OPEC countries and one of the oldest energy producers in the Middle East. According to Oxford Business Group, the country benefits from low production costs, and a relatively large volume of both onshore and offshore oil and gas fields.

Oil companies have given great attention to Egypt's Western Desert, given that it is the location of around half of Egypt's oil. In the past few years, the Western Desert witnessed a series of major oil discoveries, including new fields in the Faghur, Shushan, Alamein, and Matruh basins.

Because much of the region has already been explored, some experts stress that many of the Western Desert's fields are mature fields, and new discoveries can be harder to make. This reality increases the need for investments in oil recovery, as well as in new exploration activities and techniques.

GEOLOGY & PRODUCTION

The Western Desert covers about one million square miles - two-thirds of the whole area of the country. The coastal basins of Matruh, Shushan, Alamein and Natrun are located in the northern half of the Western Desert, 75 km to the southwest of Marsa Matruh, covering an area of about 3,800 km^2.

The coastal basins are characterized by their high oil and gas accumulations, and oil productivity of about 45,000 barrels of oil per day (b/d) from 150 producing wells in 16 oil fields. This represents more than one third of the oil production from the northern Western Desert, according to a 2012 research paper published by Alexandria University.

The Western Desert has very rich soil. Data shows that all the oil discoveries have been in marine inner shelf sandstones and carbonates that range from Aptian to Turonian in age. Potential reservoir rocks are known in the Paleozoic to Tertiary sedimentary rocks, according to a research paper entitled Petroleum Potential of Western Desert of Egypt.

Available production data indicates that the far Western Desert basins are capable of contributing about one fifth of Egypt's annual oil and gas production, according to a 2016 research paper entitled "Egypt Far Western Desert Basins Petroleum Charge System as Defined by Oil Chemistry and Unmixing Analysis". The research paper suggests that the discoveries have so far been less than expected because of the complex trap geometries, as well as a lack of proper understanding of the regional hydrocarbon charge mechanisms.

According to the Egyptian General Petroleum Corporation (EGPC), Egypt produced an average of 626,000 b/d of crude oil and condensates in fiscal year (FY) 2016/17. Production from the Western Desert comprised 55% of the total production and is projected to rise to 670,000 b/d in FY 2017/18.

RECENT OIL DISCOVERIES

EGPC announced the discovery of 41 new oil and gas sites in FY 2016/17. The discoveries consisted of 28 new crude oil sites and 13 new natural gas sites.

In May 2018, the Ministry of Petroleum announced a new discovery located 103 km north of Siwa Oasis. The discovery, SWM A2-X, came after the Italian energy company Eni conducted inspection tests at the Faghur area, 5,100 meters in depth, with an initial production test rate of 2,300 b/d of oil, plus 400,000 cubic feet of associated gas, as Egypt Today reported.

A statement issued by the ministry mentioned that the most important thing in this discovery is the success of testing new geological layers at more than 5,000 meters in depth, which will motivate international companies to intensify their exploration activities in the area.

> *"We will see further discoveries in the Western Desert over the coming years. The area is a prolific oil producing region and, over the last 10 years, has boasted a success rate of 47%. However, most of these discoveries are small and the average discovery size over the period is 5.4 million boe."*
>
> **STEPHEN FULLERTON**
> **Research Analyst MENA Upstream at Wood Mackenzie**

Earlier in July, Eni announced another oil discovery in the Fagur basin. The SWM B1-X discovery was drilled four miles away from the first discovery (SWM A2-X), to a total depth of 14,839 feet, and encountered 114 feet of light oil in the Paleozoic sandstones of the Dessouky Formation, as well as in the Cretaceous-era Alam El Bueib sandstones. Eni said in a statement that the discovery raised hopes of a "new productive area".

The well has been opened to production in the Dessouky sandstones and has already delivered 5,130 b/d of light oil with low associated gas, Eni revealed.

PROSPECTS OF NEW DISCOVERIES

Although the new discoveries bring high expectations that more oil can be found in the future, the prospects of future large discoveries cannot be fully predicted. As the Western Desert has been a focus area of oil exploration since the 1960s, especially after the discovery of the Alamein field in 1967, its continuous exploration stirs up the discussion on whether significant findings could still be made.

"We will see further discoveries in the Western Desert over the coming years," Stephen Fullerton, research analyst of MENA Upstream at Wood Mackenzie, told Egypt Oil and Gas.

"The area is a prolific oil producing region and, over the last 10 years, has boasted a success rate of 47%. However, most of these discoveries are small and the average discovery size over the period is 5.4 million barrels of oil equivalent," he said.

As reserves closer to the surface have already been roughly explored, Fullerton believes that the biggest prospects of the region lays in its deeper layers. "We will see more companies explore the deeper plays in the region. There is plenty of potential in this play, something that has been confirmed by Eni's recent Faghur basin discovery. However, there is still oil to be discovered in the shallower plays, and companies like Apache have been successful in tying-in new small near infrastructure pools of oil," Fullerton added.

CONTINUATION OF EXPLORATION

It is undeniable that the Western Desert plays a large role in supporting Egypt's oil and gas sector and its wider economy. This explains the industry's concern in maintaining the region's current level of production. Fullerton states that, in his opinion, the focus of Egypt has to be on the continued exploration of the area. Only time will tell whether the country's oil sector is successful in finding deposits in the area's deeper plays, and thus extending its lifespan as one of Egypt's major oil-producing regions.

Zohr Steam Blowing

ZOHR & ANRPC:
STEAM BLOWING CASE STUDY

SAPESCO's long-term experience in executing pre-commissioning services for process facilities has created confidence for its clients to execute challenging operations. **SAPESCO** has introduced steam blowing operations as a new service to the oilfield industry in Egypt, most notably at Petrobel/Al Gamil's Zohr operations, and Alexandria National Refining & Petrochemicals Company's (ANRPC) field at Wadi Al Qamar. It was a challenging operation and **SAPESCO** has achieved outstanding performance in delivering the required outcomes. Our team has pioneered the development of professionally engineered steam blow services.

Normally, complex projects require experienced and special contractors. **SAPESCO** is one of the leaders in the pre-commissioning services delivering superior values to its clients. During these projects, **SAPESCO** has engineered and performed several types of activities including steam blowing services.

The purpose of steam blowing is to clean the steam passages (steam generation package and pipe line) prior to the starting up of a new unit, and to remove any loose foreign materials, scales and oily materials remaining in the equipment and steam piping after installation is completed. This is to ensure the production and supply of clean steam for consumers, avoiding any damage that may happen due to the presence of these loose foreign material.

The completed steam blowing protocol was executed for the following systems:

- The saturated steam system.
- The superheated steam system.

Besides the normal cleaning operations that **SAPESCO** is delivering to its clients for more than 30 years, **SAPESCO** has expanded its scope of work based on the use of the steam.

Due to the frequent requests from our clients to perform steam blowing in their facilities and after many studies, **SAPESCO** has performed all technical studies and decided to support its clients by adding new value services.

To achieve a successful steam blowing, **SAPESCO** has the engineering capabilities to study the design and operation parameters for the required scope of work, procurement, construction and secure the qualified team for the scope of work.


SAPESCO Team


ANRPC Steam Blowing

CARBONATE RESERVOIR AND THE FUTURE OF WORLD HYDROCARBON PRODUCTION

In recent years, demand for energy has surged. Currently, more than 85% of the world energy consumption comes from fossils fuels, and the World Energy Outlook shows that energy demand could rise by 55% between now and 2030. Although most energy experts agree that the world's energy resources are adequate to meet this projected growth, more reserves will be needed to delay a peak in production. This means the petroleum industry will have to increase recovery factors significantly from all types of reservoirs; this increase in performance can be accelerated at the same time as reducing the technical risk.

The average recovery factor, the ratio of recoverable oil to the volume of oil originally in place (OOIP) for all reservoirs, is about 40%. However, it is recognized that recovery factors are higher for sandstone reservoir than for carbonates. Carbonates reservoir present a number of specific characteristics posing complex challenges in reservoir characterization, production, and management.

Carbonates are sedimentary rocks deposited in marine environments with clear shallow warm waters and are mostly of biological origin. They are made up by fragments of marine organism skeletons coral algae and precipitation and consists mostly of calcium carbonate, which is chemically active compared to the sand that makes sandstone.

Another key difference between clastic and carbonate rocks is the distance between the site where the sediments was created and where it was deposited. While sand and silt may travel hundreds of miles down river systems before deposition and lithification, the grains that comprise carbonate sediments are usually deposited very close to the place where they were created. This local deposition contributes significantly to the heterogeneity of carbonate grains. Once a carbonate rock is formed, a range of chemical and physical processes begins to alter the rock structure, changing fundamental characteristics as porosity and permeability. This is known as digenesis. At deposition, carbonate sediments often have very high porosities (35-75%), but this decreases sharply as the sediments are altered and buried to reservoir depths. As result, carbonate reservoirs exhibit large and abrupt variations in rock type distribution.

Finally, techniques that were initially developed to characterize sandstone reservoirs are being applied to carbonate reservoirs. Yet, we know that these types of reservoirs have different requirements. Accordingly, the issues of addressing all of the uncertainties and variables in carbonates present great opportunities to develop tailored technology.

DR. AHMED ABD EL-GAWAD SULTAN

Petrophysics Department Manager, Tharwa Petroleum Company

CARBON DIOXIDE: A WASTED OPPORTUNITY IN EGYPT

Carbon dioxide (CO2) contributes to anthropogenic global warming and it is clear how this affected our environment. Besides the environment concerns that lead oil companies to try to reduce its CO2 emissions, another profitable alternative to minimize environment impacts is to capture this CO2 and utilize it is an investment opportunity.

According to statistics published in 2005 by the UN Framework Convention on Climate Change (UNFCCC), the total CO2 emissions in Egypt is approaching 170 metric tons of CO2 per year (mtCO2/y), which represents 67% of the total greenhouse gas (GHG) emissions in the country. CO2 emissions in Egypt are increasing year after year. Two major sectors contributed the most to this CO2 emissions: the energy and the industrial sectors. The energy sector produces a total of 147 mtCO2/y due to fossil fuel combustion; electricity generating power plant is responsible for 37% of the energy sector CO2 emissions. Meanwhile, in the industrial sectors, 20.2 mtCO2 is emitted annually from cement, fertilizers, and iron and steel industries. This leave us with a total annual CO2 emission of 118.4 mtCO2 in Egypt that could be captured using available technologies. Emissions from transportations and agriculture are excluded due to CO2 capturing difficulties from those sectors.

Capturing CO2 is already an established process and is applied in Egypt. The question is how this CO2 is utilized. For example, CO2 separation from natural gas is taking place in Khalda Petroleum Company using membrane technology, but this CO2 is not utilized.

Different opportunities for CO2 utilization in Egypt are proposed below:

CO2 FOR ENHANCED OIL RECOVERY

CO2 utilization for enhanced oil recovery offers a solution to help increase oil production from reservoirs while reducing CO2 emissions. This is based on the concept of closing the CO2 loop, as the CO2 resulting from fossil fuel combustion is injected back to the subsurface to produce more oil. CO2 is currently being used for enhanced oil recovery in oil fields in the USA and Canada. It is expected to recover from 8 to 20% of the original oil in place using this technique.

In Egypt, at the industrial scale, the best solution to gain profit is to capture CO2 from post combustion gases from a nearby power plant and pump it to injection sites to produce more oil. The new mega scale power plant in Beni Suef will be a good option due to its expected huge CO2 emission and its nearby location to oil reservoirs in the Western Desert.

CO2 FOR UREA/DEF PRODUCTION

In the fertilizer industry, CO2 is produced from fuel combustion or as a byproduct from ammonia synthesis. Utilizing CO2 captured from flue gases in urea production can add profit to the industry. Moreover, this will allow the investment in diesel exhaust fluid (DEF) for export. DEF is an aqueous urea solution of concentration 32% widely used in Europe to reduce NOx emissions from diesel engine exhaust gases. Currently, the Egyptian Fertilizers Company is building a train for this purpose using CO2 from ammonia synthesis. However, CO2 in the flue gases is still wasted.

CO2 FOR METHANOL/DME PRODUCTION

Another advanced option is to convert captured CO2 to methanol. With 118.4 mtCO2/y emissions available in Egypt, this will open a whole new world. Methanol can be sold as a final product or as a raw material for other industries. One of the new trends in energy production is the production of dimethyl ether (DME) from methanol. DME is a new fuel that can replace diesel and is currently being blended with LPG in many countries including China. DME production could help narrowing the gap between the demand and supply of LPG in Egypt.

DR. REHAB MOTASIEM ELMAGHRABY

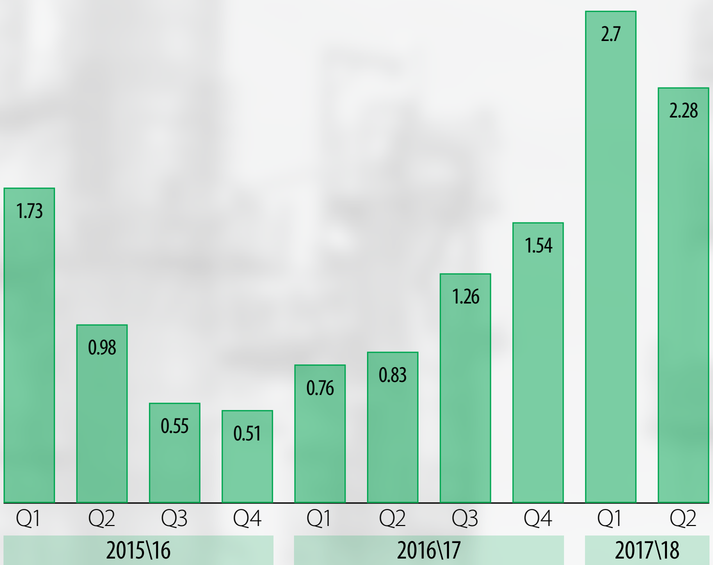
Assistant Professor of Chemical and Petroleum Engineering, Suez University

EGYPT OIL&GAS RESEARCH & ANALYSIS

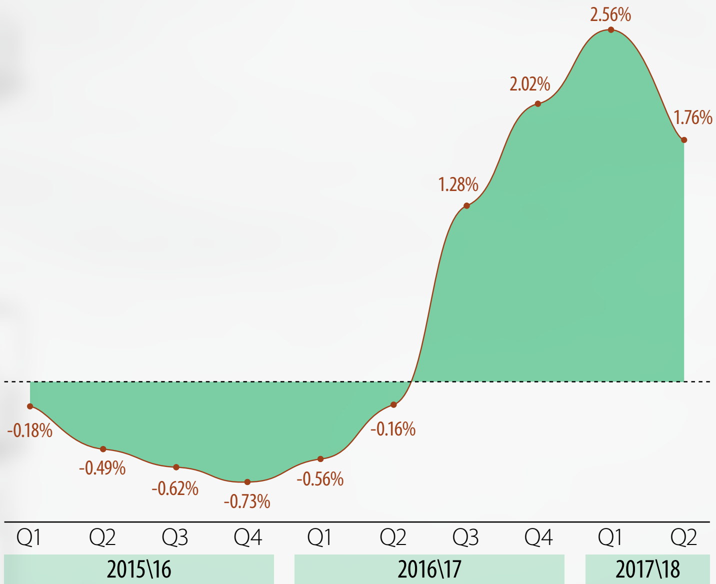
World's Top 10 Fastest Growing Tourism Destinations In 2017

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
PALESTINIAN TERRITORIES (UP 57.8%)	**EGYPT (UP 51%)**	NORTHERN MARIANA ISLANDS (UP 37.3%)	ICELAND (UP 34.9%)	TUNISIA (UP 32.5%)	VIETNAM (UP 31.2%)	URUGUAY (UP 30.2%)	NICARAGUA (UP 28.4%)	MONGOLIA (UP 28.3%)	ISRAEL (UP 25.1%)

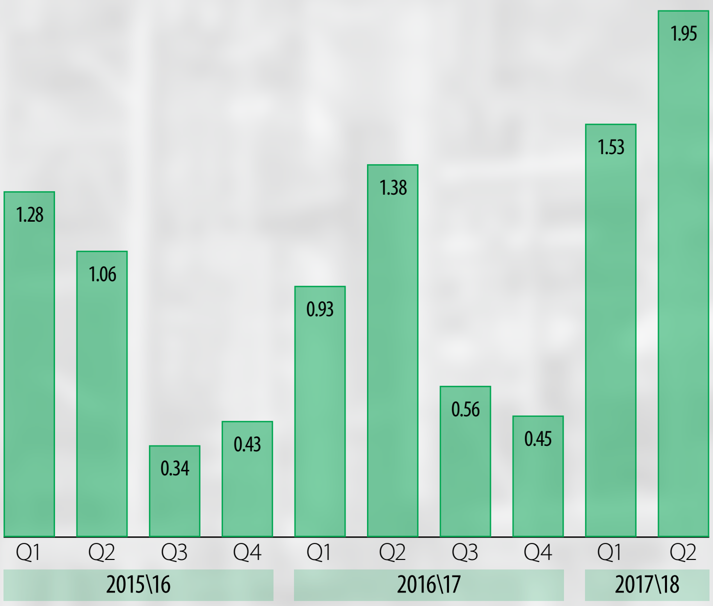
Egypt's Tourism Revenues (USD bn)



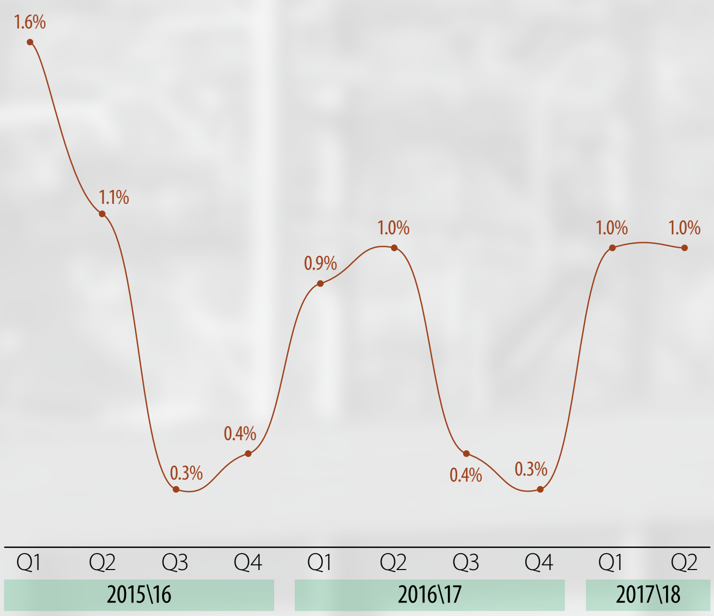
Tourism Sector's Annual Growth Rate



Investments In The Tourism Sector (EGP bn)



Tourism Sector's Contribution To Total Investments



Sources of Raw Data: United Nations World Tourism Organization (UNWTO), Central Bank of Egypt, Ministry of Investment and International Cooperation, and Ministry of Planning

RESEARCH BY HAGER MAGDY

Ripple Effects
...A Year and Half Later

The Government of Egypt (GoE) and Central Bank of Egypt embarked on unprecedented macro and socio-economic reform measures in 2016/17 aiming at decreasing the budget deficit and improving the foreign currency availability. In 2017/18, the GoE introduced another wave of reforms; as well as new laws and regulations aiming at improving the business climate and attracting investors. The GoE resumes its reform measures in FY 2018/19; by announcing in June 2018 the new fuel and utilities' prices; in addition to approving bills aiming at strengthening the social safety net.

Dcode
Economic & Financial Consulting

Social Reform

Social Safety Net

June 2017.

15% increase in pensions twice in June 2017 & June 2018

7% annual raise for state bureaucrats in addition to two hardship raises of 7% & 10%

Raising the annual personal income tax exemption threshold to EGP 8,000 & introducing tax discounts for different brackets

Macroeconomic Reforms

Flexible Exchange Rate

EGP floatation in Nov. 2016

Increasing interest rates by 7 PPT (on 3 phases) to combat inflation & then lowering rates by 2 PPT as inflation moderated

Removing foreign currency limits on importers of non-essential goods

Consolidated Government Finances

Enacting the Value-Added Tax (VAT) of 13% in Sep. 2016 and 14% starting Jul. 2017

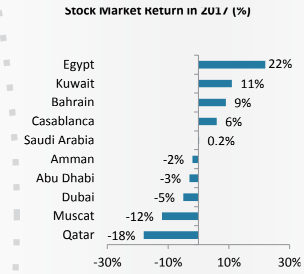
Increasing fuel prices by 38% in Nov. 2016 and by up to 55% & 51% in June 2017 & June 2018, respectively

Increasing Custom Tariffs to range between 40-60% for some "luxury" imports in Dec. 2016

Increasing electricity prices by 29% for residential users twice in Jul. 2017 & Jul. 2018 and by up to 41.8% for industrial users

Increasing water prices by an average of 45% in Jul. 2017 & by up to 46.5% in Jul. 2018

Effect on Business Climate



STANDARD & POOR'S

S&P revised Egypt's sovereign credit outlook up to Stable then Positive in Nov. 2016 & 2017 and upgraded Egypt's credit rating to 'B' in May 2018.

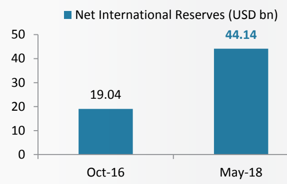
Legal Reforms

New Laws and Regulations

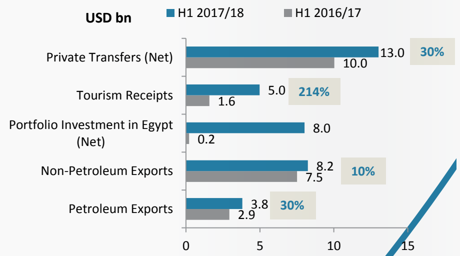
Value-Added Tax Law	Civil Service Law
New Investment Law	New Bankruptcy Law
Companies Law Amendments	Capital Market Law Amendments
Industrial Licensing Law	Gas Market Law
Moveable Collateral Law	Contractors' Remuneration Law
Amendments to Income & Stamp Tax Laws	Universal Health Insurance Law

Effect on External Sector

Foreign Reserves Hit a Record High



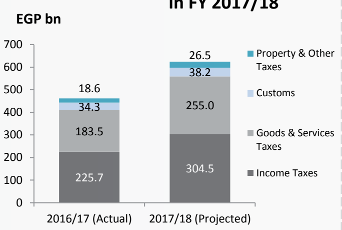
Significant Improvement in the Balance of Payments In H1 2017/18



Moreover, Egyptian banks have collected more than USD 79 bn since the currency floatation

Effect on Gov. Finances

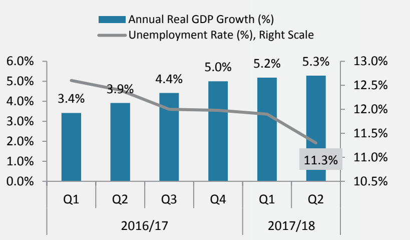
Higher Government Tax Revenues (35% Increase) in FY 2017/18



- Budget deficit decreased from 12.5% of GDP in 2015/16 to 10.9% of GDP in 2016/17; and is projected to record 9.8% of GDP in 2017/18 (Ministry of Finance Projections).

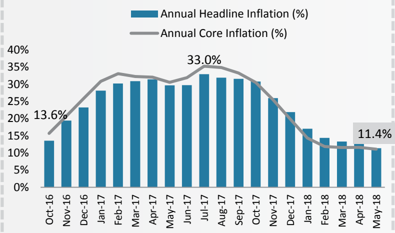
Effect on Real Sector

Higher Growth Rate; Lower Unemployment



Effect on Monetary Sector

Significant (yet Gradually Decreasing) Hikes in Inflation



Dcode EFC's Forecasts

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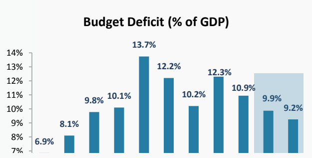
- Dcode EFC projects economic growth to record 5.2% in FY 2017/18; in line with GoE's target, before increasing to 5.7% in 2018/19.
- We project the budget deficit to record 9.2% of GDP in FY 2018/19. We affirm and maintain our projection of a declining fiscal deficit path over the medium term.
- We project the annual headline inflation to record an average of 13.1% in 2018/19.

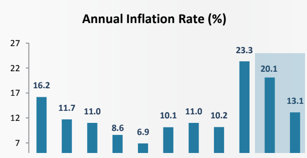
Government's Macroeconomic Targets

Macroeconomic Targets

Increasing Non-Tax Revenues in FY 2018/19

- The GoE is targeting EGP 10 bn in proceeds from the state's IPO program in FY 2018/19
- The GoE is targeting EGP 8.2 bn in net





Estimates of Fuel Subsidies as a Percentage of GDP

FY 2018/19: 2.10%

FY 2017/18: 1.20%

Egypt's Production & Consumption of Butane

Production
- First Four Months 2017: 595,000 Tons
- First Four Months 2018: 626,000 Tons

Consumption
- First Four Months 2017: 1.5 Million tons
- First Four Months 2018: 1.4 Million tons

Egypt's Imports of Butane

First Four Months 2017: 940,000 Tons

First Four Months 2018: 887,000 Tons

Egypt's Gas Production (million tons)

3.35 May-17

3.9 May-18

Debts Owed by Egyptian State-owned Oil Companies to IOCs

$2.3 billion Oct 2017

$2 billion Q2 2018

Source: Oxford Institute for Energy Studies

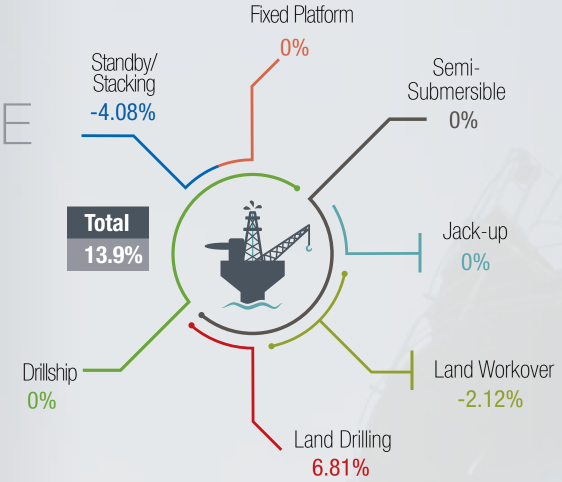
Egypt's FDI during the First Nine Months of FY 2017/18

Net FDI: $6 billion

Net FDI in the Oil Sector: $3.4 billion

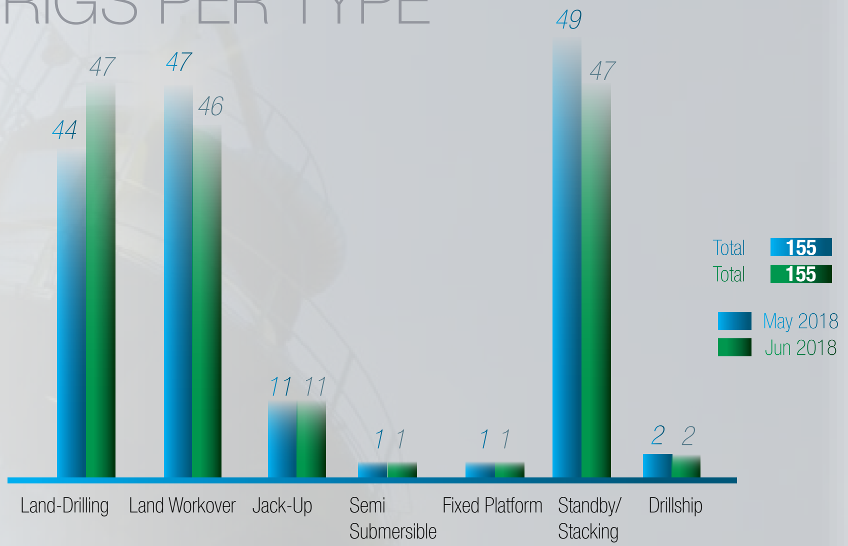
POWERED BY EGYPT OIL&GAS RESEARCH & ANALYSIS

M.O.M CHANGE IN RIG COUNT PER TYPE



MoM calculations are for May & June figures.

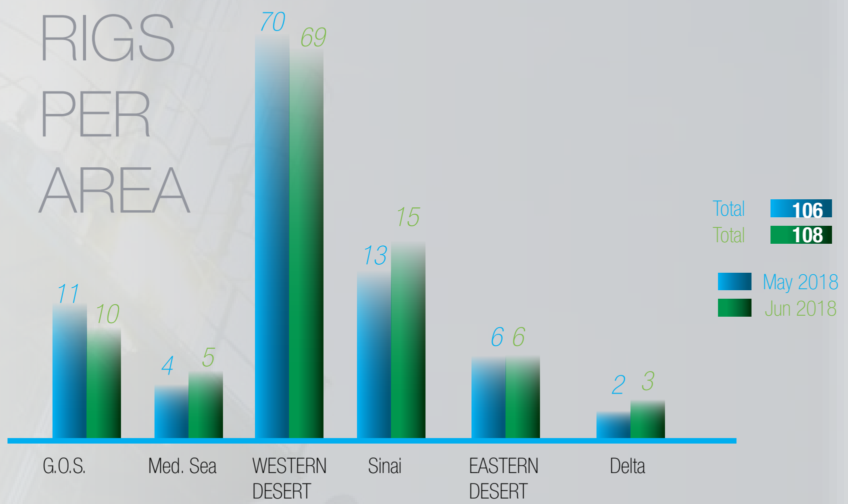
RIGS PER TYPE



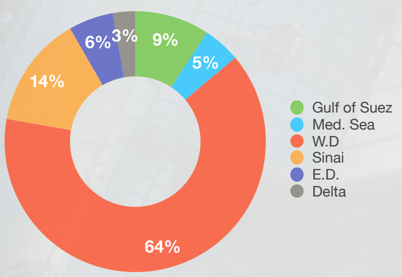
EGYPT'S RIG COUNT PER AREA

June 2018

RIGS PER AREA



DISTRIBUTION OF RIGS JUNE 2018



*Percentages are approximate

PRODUCTION JUNE 2018

	CRUDE OIL	EQUIVALENT GAS	SOLD GAS	CONDENSATE
Mediterranean Sea	19,000	17,131,583	95936	891,733
Eastern Desert	1,790,000	35,009	196	0
Western Desert	9,542,000	7,046,406	39460	1,227,377
Gulf of Suez	3,494,000	535,010	2996	64,786
Delta	16,000	7,143,314	40002	407,814
Sinai	1,489,000	446	3	17,260
Upper Egypt	3,000	0	0	0
Total	16,353,000 Barrels	31,891,768 Barrels	178593 Million Cubic Feet	2,608,970 Barrels

DRILLING UPDATES

REGION	COMPANY	WELL	WELL TYPE	RIG	DEPTH	WELL INVESTMENTS
Sinai	PETROBEL	112-170	Development	EDC-55	10,023	$2.800 M
	BAPETCO	SITRA 8-CL	Development	EDC-42	11,188	$1.950 M
	PETROSILAH	N.SILAH D1-6	Development	ECDC-1	9,800	$1.900 M
	QARUN	E.BAH C-28X ST-1	Exploration	EDC-65	6,150	$900,001
	QARUN	WON X-25	W. Inj.	EDC-63	7,300	$1 M
Western Desert		AG -138X	Exploration	EDC-47	15,574	$1.725 M
		HERUNEFER W-7X	Exploration	EDC-58	14,793	$3.071 M
	KHALDA	BRAVO S - 1X	Exploration	EDC-57	15,000	$2.409 M
		HERUNEFER W-5	Development	EDC-1	15,125	$2.85 M
		W RZK - 149	Development	EDC-62	6,500	$784,502

*DRILLING - June 2018.