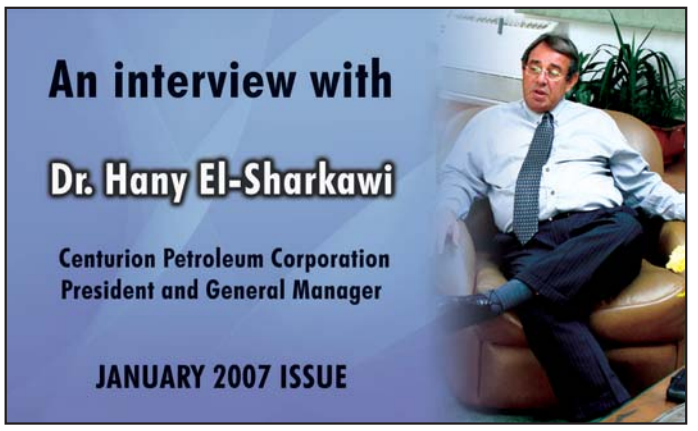
Egypt Oil & Gas Newspaper



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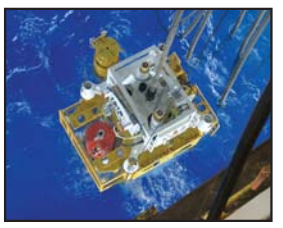


Brent spooked by political uncertainty

A look at the international political scene in 2006 and its affect on Brent prices

By Diana Elassy

NOTHING is truer of economy than its attachment to politics and nothing is more telling of said attachment than the fluctuations of the Brent crude oil prices in times of political instability. It is a known fact that oil and gas is a risky industry, prices are never stable, the market is burdened by uncertainties and there are always unexpected rises and falls in prices, but is there a way to predict a certain fluctuation?

Amid tensions in the Middle East, specifically during the last Israel-Lebanon war, crude oil prices were unstably floating in the range of $77 a barrel, scoring an increase of 16.9%. To be more precise, on July 14th, the day of the Israeli attack on Lebanon, oil prices counted $78.4. During that time, traders expected that in the near future, the prices would jump even higher to reach $100 a barrel. In August, however, the price started to decline due to the end of the summer and the lessening anxiety about a destroyable hurricane season. Then, unexpectedly, oil prices dropped at the beginning of October to less than $60, in one of the largest price falls during the past 15 years. While this was undoubtedly good news to the economy at large, this sudden fall produced some losers as well; shareholders and investors expecting to make a fortune or quick profits through price betting, lost quite a bit. The reasons for the sudden rise and fall in oil prices can be attributed to many factors. Chief among them, of course, is politics.

The instability and tensions dominating the Middle East, such as the Iraq war and as previously mentioned the Israel-Lebanon war, have caused a scare on several levels. When the Brent price is not affected by politics, then it is moved by natural necessity; under this broad term of natural necessity is the rising demand of fast growing countries such as China and India. The demand of these immensely populous nations might not be met by the current oil production. It has been estimated that the world oil demand is to increase by 1.38 million barrels per day or 1.66% to 84.6mb/d in 2006.

With the end of the Israel/Lebanon war emerged the fear that Iran would be the next in line for besiegement. Many of those working in energy markets interpreted the war between Israel and Hezbullah as a proxy war between Iran, the second largest oil distributor in the world and the US.

The US threat imposed on Iran to ban its nuclear program project has brought about a certain apprehension regarding oil. The concern revolves around the possibility of Iran closing the Hormuz Strait. This strait allows for more than 17 million barrels of oil to pass daily and so the likelihood of it ceasing its operations means a global distortion in oil production and thus prices. In fact, such a decision would result in taking prices to an all time high.

Apart from the Iranian project of uranium enrichment and the possibility of US military interference, some analysts raised another point highlighting the covered reasons for this critical situation: the Iranian Oil Bourse (IOB). This is one of Iran's plans to becoming the dominant center of oil trade in the Middle East region. The IOB causes much anxiety for the American administration for several reasons. Among them is the fear that Iran will be in control of oil exports in one of the largest oil distributor regions, and more importantly, the possible risk facing the US economy if Iran decides to switch the oil exchange trade currency from US Dollars to Euros.

Regardless of Iran's true capabilities to apply this strategy, such a shift, experts say, could straightforwardly lead to a massive crash in the American currency's value. Confirming rumors concerning the switch of oil trade currency, Iran's Deputy Oil Minister and director of the IOB program, Mohammad Javad Assemipour, said "Iran's oil exchange with the region's countries and also some of the East Asia states will take place in Euros instead of US Dollars." This undoubtedly came as worrying news to many military experts, including William Clark, an American security expert who predicted that "if Iran threatened the hegemony of the US Dollar in the international oil market, the White House would immediately order a military attack against it."

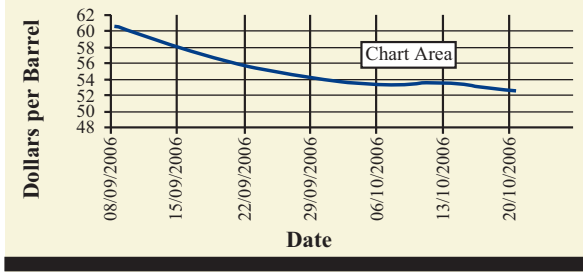
For others, however, this news was welcomed. Major oil producing countries, such as Venezuela and oil consuming countries, such as China and India, have openly proclaimed their support for the coming IOB. These countries' support will indisputably cause a rift in relations with the US, which will cause what some will see as a much needed balance of power in the international realm and others will see as a rerun of the much loathed cold war, but with the blocks played by several entities and not just two overwhelming forces. Apparently politics and not just beauty is in the eye of the beholder.

Hence, can oil price fluctuations be predicted? To a certain extent, yes. Political instability will more often than not create price fluctuations. With this information in mind, the answer to maintaining stable oil prices is peace, but that is a bit capricious and all-together impossible thus one must realize other problems that can have practical and applicable solutions.

With the above galvanizing remarks in mind it must be noted that the key challenge in the energy market is to figure out how to balance supply and demand in the oil market, in order to maintain a reasonable range of oil prices.

The Gulf Cooperation Council, OPEC, and other oil organizations need to develop better investments in oil refineries, which will hopefully decrease oil prices. Upgrades to infrastructure, which are crucially needed to improve the capacity of oil production, have been insufficient causing poor profitability. As a result, this has hindered the refineries' capacity to produce enough gasoline, which has seriously affected crude oil prices. Thus, the message to oil players is: if you cannot bring about world peace than at least improve on what you can.

Egyptian Suez Blend Prices



Average Currency Exchange Rate against the Egyptian Pound (First Half of November 2006*)

US Dollar	Euro	Sterling	Yen
5.7217	7.304	10.8936	4.8675

Average Stock Market Prices (First Half of November 2006*)

Company	Stock (Start)	Stock (End)
Alexandria Mineral Oils (AMOC.CA)	77.186	76.783
Sidi Kerir Petrochemicals (SKPC.CA)	79.73	99.15

*Due to the time strain of the first issue production, only the first half of the month was analyzed, full month analysis will be covered in following issues

Egypt Oil & Gas Newspaper
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On the Ground, In the Know

I would like to welcome you all to issue one of Egypt Oil and Gas Newspaper and thank you for reading our publication. I would like to start by introducing Egypt Oil and Gas Company that was founded on the essence of providing the Egyptian oil and gas sector with information services. The company offers a wide span of services ranging from a net-based daily news center (www.egyptoil-gas.com), a career center, intelligence reports with analytical content to detailed annual directories and an e-marketplace which will bring together the buyers and sellers in the oil and gas industry.

This monthly newspaper was founded on the basis of providing accurate and timely news to the Egyptian oil and gas sector. Operating under the slogan "On the ground, In the know", we are dedicated to provide you with information, analysis and in-depth upstream and downstream coverage on key issues affecting the Egyptian industry. Our editorial team will focus each month on bringing the news closer to you. By understanding and analyzing the political, social and strategic changes in the Egyptian petroleum sector, we are able to inform you with the latest news, events and changes happening to companies around you. Your own company could one day be our focus.

With the year 2006 coming to an end, we have chosen to round up the events shaping this year's petroleum sector in our main feature article. The sector has experienced many changes due to political and economic instability worldwide, resulting in the signing of agreements, arising opportunities and potential threats. While some may have gained from the economic turmoil this year, consumers and governments were amongst the main sufferers. However, with the continuous expansions, explorations and projects, one would only hope that the future of oil and gas would be secured.

With this thought in mind, our political review, as well as our academic interview both tackled the importance of finding replacements for oil and gas. Egypt is currently looking into reviving the long stalled nuclear program to fulfill the nations ever-increasing energy needs. Also, academics propose that biogas and alternative energies are the only option to secure energy for the generations to come.

Every month, the newspaper will dedicate a section for a "corporate interview", in which we discuss the most important aspects, challenges and the future of the oil and gas sector with one of the industry's decision-makers. Alongside, we will have a monthly "corporate overview" where we describe in detail one of the industry's services, achievements and hopes for the future. This month we are proud to have conducted an interview with the Egyptian-Chinese Drilling Company (ECDC)'s Managing Director, Ayman Abbas and an overview of Drexel Oilfield Equipment.

While I have the floor, I would like to thank all of those who have contributed with their effort, time and support to this newspaper. Egypt Oil and Gas would like to acknowledge the Egyptian Ministry of Petroleum, headed by Engineer Sameh Fahmy or their information and cooperation.

Finally, I would like to remind you that this newspaper is a work in progress and we welcome your feedback and invite you to send any comments or suggestions to info@egyptoil-gas.com. On behalf of the entire newspaper team we hope you enjoy our effort and hope to see you next month.

Reem Nafie
Editor in Chief

EGYPT

Egypt and China cooperate to construct oil rigs

A group of HH representatives, a leading Chinese company in oil rig construction is expected to meet with Egyptian officials to sign the final agreement to build oil rigs in Egypt through the establishment of a joint Egyptian-Chinese company with a total investment of $30 million.

According to the terms of agreement, oil rigs will be assembled through the existing domestic equipments in association with Chinese expertise in this filed. The new company will start production with three rigs, increasing to seven in 2008 and 20 by 2010.

This project is considered the first of its kind in Africa and the Middle East. HH will hold a 50% working interest, while the remaining 50% will be distributed between three Egyptian companies, Tharwa, Enppi and Petrojet.

"The establishment of this company supports our plans to intensify the process of oil and natural gas discoveries in the country as more rigs will be constructed," Egyptian Minster of Petroleum, Sameh Fahmy said. The main goal for this new project is to meet the needs of the domestic oil rig market, besides it will increase the exports of oil and natural gas to many regions, especially to African countries, he added.

It is worth mentioning that the preliminary agreements for this project were signed last October during Fahmy's visit to China. The minister also discussed other possible means of cooperation between the two countries. Two memorandums of understanding were agreed upon; the first was signed with Sinopec to manufacture pipelines for oil and natural gas shipping and the other with CNOOC, one of the leading Chinese companies specializing in petroleum research, discoveries and equipments' manufacture. This memorandum gives CNOOC the right to conduct oil discoveries in Egypt on a large scale, hence, boosting the process of subsea drilling led by Egyptian efforts.

CNOOC has been familiar with the current development projects held by the Ministry of Petroleum; it is currently implementing another project in Egypt with Tharwa to drill and fix all types of oil and gas wells inside and outside Egypt, with total investments of $18 million.
(Al-Ahram, El-Masry El-Youm, Al-Wafd, Nov. 12)

Egypt, China sign nine economic cooperation agreements

In the series of industrial mutual projects between Egypt and China, the two countries signed nine new cooperation agreements to set the base for more investment plans covering oil, gas, electricity and the textile private sectors.

The Egyptian Minister of Trade and Industry Rachid Mohamed Rachid said that the $300 million agreements will strengthen economic ties between the two countries and exchange expertise. Focusing on the oil and gas sector, $50 million will be granted to Egyptian investor Mohamed Soliman to fund his project of producing fuel and gas car tanks.

The signing ceremony was attended by Rachid and Mahmoud Mohieddin, Minister of Investment, in addition to a number of Chinese ministers and senior officials.
(Al-Ahram, Al-Akhbar, Nov. 6)

Energy experts: Al-Dab'a is the best location to revive the nuclear project

Energy and nuclear security experts in Alexandria warned of losing millions of dollars and wasting more time in new studies, if the Egyptian government searches for another location for its nuclear program other than Al-Dab'a in the North Coast.

Experts declared that the government had previously conducted several physical and geological researches for nearly five years with a total cost of LE500 million before announcing the suitability of Al-Dab'a as the "best location" for establishing the nuclear facilities.

The current intentions to move the project site to Al-Oweiga district in Sinai will delay its inauguration for many years as it will require new studies and research, hence increasing costs.

On the other hand Egypt's Prime Minister Ahmed Nazif, declared that there is a possibility to develop Al-Dab'a as a tourist spot and use its revenues to partially fund the establishment of four nuclear units in the future.
(Al-Wafd, Nov. 5)

Egypt to initiate foreign deals to support petroleum cooperation

Throughout the past two months, the Ministry of Petroleum succeeded in engaging in talks with several countries, such as Kuwait, Russia, Sultanate of Brunei, Syria and Libya in order to create joint ventures. Some of them had already been put to action, while other deals are to be implemented in the future.

The Egyptian Petroleum Authority has agreed to give the Kuwaiti Group, Al-Khorafy the right to build an oil refinery in Al-Ain Al-Sokhna district, which landmarks the first Kuwaiti investment in the Egyptian sector of oil refineries. Al-Khorafy will be granted the final approval for this $1 billion project after conducting feasibility studies and research needed to start the implementation phase.

Also, Minister of Petroleum Sameh Fahmy, studied with Al-Tayeb Al-Safi Al-Tayeb, Secretary of the General Public Committee for Economy, Trade and Libyan Investment the means of increasing the marketing and distribution services provided by Tam Oil Libyan Company in Egypt and establishing more of its gas stations. Moreover, the two ministers discussed the possibility to extend the activity of its joint venture, the Arabian Company for Oil and Gas Tubes, to include Africa.

In addition to Kuwait and Libya, Egyptian Trade and Industry Minister Rachid Mohamed Rachid and Russia's Gazprom signed a memorandum of understanding on cooperation in the gas sector. This cooperation aims at developing Egypt's natural gas production and exports as the memorandum will cover the sectors of exploration, technology collaboration and marketing.

Back to October 10, Fahmy and Brunei's Minister of Foreign Affairs and Trade Lim Juke Sing discussed during a meeting held in Cairo the possible means to establish future joint venture companies working in upstream and downstream sects in the two countries.

Recently, the Egyptian Cargas Company has transformed 125 cars of the Syrian Petroleum Company to be run by natural gas. The move comes as a preliminary step to be implemented on all cars in Syria according to a deal between the Egyptian company and Syrian Petroleum Company signed in 2005, reported *Syrian Arab News Agency*.
(Al-Alam Al-Yom, Al-Ahram Nov. 1)

Fahmy: High technological techniques are crucial to upgrade oil explorations

Egyptian Minister of Petroleum Sameh Fahmy stressed on the importance of implementing the latest technological techniques in order to invade suburban areas, explore more oil reservoirs and develop the current deep water wells.

During Schlumberger's International Business Forum held in Cairo, Fahmy said that technology plays an indispensable role in reducing the costs of oil and gas exploration and production, while increasing the rates of production and reservoirs world wide.

Fahmy referred to previous joint cooperation between the Egyptian Petroleum Sector and international companies to prove the success achieved due to technology, such as deep-sea explorations in the Mediterranean Sea in association with Schlumberger.

Dana Petroleum completes exchange deal with Gaz de France and secures additional assets

Dana Petroleum Limited announced the completion of its asset transaction with Gaz de France, which will secure a new production line in the UK and more explorations in the Nile Delta.

Dana Petroleum will be given more interests in two UK producing fields; a 25% interest in Anglia field and an extra 22.113% interest in Johnston field. Dana has secured a 30% interest in the production sharing contract for the West El-Burullus Concession in the Nile Delta. On the other hand, Gaz de France will earn a 24% interest in Block 1, a 27.85% interest in Block 7 and a 17.5% interest in Block 8, all offshore Mauritania. Dana will remain as operator of the Mauritania blocks, while Gaz de France will continue to operate Anglia and West El-Burullus.

Dana estimates an increase of 19 million cubic feet of North Sea proven and probable gas reserves (equivalent to 3.2 million barrels of oil). Currently, Dana's North Sea gas production has increased by an average of 13 million standard cubic feet per day (equivalent to 2,100 barrels of oil per day).

Egypt to explore oil and gas sites in South Valley

In the context of developing the South Valley area, the Egyptian Ministry of Petroleum signed seven agreements to intensify its research to increase oil and natural gas discoveries in Egypt.

This step will serve in speeding up the implementation of the 735km gas line in South Valley. The first phase has already been put to operation, starting from Beni Suef to Minya with a total length of 145km.

The agreements signed with Canadian, British, Australian and UAE companies cover a total area of 125,000 cubic km in South Egypt, Red Sea, Western and Eastern Deserts and North Siwa at the Egyptian-Libyan borders, with a total of $91 million in investment, said Hassan Akl, general manager of Egyptian South Valley Petroleum Company. He added that some companies have already carried out the seismic research in Kom Ombu and El-Nakra in south Egypt.

Focusing on the development of the Western Desert, the trio, UK Melrose Resources, Greek refiner Hellenic Petroleum and Australia's Oil Search have recently won the Mesaha concession, near the Egypt-Sudan border. The concession is expected to cover 56,930 square km and the group will shoot 1000 km of 2D seismic and sink one exploration well in the first phase of the deal. Melrose will operate with a 40% stake, while Hellenic and Oil Search will hold 30% of interests.
(*Al-Ahram, Oct. 26***)**

Experts criticize government initiative to extract oil from tafla

Under the pretext of being too costly and having insufficient reserves of petroleum clay, Egyptian mining and petroleum industry officials have criticized the Ministry of Petroleum for its new project to extract crude oil from petroleum clay (tafla).

Fawzi Al-Mahallawi, professor of mining at Cairo University's Faculty of Engineering, told the *Daily Star* that economically this project is unfeasible. Petroleum clay should be used as fuel for power generation, specifically in phosphate mines, he added.

According to experts, this initiative requires 100 billion barrels, while Egypt's reserves of petroleum clay (tafla) count for 5.7 billion barrels only, throughout the country excluding Sinai.

On the other hand, the Ministry of Petroleum estimates reserves of tafla in the Red Sea area at 4.5 million barrels, declaring that this project aims at diversifying the sources of energy in Egypt.

Experts' criticism brings back memories of the failure of Abu Tartour project. Geologist Abul-Hassan Abdel-Raouf, former chairman of the Egyptian Geological Survey Mining Authority, warned of a repetition of this failure, when management insisted on extracting crude from petroleum clay. He pointed to the shortage of clay, low return on investment and high costs.
(The Daily Star, Oct. 22)

International

Kuwaiti oil refinery explodes

One of the oil refineries in Al-Sha'eba district in Kuwait exploded last month due to technical malfunction. Asked if the explosion is due to a terrorist attack, a Kuwaiti formal official confirmed that the accident was a result of technical problems, which set the oil refinery on fire.

It is worth mentioning that the Kuwaiti Ministry of Internal Affairs had intensified its security around petroleum units after Al-Qa'eda called for attacks on oil facilities. *(Al-Ahram, Nov. 5)*

Abu Dhabi-based NPCC wins $390m contract from India

Abu Dhabi-based National Petroleum Construction Company (NPCC) won a $390 million contract from India's Oil and Natural Gas Corporation (ONGC).

The project's scope, expected to be completed in April 2007, extends to include survey, design and detailed engineering, procurement, fabrication, transportation, installation, hook-up, pre-commissioning and commissioning of four wellhead platforms, anti-corrosion, weight coating and laying of 185 km of submarine pipelines and modification of an existing process platform NQG at the Mumbai High offshore field.

This is not the first time both companies cooperate; NPCC signed a $200 million contract in 2005 to carry out four Wellhead Platforms Project-2 owned by ONGC.

The company is classified as India's largest integrated oil and gas company.
(Gulf News, Nov. 1)

South Korea signs oil storage deals with Kuwait and Total

South Korea and Kuwait signed an agreement for joint storage of 2 million barrels of crude oil, adding to the Kuwaiti emergency stockpile.

According to the agreement terms, South Korea is given first rights to purchase crude from state-run Kuwait Petroleum Corporation, which it could exercise in case of an oil shortage, the Ministry of Commerce, Industry and Energy (MOCIE) told *Reuters*.

Moreover, the state-run Korea National Oil Corp (KNOC) signed a joint crude stockpiling agreement last September which allows the French oil major Total to store 2.2 million barrels of crude in KNOC's storage units.

With the Kuwait and Total agreements, KNOC now has joint storage deals that count for 27 million barrels of crude divided as follows; 11.3 million barrels with Norway's oil and gas group Statoil, 6 million barrels with Algeria's Sonatrach, 2.7 million barrels with Swiss- based trader Glencore and another 2.7 million barrels with China's state trader China Oil.

MOCIE plans to increase the total joint storage amount to 40 million barrels by 2010.

Iran stepping up uranium enrichment

Iran has officially announced the launch of its second cascade of centrifuges at a uranium enrichment facility following its peaceful plan for nuclear activities, the official IRNA news agency reported.

"A second cascade (of centrifuges) has been activated in continuation of Iran's research activities and within the framework of the Non-Proliferation Treaty (NPT)," Iranian Foreign Ministry spokesman Mohammad-Ali Hosseini said.

Mohamed Ghannad, deputy head of Iran's Atomic Energy Organization said both centrifuges cascades are already operating to enrich uranium at an average rate of 3%-5%, which is not enough to produce nuclear weapons, but suitable for industrial use only.

Ghannad assured that this new series of Iranian centrifuges has been carried out through the past five months under the supervision of the International Atomic Energy Association (IAEA). He pointed out that international inspectors visited Natanez region and the new equipments last week.

According to the *Iranian Students' News Agency* (ISNA), Tehran had injected gas into this second cascade at a uranium enrichment facility which marks Iran's first enrichment since February. Iran's uranium enrichment capability is expected to double, compared to the first one "Al-Salasel network" consisting of 164 centrifuges. *(Al-Ahram and AP, Oct. 29)*

Iraq seeks return of Chinese oil firms

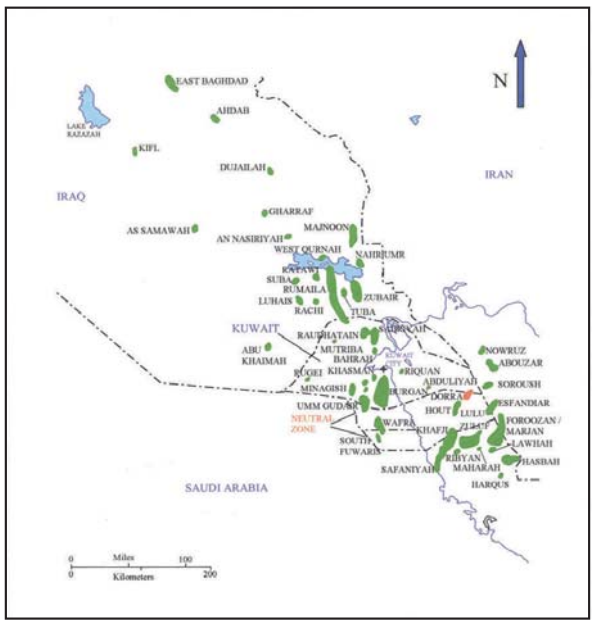
China and Iraq are reviving a $1.2 billion deal signed by Beijing and Saddam Hussein's government in 1997 to develop an Iraqi oil field, Iraqi oil minister Hussain Al-Shahristani announced.

Al-Shahristani said that by reviving this agreement, Al-Ahdab would become one of the first fields offered to foreign bidders, which will need to show technical and financial capability and a proven record in producing oil. Iraq will need up to $20 billion in investment to develop its oil infrastructure, the minister added.

Zhang Zheng, Beijing-based spokesman at China Petrochemical Corp. did not confirm whether Sinopec Group, China's second-largest oil company will resume its projects in Iraq.

Three years before the invasion, the contracts signed in 2000 with Chinese oil companies to develop the Al-Ahdab and Al-Qorna oil fields in southern Iraq counted for $700 million.

Al-Shahristani said that Iraq is on the road to re-develop its petroleum sources. He referred to the most recent oil refinery established in the southern city of Najaf, expected to produce 10,000 bpd and designed to meet the needs of the city and surrounding area.
(AP, Oct. 28)



Oil boosts Arab GDP above $1 trillion

For the first time, the GDP of the 22 Arab League members increased by $180 billion in comparison to the previous year and amounted to $1.05 trillion, Ahmed Goweili, chairman of the Arab Economic Unity Council said.

The reason for this GDP increase lies behind the sharp rise in oil prices worldwide during the past two years. The treasuries of some Arab states, mainly in the Gulf, have boomed by billions of dollars, refreshing their stock markets, real estates prices and budget surpluses.

According to Goweili, there was an increase of 44% in oil revenues to $350 billion last year.

Algeria to apply a new energy law in 2007

The Algerian Minister of Energy Shekib Khalil announced the initiation of a new energy law – due to be implemented at the beginning of 2007 – to regulate foreign investments in the petroleum sector in Algeria.

This law will set new tariffs on foreign petroleum companies operating in the country, as well as strict conditions for investment that will guarantee more economic profits in the future.

The Algerian government had set a law that has given Sonatrack, a government-owned company and the largest in Africa in terms of revenues, a more leading role in the petroleum sector.

Khalil said in a public lecture that there is a time schedule to put this law into function; however, they are still studying an amendment of the implementation terms.

"Disregard the dissatisfaction of companies unwilling to pay taxes over their huge revenues, the law will be applied as it brings in more profits to the national economy," he added.
(Al-Alam Al-Yom, Oct. 11)

Foreign firms bow to Bolivia energy nationalization

After six months of negotiations between the government and foreign investors, Bolivia's leftist president Evo Morales finally took "a key step forward" in his plan to nationalize the country's oil and gas industries as foreign energy companies agreed to operate under state control.

"With these new contracts we want to generate more economic resources to solve the economic and social problems of our country. That's our great wish," Morales said during a signing ceremony attended by company executives.

Bolivian government will be controlling two of the biggest investors in the country; Brazil's Petrobras and Spain's Repsol YPF that have a share of 47.3 % and 26.7% of the proven and probable natural gas reserves in the country.

Under this nationalization decree, the companies will operate as service providers to Bolivia's YPFB in exchange for between 18 to 50 % of the revenue.

Morales confirmed that the energy revenue will be dedicated to help alleviate poverty in South America's poorest country. "What we are doing here is to exercise our property rights, as Bolivians, over our natural resources, without evicting anyone, without confiscating," he said. *(Reuters, Oct. 29)*

Breaching national boundaries to achieve international success

In 1996, it invaded the drilling market by being the first true Egyptian-Chinese joint venture in the drilling sector. Maintaining an outstanding record throughout the past eight years has placed the Egyptian Chinese Drilling Company (ECDC) as the second largest drilling company in Egypt. Ayman Abbas, Managing Director of ECDC shares this fascinating story of success with Egypt Oil and Gas Newspaper and expresses his vision concerning the development of Egypt's rig market.

By Yomna Bassiouni


Ayman Abbas

Q Where does ECDC's investment in Egypt's rig market currently stand?

ECDC was founded back in 1996; it is the "first real" Chinese joint venture in Egypt between China National Petroleum Cooperation represented by Great Wall Drilling Company (GWDC), China's largest international trading contractor with more than 100 rigs worldwide, and two Egyptian partners including INTRO and UNIVEST. The first Chinese rigs were received in 1998 and the company has formally started functioning since then. Throughout the past eight years, we achieved an outstanding track record; we have drilled more or less for everyone in the market.

Q Does ECDC have any expansion plans in 2007?

We are planning to increase our rig capacity to reach 10-11 rigs in 2007.

Q Where does ECDC stand amongst its competitors in the market?

We are the second largest drilling company after Egyptian Drilling Company (EDC) in the Egyptian market. Thanks to the minister's policies, we now have an open market where competition, in my opinion, has become a very healthy phenomenon, yet it needs regulations.For instance, we have good relations with EDC. I believe drilling contractors should found a community through which they can exchange expertise, share plans to develop the market, solve common problems...etc

Q What were some of the complications that you faced at the beginning of this joint venture?

It was very hard at the beginning; everyone was against Chinese equipment, as the oil market here is very traditional.

Most of the people believe that it is much safer to use what they know and are not open to try new ideas.

Due to this mentality and an unstable market at that time, it was difficult to convince people with our services and that there is a new drilling contractor ready to operate. One of the other major problems we faced was China's strategy. Chinese contractors had always been drilling for the government; they did not know the sophisticated drilling requirements to serve a client. We wanted to get the best out of China leaving their government's close-door policy aside. We did overcome this obstacle by appointing the most experienced drilling engineers in the market and creating our own operational manual, managerial system and marketing material.

Also, we had a communication problem between the Chinese employees and clients. In order to avoid this miscommunication, we appointed Egyptian crew for the positions that are directly dealing with clients. Also, rig specifications were subject to changes; we had to make some modifications in order to meet the needs and requirements of the Egyptian market.

> **"For the benefit of the sector, we have to pay more attention to fresh graduates and train them well in order to create a new generation of specialized petroleum engineers"**

Selling points were another difficulty; there is a common belief that Chinese products mean cheaper prices, but this was not true as we were seeking high quality equipment. Many other competitors bought Chinese rigs at very cheap prices, but sadly, many accidents led to the death of several workers as they lack safety factors. We were very careful in our rig selection as we aimed at filling the gap in Egypt's rig market during that time and found our selling points through the initiation of close bonds with clients.

Q Concerning the pricing issue, how do you mange your daily rates compared to other competitors in the local market?

We are more or less at the same price level; we do not really have a difference in the price issue. I invest more on the people doing the service and in the service itself, making sure that I give the best service to my client is better than saying I am 10-15% cheaper.

Q How do you view the rig problem in Egypt?

The major drawback that we must stress on is the low price rate of rigs in the Egyptian market, which are 30-35% lower than other surrounding countries. Why would a rig company get their rigs operating in Egypt, while its price in Sudan, Algeria and Saudi Arabia, for instance, exceeds the average of $25,000 per day, this is a huge problem as there aren't enough rigs operating in the market. A dramatic change in daily rates and government's pricing strategy should be implemented in order to regain a healthy rig market.

Another weak point is the lack of personnel; most of the skilled and experienced Egyptian workers go working in the Gulf where they get paid 3-4 times as much as they get here with better offers and facilities. This shortage does not only affect me as a contractor, but the market as well.

For the benefit of the sector, we have to pay more attention to fresh graduates and train them well in order to create a new generation of specialized petroleum engineers. Unfortunately, we lack drilling specialization in the petroleum engineering educational system. In Chinese universities, for instance, graduates can get a degree in petroleum engineering with a specialization in rigs only. I believe we should follow this Chinese educational specialization. At ECDC, we offer different types of courses at our ECDC Training Center as a way out, to solve this lack of experience.

Q Do you think the recent rig construction agreement signed with China will solve this problem? Does this agreement affect you?

If I find a good rig supplier just next door to me, I would definitely establish a relationship with him, as I can get full technical support and services. Concerning its effects on the market, if they maintain the market stability and avoid having unneeded extra rigs, this will never negatively affect the drilling market. Otherwise, contractors would search for another stable market to implement their business and clients will be the ones affected.

However, I don't believe that our economic status whether in the Egyptian market or the surrounding countries can afford such an agreement. The current worldwide demand is almost completely addressed by all rig manufactures and the demand for rigs could possibly decrease on the long run.

We have to conduct many in-depth studies of our market and get a focused vision before implementing this agreement. I believe by 2008 the market will not be in need for extra rigs and the region of Africa and Middle East cannot accommodate a rig manufacturer. We should become rig supplier for the international market and not be limited to the local and Arab market only.

Q What would you like to see improved in ECDC?

I would like to see ECDC serving more countries and producing more specialized and skilled personnel. Moreover, I would like to train fresh graduates and create more job opportunities for them in the rig sector. Being a member of the International Association of Drilling Contractors (IADC), we have started the implementation of ISO (International Standards Organization) three months ago and I would love ECDC to receive this certificate.

2006: A mixed bag of goodies

With 2007 just around the corner, a look at what has happened the past year will undoubtedly aid in preempting what is to come. In Egypt, several changes have occurred in the energy sector in general, and the oil and gas sector in specific.

By Egypt Oil and Gas Stafff

IN 2000, the Ministry of Petroleum, headed by Eng.Sameh Fahmy, took propitious measures to revamp the sector. This in essence was marked by a complete restructuring of the industry and a separation between natural gas and petrochemicals activities and those of the Egyptian General Petroleum Corporation (EGPC). A stress on natural gas was pursued and much like Egypt's pioneering days in oil, the country has now become the sixth largest producer of natural gas. The need for increased production was of course followed by the desire for greater exports, hence, the ministry turned to export-oriented super projects. The trick was then to balance domestic consumption with desired export and actual production. This was all realized with development in technology.

The latest developments of the sector no doubt made this an investor's paradise with more than 98 agreements signed since the strategic move. These agreements with foreign investors have brought into the country over $6.8 billion. This is due in large to grand exploration efforts which have recently placed the proven oil reserves at an unprecedented level of 15.4 billion barrels in 2005. As regards the natural gas industry, Egypt exported its first shipment of liquefied natural gas in January 2005. In the past six months, Egypt has sealed contracts with Arab countries worth over $1 billion, an indication of local cooperation and competitiveness.

New discoveries of both natural gas and crude oil are made on a regular basis. Egypt, the first nation in the region in which oil was discovered, scored a total of 227 new discoveries since the year 2000. The discoveries are divided as follows: 153 crude-oil discoveries and 74 new spots of natural gas. These discoveries have prompted the desire to invest in Egypt and accordingly foreign and joint-venture company investments reached $9.5 billion. These companies mainly operate within the field of exploration and production.

It is worth mentioning that Egypt's current proven gas reserves counts for 67 trillion cubic feet (tcf), and according to analysts, this figure is expected to grow rapidly; indeed the government's claim that another 100 tcf are waiting to be found is not implausible. Besides, new exploration contracts are flying off the government's table: a total of 77 contracts have been signed since 2003, the latest being in July, to a consortium of Petronas, BG and RWE Dea AG, through which $106 million will be invested to drill deep in the Mediterranean.

Last year, the reserves of oil resources increased to an unprecedented level of 15.4 billion barrels. According to *Oil Egypt* website, natural gas production could reach 100 tcf a year by 2011, an increase of 47% compared to the current production rate.

The attractiveness of the petroleum sector to major multinational investors has brought in a wave of foreign projects and joint-ventures which has added around $9.5 billion to the government's treasure. The political and economic stability that Egypt is enjoying amidst a high tensioned region has been a major factor in attracting a number of foreign investors this year. Nevertheless, Egyptian investors from the public and private sectors also contributed to the development of the energy sector in Egypt. Most of their investments, mainly directed to oil exploration, production, refining, processing, transport and marketing, added more than $3.5 billion to the sector.

SWOT Analysis

The best means of understanding this sector is by applying a standard form of analysis which examines the Strengths, Weaknesses, Opportunities, and Threats (SWOT). This form of analysis allows any observer of the sector to appropriately ascertain the developments in the world of oil and gas.

Strengths

By far, the most exciting aspect of this sector is natural gas, which is expected to reach 100 tcf a year by 2011, according to Hany Soliman, Undersecretary for Gas Affairs at Egypt's Ministry of Petroleum and Mineral Resources.

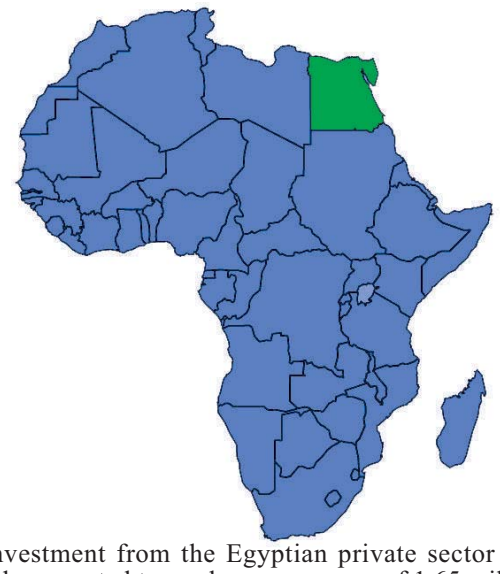
Egypt is now the sixth largest natural gas producer and new discoveries of gas are made on a frequent basis. This is regarded by many as the golden opportunity to meet local energy demands while still maintaining exports. All eyes are on gas, seeing it as the hope of stabilizing oil production and cutting down subsidies. In terms of gas there are several untapped resources which will certainly be explored within the next decade.

Many of the current exploration programs are financed and conducted by foreign investments in Egypt. One of the most recent agreements dedicated to the development of the oil and gas sector in Egypt has been offered by the International Finance Corporation (IFC), which has signed a $25 million funding package for Rally Energy Corporation, a Calgary-based oil and gas firm to be utilized in supporting upstream oil and gas projects in Egypt and Pakistan.

The IFC, the private sector arm of the World Bank, announced that this package will be used as well to help in satisfying the increasing domestic demand of oil and gas by strengthening energy production. Through this agreement, the main target for Rally Energy in Egypt will be directed to the development of the infrastructure in the 20,000-acre Ras Issaran oil field. This significant heavy oil development opportunity will be dedicated to solving the decline in production being witnessed there.

"The IFC credit facility has been put in place to give Rally maximum flexibility to supplement expected cash flow from its planned 2006 and 2007 work programs, and to enable us to accelerate the thermal development project in the Issaran Field in Egypt," said Abby Badawi, president and chief executive officer of Rally Energy Corp in an interview published in the daily English newspaper, The Daily Star. The energy sector in Egypt has witnessed a booming movement in most of its fields, and in mining and hydrocarbon in particular. This latter sector generates 15% of GDP, 37 % of export earnings and the bulk of foreign investment.

In the sector of petrochemicals, the Ministry of Petroleum has commenced two joint projects with



investment from the Egyptian private sector and Canada, expected to produce an average of 1.65 million tons of Methanol and Polypropylene. The first is designed to enhance the production level of Methanol from the Mubarak Complex for Gas and Petrochemicals, with total investments reaching $620 million and an annual production capacity of 1.3 million tons. Canada will pay 60% of the total cost, while the other 40% will be divided into 24% paid by ECHEM and 16% from the private sector. Meanwhile, the second project will specialize in the production of propylene and polypropylene, with an expected production of 350,000 tons and $350 million in investments. This figure is estimated to increase and count for $400 million.

Besides these investment projects, the right to conduct studies and researches on many Egyptian concessions has been given to foreign enterprises. One of the most recent foreign exploration programs is carried by RWE Dea in the Desouk concession in the Nile Delta. This company, classified as one of the top petroleum corporations in Germany, has set a two-year plan of explorationn programs in Egypt. It contracted two 2000 HP onshore drilling rigs from Croatian firm CROSCO Integrated Drilling Well Services; the first began drilling in September 2006, whereas the second will be in function by 2007. "The contractor has a 100% participating interest in the concession that covers an area of 5,523 km."

In addition to RWE Dea, Centurion Energy International, has increased its sharehold of 25% participating interest to a full 100% in two concessions located in the Nile Delta region; the West El-Manzala and West El-Qantara Concessions. In return for this increase, Centurion has

Operating highlights of Centurion Petroleum Corporation during 2006

El-Manzala Concession
El-Wastani and El-Wastani East Development Lease (Centurion 100% WI)

The main focus of operations in El-Wastani during 2006 was constructing a major company-operated gas processing facility, in order to process all produced hydrocarbons within the Development Lease and thereby maximize the gas and liquids production rates. Production from the El-Wastani field averaged 144.4 mmscf per day of gas during the quarter. Related liquids production averaged 4,009 barrels per day of condensate and 1,005 barrels per day of LPGs, for a combined total average daily rate of 29,088 barrels of oil equivalent per day.

South El-Manzala Development Lease (Centurion 100% W.I)

There was no drilling activity on the SEM Development Lease till the second quarter. Work plans for the Development Lease during the rest of 2006 will include up to two new wells targeting the shallow El-Wastani and Kafr El-Sheikh formations. Production averaged 12.6 mmscf per day of gas (2,101 boe per day).

West El-Manzala and West El-Qantara Exploration Concessions (Centurion 50% W .!.)

The second quarter of 2006 was marked by ongoing seismic data acquisition and the drilling of the first two wells in the new exploration concessions, with two additional wells being spud during the quarter. The acquisition and processing of 1400 square kilometers of 3D seismic data on the West El-Manzala acreage has been completed and interpretation is underway. D seismic activities resumed in June and the new acquisition includes 150 square kilometers of data in West El-Manzala (to supplement the 1400 km acquired in 2005) and 412 square kilometers in West El-Oantara. Processing of the new data will commence in the third quarter and interpretation will take place on a concurrent basis where possible.

West Gharib Concession (Centurion 30% W.!.)

Exploration drilling has continued aggressively on the West Gharib concession (in advance of the exploration permit expiry during the second quarter of 2006) and has yielded some success. Arta-1 is an oil discovery which tested 600 barrels per day of oil, declining to 100 barrels per day of oil with minor amounts of water. The well will be stimulated with a fracture treatment prior to being placed on production. The North Hoshia-1 well discovered oil in the Rudeis formation and tested 200 barrels per day of oil. A workover was completed on the South Rahmi-1 well to run a slotted liner. Five other exploration wells were drilled and abandoned during the quarter.

Production from the combined development leases within the West Gharib concession averaged 2,501 barrels per day of 22 degree API oil (750 barrels per day Centurion share). Production from the West Hoshia field is temporarily shut in awaiting regulatory approval of the Plan of Development. Other development leases awaiting approval from the authorities are North Hoshia, Arta and South Rahmi.

Kom Ombo Concession (Centurion 100% W.I.)

Centurion .has high-graded the play to the southern part of the concession where it has acquired an additional 516 kilometers of 2D seismic data. Processing of the newly acquired seismic data has been completed and the interpretation is ongoing with a view to firming up prospects for drilling in early 2007.

Centurion facilities *photo courtesy of Centurion Petroleum Corporation*

paid $20 million and has "issued a million common for the concession interests." Also, according to the terms of this agreement, in case of meeting specific discovery volumes and development objectives, Centurion is obliged to pay additional future premiums of an average total of $25 million.

Exploration is not the only concern when dealing with the sector; the ministry's interest in developing the infrastructure for this industry and providing the needed equipments at high quality was amongst the major strategies applied to ameliorate the levels of production.

On the supply side, Egypt is the sixth-largest exporter of liquefied natural gas (LNG) in the world, and developing the techniques of production would even put it in a higher rank. The Egyptian government has signed a joint agreement last June with Union Fenosa (Of Spain) and Eni (of Italy) to build a second LNG train to be located at Damietta, at an estimated cost of $1.5 billion. This new train, expected to be in function in 2009, will double the amount of LNG being shipped from Damietta.

Currently, Egypt owns three LNG trains: two of them located in Idku, owned by British Gas (BG), which is working on establishing a third terminal, while the third train is at Damietta and owned by Union Fenosa and Eni.

Early this year, there were a series of discoveries in the oil and gas sector. Shell Egypt announced two new discoveries in its Badr El-Din (BED) Concession in the Western Desert, in association with EGPC. "This is a great success story. The two recent discoveries confirm our strategy of optimizing production from mature assets and focused near field exploration. These results are very encouraging, and attest to the quality of our work. I must also express my deep appreciation to EGPC for all the support it offered us during our activities," said Zainul Rahim, Country Chairman of the Shell Companies in Egypt.

One month later, there were two other oil discoveries; first of which was led by Agiba Petroleum Company in the Western desert with estimated reserves of six billion barrels and a daily production of 5000 barrels with an API grade of 34, the second was found in the Gulf of Suez, northwest city of Tor expected to produce 5000 barrels daily with an API grade of 30. Moving back to the gas sector, it has also witnessed new discoveries at the beginning of 2006. Last March, Centurion announced a new gas discovery on the eastern side of the West Manzala concession.

Last September, Egypt had signed a production sharing agreement with Aminex PLC, a United Kingdom oil company for Onshore Block 2 in the West Esh El-Mellahah area in Upper Egypt. The process of drilling in this area could be accomplished soon as there are existing 3D-seismic data available on Block 2, said Brian Hall, Aminex chief executive.

Weaknesses

Despite the financial profits resulting from foreign investment, Egyptian oil exports warned of a possible decrease in the production level of mature oil fields, which put them under pressure especially with the increasing domestic consumption. Moreover, the inability to meet domestic demand leads the Egyptian government to buy oil and gas from foreign partners, which creates a heavy economic burden.

Lately, the Egyptian government has been studying possible alternatives for oil and gas due to fear of resource scarcity. Egypt and Saudi Arabia, the largest power generators in the Middle East, signed an agreement to carry out a joint study on linking the two countries with a power grid. According to Hassan Younis, Egyptian Electricity and Energy Minister, this project is a way towards the government's objective to find alternatives such as wind and solar energy instead of oil and gas. "We have been pursuing a program to use nuclear energy for electricity power generation since the 1980s but it was stopped following the Chernobyl nuclear disaster," he explained. But, even with the implementation of this project, the government should be more concerned with this issue.

Over the past ten years, the cost of buying oil and natural gas has dramatically increased. According to Sameh Fahmy, Minister of Petroleum, the government paid around $5.7 billion to foreign companies in 2006 compared to $800 million in 1996. The minister attributed this increase to the international upsurge in energy prices. However, he assured that energy prices in the domestic market were very stable regardless of currency depreciation.

According to the fiscal year 2006-07 budget, a total of LE40 billion had been allocated in subsidies to oil products, mainly funded by the economic surplus generated by the petroleum sector, against LE22.1 billion in subsidies last year. Therefore, the bill of oil purchases is considered an obstacle to the development of the petroleum sector in Egypt and hinders its strategy to maintain the balance of payment.

BP Egypt signs LNG framework agreement for the development of Damietta train 2

The Egyptian Natural Gas Holding Corporation (EGAS), BP, SEGAS and Eni signed a framework agreement marking a major step forward for the development of the second liquefied natural gas (LNG) export train at the Damietta site on the Egyptian Mediterranean Coast. As well as generating significant foreign currency revenues for Egypt the project will create a large number of new employment opportunities for Egyptian nationals in the Damietta area for both the construction and operation phases.

The agreement puts in place the commercial framework needed to move the project forward to a final investment agreement. It is planned that the project will be supplied by BP and Eni from new gas discoveries offshore in the Nile Delta. As part of the development of these resources for the new LNG plant a comparable amount of gas will be developed for supply to the domestic market in Egypt. As such, the signature of this agreement is a reflection of BP's long-term commitment to make significant investments with its partners in the Nile Delta to explore for and develop new gas discoveries.

Commenting on this milestone, Hesham Mekawi, BP Egypt President, stated: "This agreement marks a significant milestone in the long history of BP in Egypt which dates back over forty years. It expresses our continued commitment to the development of the gas business in Egypt and meeting the growing needs of the domestic market whilst at the same time providing the ability to export gas via LNG to the most attractive international markets."

Centurion facilities *photo courtesy of Centurion Petroleum Corporation*

Opportunities

The continuous increasing demand over Egypt's oil and gas creates a large chain of opportunities for the Egyptian society. On the international level, "global demand for gas continues to rise in response to the high price of crude." Applying this phenomenon to Egypt, large markets such as the EU are keen to maintain their statue as the principal market for Egyptian LNG, especially when the EU expects to expand its demand level by over 10% in 2009.

Also, the development projects taking place in the gas sector all over the world bring advantages for Egypt. For instance, Spain, the third largest consumer of LNG worldwide, is building a new regasification plant in northwest Spain, which is designed to take in shipments from Damietta; this project will definitely bring positive outcomes for the Egyptian exportation sector and refresh the work movement in this vital LNG site.

Focusing on the internal management to generate more opportunities, the Egyptian government plans to extend its LNG network and have its gas be exported to new further areas, such as Syria, Lebanon and Turkey through the north-bound pipeline which already supplies Jordan. According to officials, this pipeline can carry up to three billion cubic meters of gas abroad.

According to a study published in August by the Organization of Arab Petroleum Exporting Countries (OAPEC), the demand for gas in Arab countries has exceeded the demand for oil during the past ten years. The study pointed out that the demand for gas is expected to rise by a rate of 4% per year until 2020.

On the other hand, the development of the electricity sector is a vital instrument to augmenting Egypt's production. The adequate supply of electricity is considered as a "prerequisite" for economic growth, since it improves the production level in all other industries. Based on this concept, the government has recently given high priority to promote the development of new and renewable energy and "to introduce energy conservation measures."

With the assistance of Denmark, the Egyptian government set a policy to have maximum utilization of its wind energy, especially in the Red Sea district, one of the world's most favorable areas in terms of wind resources. The Danish support includes the establishment of wind farms, as well as sustaining the Egyptian authorities' capacities to plan, implement and operate large scale wind farms. In addition to these objectives, the program is expected to brainstorm new strategies concerning the development of biogas plants at major farms and the utilization of solar energy.

According to the German-Arab Chamber of Industry and Commerce, Egypt is on the road to reach loans counting for LE36 billion from different international financial institutions in order to finance its power projects under the five year plan from 2007 to 2012. The Egyptian government works tightly to satisfy the domestic demand for energy; this demand increases at a rate of 8% a year. The plan revolves around two main goals: to establish new power generation plants at a combined capacity of 7.857 megawatts and to construct related power distribution and transfer infrastructure.

One of the recent agreements signed to bring in more opportunities to Egypt is the $722 million contract for constructing six offshore rigs and a pipeline. An association of three Egyptian companies, Enppi, Petrojet and Marine Petroleum services have "won a bid for the design, supply and construction of six offshore rigs in the region of El-Khafgy oil fields north of the Arab Gulf." This project, started in last August, is due to be completed within 30 months.

The potential for increasing energy conservation levels within both energy production and transmission opens the door for more opportunities in the Egyptian economy, which can upgrade the status of Egypt in the international market.

Threats

Leaving the bright side of economic profit and positive achievements, any field carries positive as well as negative aspects which constitute threats. On July 28 of this year, the prices of gas and diesel were raised to up to 30% overnight due to the government decision to decrease domestic subsidies on gas and diesel.

Although, this decision was expected, it has carried different effects for gas companies. On one side, increasing the prices of such a vital daily element for citizens is more likely to put downward pressure on domestic demand. On the other side, the reduction in subsidy can result in offering "sweeteners to the companies" in three ways. The first is the possibility that the government could pay more for the gas it buys. Second, it could take a smaller margin of the companies' profits from exports (it currently takes 60% of the profits from Idku and 40% of the profits from Damietta). Third, the government could decrease the quota that companies are obliged to allocate to the domestic market, therefore having the ability to export more at higher international prices.

If the government continues to decrease its subsidies and companies become the sole gainers, both the government and the population will suffer; but the gas industry will rise. Yet, this is a double-armed privilege as there has been a long debate about government subsidies; while some are in favor of reducing them, others believe subsidies are a crucial element for a large portion of the Egyptian population.

What the future holds

In the petroleum sector, unpredictable events always occur, which contribute to the instability of the international market in general and the domestic market in specific. This year, July 14 was a landmark in the history of oil prices, which increased at an unprecedented rate; reaching $78.4 a barrel. Undoubtedly, this was a golden opportunity for many producing countries to gain quick fortunes. However, investors did not enjoy this paradise for long as this all-time high price decreased to around $60, recording a 23% drop. Yet, despite the major obstacles, there is always hope due to continuous expansions, explorations and projects that opens doors for more opportunities in the petroleum sector.

Time for an alternative

Scientists and experts have agreed that the petroleum era will sooner or later come to an end and nations will be struggling to meet their oil and gas needs, which will possibly open the door for a third world war. Analysts have confirmed that Egypt's oil and gas reservoirs will only cover the nation for the next 30 years. Egypt Oil and Gas Newspaper discussed with Dr. Salah El-Haggar, Professor of Energy and Environment at the American University in Cairo, the option of searching for alternative energies in order to secure the generations to come.

By Yomna Bassiouni

Q Can biogas be the equivalent for natural gas in Egypt?

Yes and no; biogas is a mixture of methane gas and carbon dioxide, methane gas is almost equivalent to natural gas, carbon dioxide is an inert gas, it has no calorific value. Therefore, carbon dioxide will decrease the calorific value of biogas. But, if we filter biogas by removing out carbon dioxide and some of the other trace elements, then biogas will be clean. Unfortunately, the technology used to clean it is not economically promoted in Egypt yet, although we have more than 743 biogas units distributed all over the country. Right now, the number of biogas units operating is 5-10 only.

Q Why is that so?

The reason behind it is that promoting biogas in Egypt started in the 1980s as a biogas unit from animal manure, which is always considered a valuable waste for farmers used in land farming and fertilization. Thus, the concept of biogas should be expanded to include any organic waste like the one in "Al-Gabal Al-Asfar" that produces around one million cubic meters of biogas out of human waste. This plan is not operated with full capacity yet, but it is a promising expansion for biogas in Egypt that I consider to be "the future for rural development."

Q Who are the active participants in this project? Is it more of an NGO, the government or just volunteers?

In the 80s it was the government's role – financed by USAID – but recently NGOs are trying to promote biogas. Unfortunately, up till now people do not understand biogas technology as a method to recycle organic waste. For example, rice straws can be converted to biogas by mixing them with sewage instead of burning them and producing black clouds. It is a very simple technology for rural development.

Q Do you think it is due to lack of awareness or a problem of government strategy?

First, it is the problem of how biogas is promoted; do you want to take farmer's valuable animal manure and put it in a small box underneath the earth to produce biogas? That is the question. Secondly, it is because of the cheap cost of butane gas bottles; they are handy and a very simple household energy source. Thus, why look for alternatives? China and France – which I consider the best models for biogas – take invaluable organic waste and use it to produce biogas used in lighting and cooking. Our government should focus on biogas as an alternative method to recycle un-recyclable waste in rural communities, which is one of the major problems we have.

Q Looking for alternatives, will Egypt find alternative energy methods, such as solar and wind energy?

Renewable energies require some specific conditions. Concerning wind energy, the wind speed has to be about six meters per second, which is not available everywhere. In Za'farana, we do have enough wind to generate this energy, however, we do not have wind maps to study wind velocity and reach the highest one to generate energy. For solar energy, we have a huge amount of solar energy in the country, but the cost of converting solar energy with this low energy intensity is very expensive. The alternative would be solar water heaters, but we cannot use them in Cairo, as roof-tops are very limited, while solar water heaters necessitate large spaces.
In Egypt, we have around 11-12 solar water heater companies, none of them generate income. We need to develop an incentive mechanism, such as installing and maintaining them for free or with a 20% reduction-rate, in order to encourage people to install them and pay this huge sum of money at the beginning compared to cheap electric heaters.

Q Why hasn't the government started depleting oil consumption? Why is it not planning for the future?

The government has already established an authority called "Renewable Energy Authority", responsible not only for promoting the concept of renewable energy but also to implement pilot studies all over the country. They have hundreds of engineers, workers and scientists but, the question is do they have an action plan to promote renewable energy apart from energy demand in Egypt? Do they have a follow-up plan and some kind of link with the community? I have no answer. This authority has to develop not only an action plan, but also an implementation and follow-up plans.

Q How difficult is it for a non-governmental entity to start its own project on alternative energy?

There are a lot of NGOs in this sector; the problem is that they do not have enough financial or human resources. Also, they do not have the power to conduct an action plan.

Q What about the private sector?

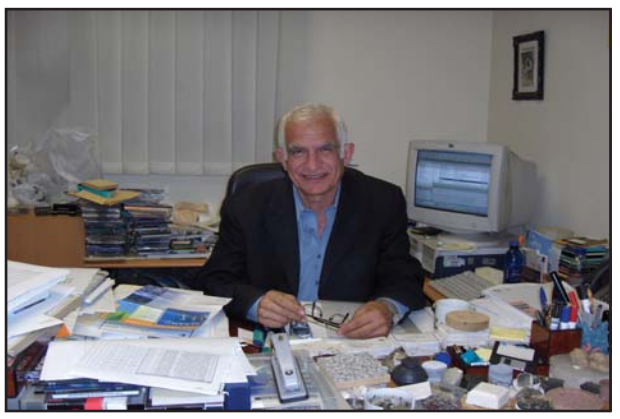
The private sector is another story; they will never attempt to promote something beyond their activity. If you try to go into the private sector in the area of energy conservation, they have many opportunities. We estimated energy conservation in the industrial sector to be almost 10% of their energy consumption. We have an office called "Energy Conservation" in the Ministry of Electricity, if they give more attention to raising the importance of energy conservation, we will save a huge amount of energy for future expansions.

Q Do you think the government should give more facilities to the private sector in return for their community participation?

Either that, or put it as a condition; from the start, if you want to run a business, you have to have 1% of your income dedicated to community participation. I believe that community participation is important not only for energy conservation, but also for development activities.

Q Where does Egypt stand in terms of energy conservation?

I think we have excellent demonstration projects, the question is: are these demonstration projects expanded into other industries? No, even if it is an excellent, documented and measured project with profit. One example is in the textile industry in Mansoura, which has implemented energy conservation for about four years with a three-month pay-back period, which is an excellent investment. However, no one tried to promote this concept to other companies. In my opinion, energy conservation and environmental protection are not in the government's plan yet. The main method behind promoting the concepts of renewable energy and energy conservation is to start



Dr. Salah El Haggar

from the end users. If consumers understand the benefits and know the techniques they can implement, they will immediately follow up on the implementation process.

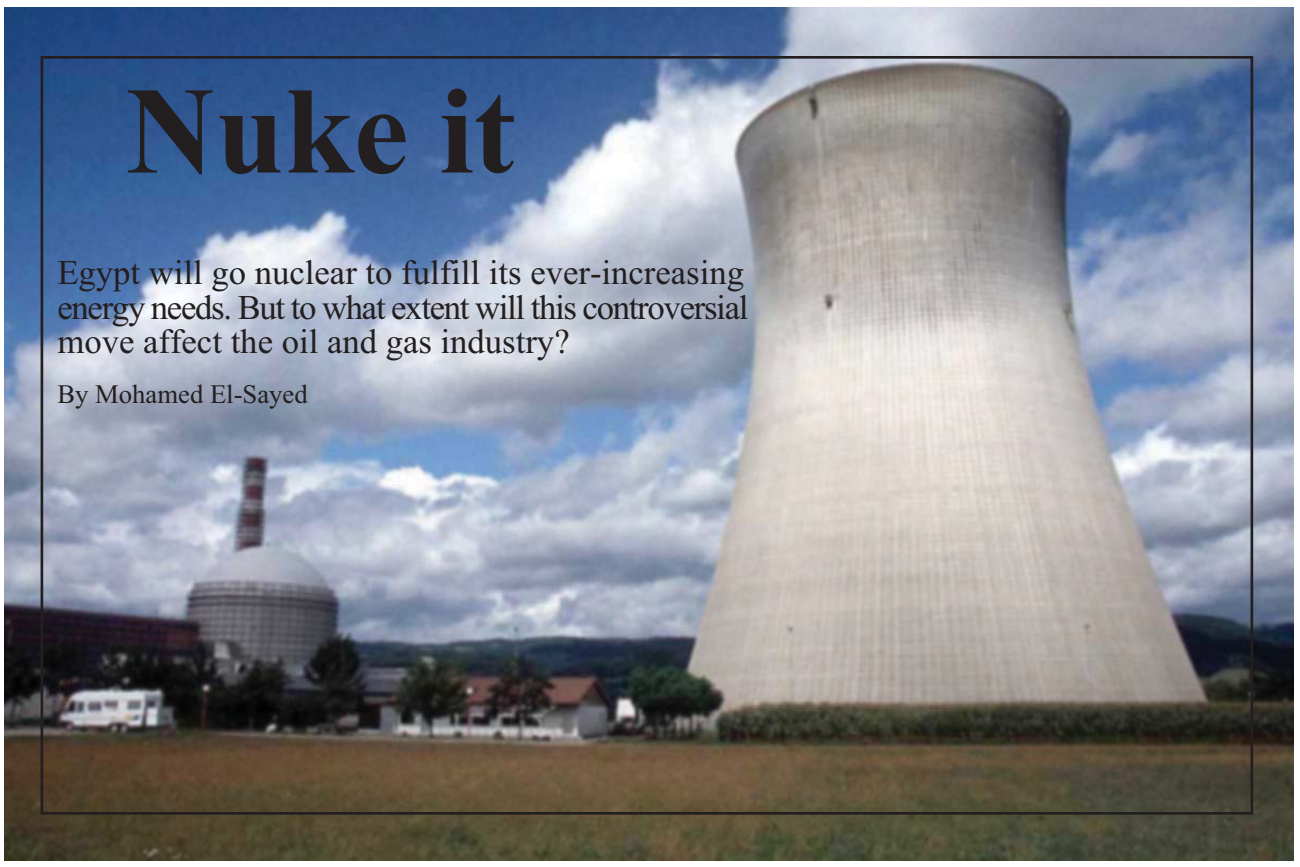
Q How can we deal with pollution generated from the oil and gas sector to save the environment?

Starting from drilling; we have what is called drilling mud and cuttings. Unfortunately, until today, they are either dumped in the desert or sea. You can recycle the oil and water base mud as an alternative fuel and raw material for cement industry. It is not an expensive process.
Besides, there is another disastrous emission, which comes from gas stations and storage tanks. There is a huge amount of vapor in fuel tanks, when we load cars or storage tanks, whether with gasoline or diesel, this vapor goes into the surrounding environment and is inhaled by people, reaching their kidneys in 15 minutes and may cause kidney failure on the long-run. It costs nothing to prevent this vapor; we can add a co-exile hole beside the first one; one to load fuel and the other to take in vapor back to the truck. The reason behind not applying this technique in gas stations is that they are owned by private sector companies. I always believed that gas stations should be under EGPC (Egyptian General Petroleum Corporation) control in order to get clear technical specifications to run these stations. Another type of pollution is sludge; the easiest way to deal with it is to use it to pave roads (asphalt). Petroleum companies claim they don't have the techniques to deal with inorganic mud yet, but we already have one company in Alexandria dealing with inorganic hazard wastes.

Q How do you see the future of energy in Egypt?

Actually this is a very tough vision now, as we cannot estimate the exact amount of oil and gas reserves in Egypt. Renewable energy is the only safe energy for the future, if it is efficiently extracted and produced. The second part is nuclear energy, but it is still unclear.
On the other hand, the future of energy worldwide is hydrogen energy. If we are able to utilize hydrogen as a future fuel, this will be a dream. It will produce no carbon-dioxide, no sulfur oxide, and no emissions; however its storage and cost are viable problems. But, in 10 years, the cost will decrease. There is a large hydrogen energy project in Istanbul, but Egypt did not initiate a link with it until now. I think hydrogen is the dream for the future of energy in Egypt.

Dr. Salah El-Haggar is a professor of Energy and Environment at the American University in Cairo, his publications include, *People and pollution*, *Cultural construction and social action in Egypt* **and** *Sustainable industrial design and waste management.*



Nuke it

Egypt will go nuclear to fulfill its ever-increasing energy needs. But to what extent will this controversial move affect the oil and gas industry?

By Mohamed El-Sayed

EVER since oil was discovered in Egypt in the late nineteenth century, it has been the main source of energy, besides coal, for many economic purposes. Having built the first well in 1886, the daily production was a meager 25 barrels. With the steady increase in energy needs for industries and other urban purposes, electricity was introduced to Egypt in the beginning of the last century to fill in a wide gap.

Despite the fact that the government counted mainly on electricity generated from water resources, like the High Dam, it had to look for other alternatives to produce electricity. Starting from the late seventies, steam power plants began to spread around the country. With more than forty of them covering all the provinces now, these plants depend mainly on oil derivatives – fuel oil (mazot) — and natural gas to operate.

In 1963, however, the government took a long-term view, pondering the possibility of depending on nuclear energy, in lieu of oil and gas, in producing electricity. Consequently, late President Gamal Abdel-Nasser took the decision to build Egypt's first nuclear power station on the Mediterranean Coast at Sidi Kreir. The project, however, was halted because of the 1967 War. Following Egypt's victory in the 1973 War, the project was brought to the forefront again. As part of the US-sponsored peace process, President Richard Nixon visited Cairo in 1974 and offered to provide Egypt with 600-megawatt nuclear reactors, though the plan was ultimately abandoned owing to a lack of funds.

Nevertheless, in the mid-1980s, the government saw that it was inevitable to look for other resources of energy. With the growing demand on oil and natural gas — which began to be used in the seventies — going nuclear was the only available option. President Hosni Mubarak held many meetings with senior state officials at the time to ponder the possibility of going nuclear to prop up economic development plans. The government was about to sign an agreement with a German company to build the first of ten planned nuclear reactors to be completed by 2000. Competition between Germany and other countries over their roles in the project hampered its implementation. Unfortunately, the 1986 Chernobyl disaster triggered a scare wave in Egypt and an anti-nuclear campaign led by the press. Thus, the government gave up the idea especially that many natural gas discoveries were made at that time.

However the idea was brought to life again during the past few years when energy officials began to sound the alarm about the necessity of having new energy resources instead of oil and natural gas. Minister of Petroleum, Sameh Fahmy, recently said that "the cost of buying oil and natural gas from foreign partners has increased sevenfold over the past ten years," citing an international upsurge in energy prices as the main reason behind the increase. He pointed out that the government paid as much as $5.7 billion to foreign companies in 2006, compared to only $800 million in 1996 as a result of increasing energy prices, noting that energy prices in the domestic market remained very stable despite currency depreciation.

The minister admitted that "such increases in energy costs pose a considerable challenge to the petroleum sector and adds pressure to the balance of payment."

The situation is further aggravated taking into consideration other figures declaring that there is an estimate of a 7% yearly increase in energy demands. Additionally, local consumption of oil and gas hit 52 million barrels in 2006, compared to 30 million barrels in 1999. This led to a decrease in oil and gas exports and an increase in government subsidies to keep oil prices affordable for the public. This also resulted in a decrease in the oil sector's revenues, as the ministry pays for these subsidies.

The ministry says the confirmed reserves of oil and gas amount to 15.8 billion barrels of petroleum and aims to produce 100 million barrels a year in the coming period.

Oil officials' repeated warnings prompted the government to take a daring step, having announced that it plans to go nuclear in the near future. During the National Democratic Party (NDP)'s annual convention, its assistant secretary-general Gamal Mubarak announced that the government would reactivate the long stalled nuclear program to generate electricity needed to grow industrial projects. Taking into consideration that oil and gas reserves will deplete within about 35 years from now, energy officials said that it is essential for Egypt to develop alternative energy sources rather than continue to rely on non-renewable hydrocarbons for electricity production.

This means Egypt must have an operational nuclear power plant within 7-10 years. The plan, according to Minister of Energy and Electricity Hassan Younis, is to build a 1,000- megawatt nuclear power plant at Al-Dab'a on the Mediterranean North coast, and with construction costs estimated at $1.5 billion the government will almost certainly seek foreign investment to finance the project.

"We had to [go nuclear] to reserve petroleum wealth for the coming generations, taking into consideration the steady increase in oil prices," said Younis, following a Supreme Council for Energy meeting in October. The minister added that "we use 2.3 trillion cubic feet of natural gas annually to generate electricity." Younis added that producing electricity from nuclear power plants "is more economic than producing it using [fuel] oil and gas. The nuclear program will go side by side with other projects to produce electricity from other alternatives like wind and solar energy to save oil for export to increase our national income."

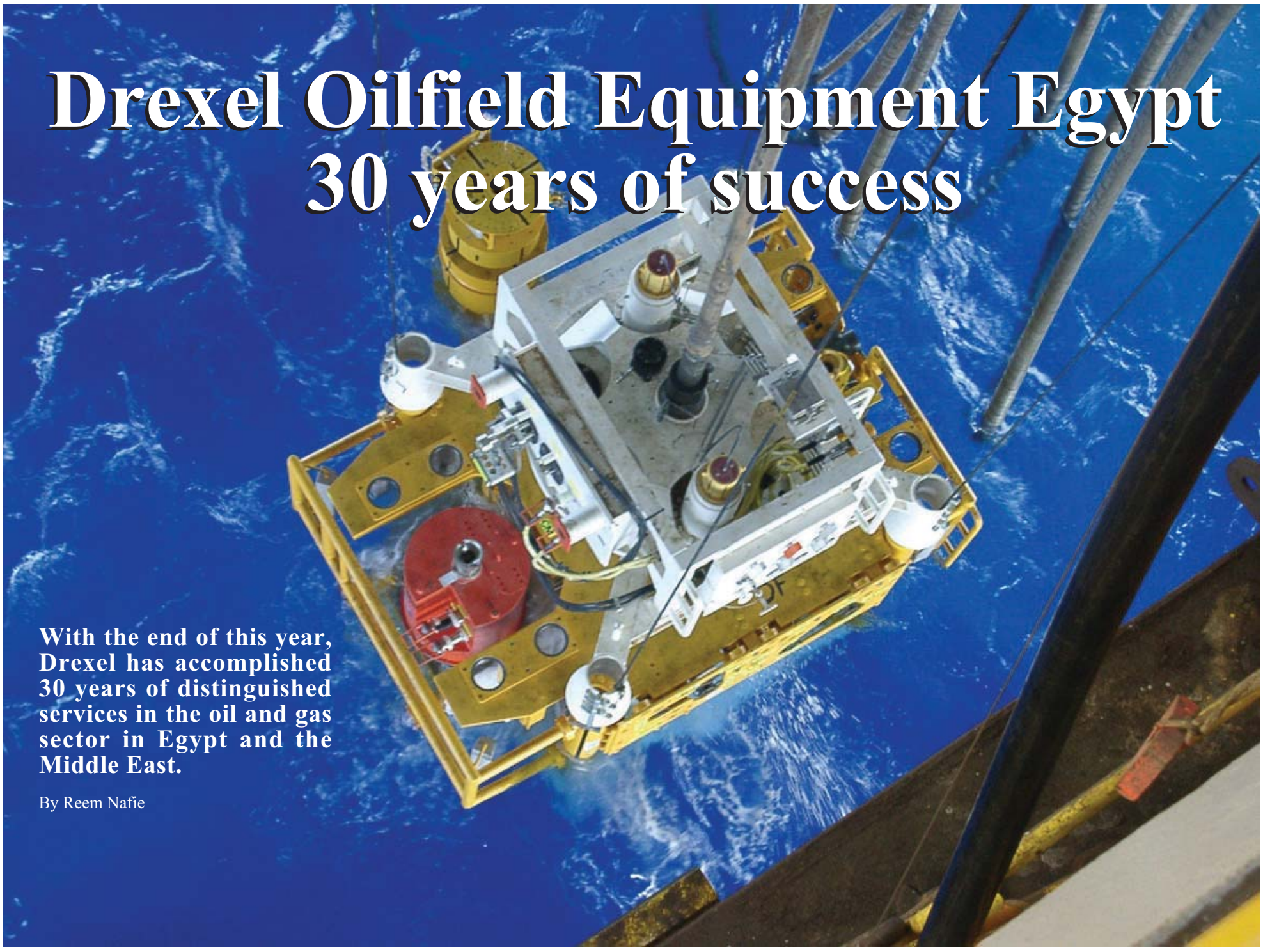
But to what extent will opting for nuclear energy affect the oil and gas industry in the near future? Dr. Amr Kamal Hammouda, an oil expert and director of Al-Fustat Studies Center, holds the view that transforming to nuclear energy is of great importance to complete the energy system in Egypt. "However, there will be no full dependence on nuclear energy in generating electricity. The old power plants will continue operating by fuel oil and gas oil," he explained.

"Certainly the nuclear power plants will soften this energy conundrum. But power plants consume about 15 million tons of oil and gas annually. We didn't calculate it well when we depended mainly on traditional energy resources throughout the past decades. Our consumption of oil and gas increases by 8.5% annually. This means that by the year 2020, the consumption of oil and gas will hit 90 million tons, and then we will not be able to export neither oil nor natural gas."

"Our oil production is on the decrease," Hammouda warned. "We used to produce about 900 thousand barrels a day in the nineties, and now we are producing about 570-600 thousand barrels a day."

"An honest and precise assessment of our oil reserves and the possibility of exploring new wells," Hammouda thinks, "is the only way out of this conundrum."

Drexel Oilfield Equipment Egypt 30 years of success



With the end of this year, Drexel has accomplished 30 years of distinguished services in the oil and gas sector in Egypt and the Middle East.

By Reem Nafie

WITH 30 years of operation and many more to come, Drexel has fulfilled its vision to become one of the most recognized quality services companies in Egypt and the Middle East. Since 1976, Drexel had started out with a mission to bring value-adding services to oil and gas companies in Egypt and the Middle East, with joint venture oil companies and international exploration, production and service companies as its primary customers. The company had set out to provide innovative, cost-effective products and services through the efficient use of their staff and the latest technology and management practices.

Throughout the years, Drexel has achieved customer satisfaction and developed long-term relationships with their clients. Drexel's effort has led it to become one of the market leaders in all its respective business lines. To meet this objective and to respond to the market's emerging needs, they have maximized the efficiency of their assets including human resources, modern equipment and advanced technology.

Drexel is a privately owned Freezone Company, specializing in company representation and project/contract management services. Since the formation of Drexel Oilfield equipment, a broad range of activities have been added to the company's business list, including logistical support ranging from freight forwarding, clearance, transportation, warehousing to invoicing and cash management, crew changes, local and international procurement, systems and procedures, marketing and legal consultation and administrative support.

Operating with an average annual turn-over of $35 million, Drexel has a headcount of 48 employees and has expanded to acquire offices in Cairo, Alexandria and Ras Shukeir, where management, technical and sales teams operate to back the company's day to day operations.

Drexel is currently embarking on the first of three major projects: the West Delta Deepwater Marine (WDDM) Field Development Phase IV awarded by Burullus Gas Company. This work covers eight gas wells on a product basis. The second phase expected in 2007 is Rashpetcho's Rosetta covering five wells on systems basis and lastly, this will be followed by BP's Taurt Hub (phase I), which will cover another four wells on systems basis. Drexel's work scope on these projects involves logistical support, project management, provision and management of both project and after-market base facilities and procurement of project requirements.

For the coming years, Drexel is mainly focusing on sub sea gas activities and aftermarket servicing. With the growth of the market due to new fields being explored like WDDMIV, Rosetta and BP Taurt and the production of existing fields like Scarab Saffron and Simian.Within the coming years, Drexel is keen to pursue the marine lubricants market, and accordingly the company is working with its principals on a plan to launch a new string of marine lubricant products in the Egyptian market within 2007.

In 2006, Drexel was keen on exhibiting in the 4th Mediterranean Offshore Conference and Exhibition (MOC 2006) that took place in Alexandria last April. Drexel's booth hosted both Drexel and principal representatives. Throughout its operations, Drexel complies with all safety, health and environment statutory requirements. It is the duty and commitment of management at all levels to promote and maintain occupational health, sound safety standards and effective environment control and waste disposal throughout its activities. Equally, all the company's employees must exercise a personal responsibility in preventing injury to themselves, their fellow workers as well as loss of any kind to their company, clients and third parties or the public in general.Drexel has established a quality management system that is in conformance with the International Quality System Standard ISO 9001 2000. Drexel's list of customer's includes 38 companies, amongst them are Agiba Petroleum Company (Agip), Apache, British Gas, British Petroleum, Enppi, Gupco, Petrojet and Shell.

Company services

Drexel specializes in company representation and project management. Through company representation, Drexel represents principals from all over the world in the local market allowing these principals to establish a presence for their companies to cater to their products' demands with customers operating in Egypt. Drexel not only establishes this initial link and builds a solid foundation for the principal, but assists in all other steps to follow. On the other hand, through its project management services, Drexel covers the entire scope of a project from planning and procedures formulation through logistics, invoice/cash management, reporting and project assessment.

However, Drexel has expanded to offer regional marketing services that include developing relationships with all current and potential customers' management ensuring responsive service and a broad contact network. Supported by its technical sales team, Drexel seeks to expand market potential and accordingly market share of respective principal's industry lines. Drexel offers comprehensive market studies, service and product introductions, customer networking and public relations, customer presentations, pricing reviews, competition updates regional opportunities and the organization of fairs and exhibitions.

Drexel's logistical support has established excellent relations with the governmental and Freezone Authorities associated with logistical procedures and is considered one of the top providers of this type of service in terms of flexibility, quantity of transactions and accuracy of record-keeping. Amongst the various logistical services offered are freight and clearance forwarding capabilities which ensure safe and timely delivery of air or sea freight consignments. Drexel also provides transportation to and from storage area and/or customer site at any time. This includes all heavy lifting required to enable the transportation and the provision of fully equipped and dedicated freezone warehousing facilities, as well as customs clearance and declaration. Drexel provides insurance coverage for all incoming and outgoing shipments and has thorough experience in working at all of Egypt's major air and sea ports. Drexel's Freezone facilities include both indoor and outdoor vast and secure storage areas complete with automated inventory tracking systems, work-shop and temperature controlled storage. Portable, yet fully equipped office facilities may also be provided on site to meet project needs.

With respect to procurement, Drexel offers to make available any items (asset or consumable) or service required from the local or international market at the optimum specifications, prices and delivery terms. One of Drexel's unique services is the ability to offer fully-equipped office facilities at various locations, including an operating base in Cairo, two office buildings in Maadi, four freezone facilities in Amereya and an operating base in Ras Shukheir upon request. Whether for individual employees acting as local liaisons or for an entire liaison office staff, Drexel can provide a tailored office complete with administrative assistance as required. In line with provisional office facilities, Drexel organizes the outsourcing of all of its affiliate's manpower and staffing needs including coverage of social insurance and the like.

Last but not least, Drexel offers personnel services, by covering principal's complete recruitment needs, including those of technical and non-technical expertise. Its human resources support comprises of crew changes, work permits, tickets, hotel reservations, transportation, visas, offshore passes, recruitment of local personnel and complete management with all legal requirements.

Affiliates

In its quest for excellence, Drexel has established strong partnerships with several international companies in order to enhance its technologies and capabilities. In each field of specialization, Drexel has partnered with reputable companies that augment its ability to produce the highest quality products and tailored engineering designs to meet customer's specific needs. Drexel Oilfield Equipment's services and products include:

Drilling and Productions: The company provides a comprehensive range of production equipment from down-hole tools through process facility equipment.

Well Completion Equipment: In association with Baker Oil Tools since 1986, Drexel provides down-hole tools that range for over 25 years. Drexel's warehouse facilities in Amreya and Alexandria allow them to provide immediate delivery of down-hole tools and spare parts requirements.

Well Head Equipment and Services: Drexel Oilfield Equipment has been representing Cameron Iron Works since 1995, which is the world leader in manufacturing of wellheads, valves and related equipment. Their services include installation, repair and technical support for their widely-used equipment.

Drilling Bits: Drexel provides state-of-the-art, cost effective drilling products that range from drilling bits to chemicals. These services could be provided on short notice with the support of the company's technical sales team. In cooperation with Reed/Hycalog company since 1977 – a world-wide leader in diamond drilling and technology – the company is dedicated to engineering excellence through continuous research and development. Products like the HP Tooth and the Mud Pick design are supported by high levels of manufacturing, quality control, technology and technical support. Reed/Hycalog is inclined to design excellence, outstanding quality and superior performance in providing PPDC, natural diamond, TSP and specialty bits.

Pipelines and Pipeline Coating Materials: Drexel Oilfield Equipment in association with international suppliers offers a broad range of services and products for the pipeline, process and construction industries. From seamless and welded pipes to valves, fiberglass pipe and accessories, corrosion coatings and coiled pipe systems. In cooperation with its partners, the company can satisfy all requirements from start-up to maintenance. Cooperating with Drexel since 1993, Offshore Joint Services (OJS) is a comprehensive service company offering turnkey operations on a range of marine pipeline procedures including pipe joint fills, joint corrosion resistant coatings and flotation buoys. OJS continues to revolutionize the industry while still being environmentally safe.

second partner in this service since 1995 is Canusa, which contributes to the company's extensive line of provisions with its remarkable manufacturing of cross-linked heat shrinkable products that have been used for sealing and corrosion protection of pipeline joints and other substrates for over 30 years. Canusa's products are manufactured to the highest quality standards and are available in various configurations to accommodate the users' specific project applications.

Subsea X-mas tree upon arrival at Drexel's Facilities

Finally, Drexel's third affiliate in this field since 1995 is Nova Chemicals, the leading manufacturer of low, medium and high density polyethylene products in North America. They are the leading supplier of petrochemicals and plastics, as well as the world's largest producer and marketer of methanol.

The complete Gamut of the Industry Requirements: Drexel has cooperated with Ep-Solutions since 1995 to provide turnkey solutions for automating production fields and pipeline operations. Their integrated solutions include hardware, software, and communications services and technologies. This comprehensive set optimizes customers' production and encompasses the full set of automation needs for onshore fields, offshore platforms, onshore gas fields and pipelines.

Global Offshore International is the leading offshore construction company that provides a sweeping range of offshore construction and diving support systems. The company has cooperated with Drexel since 2001; its capabilities include EPIC field development, pipe-lay platform installation and removal and deepwater intervention. Global Industries maintains a very extensive inventory allowing for rapid mobilization of any situation.

Aggreko International Projects Limited is dedicated to handle multi-megawatt temporary power projects on a global basis. Working through Drexel since 1998, Aggreko manages the world's most extensive fleet of containerized generators, load-banks, transformers and ancillary equipment. This impressive capability allows mobilization of equipment very rapidly in response to customers' emergency power needs.

Agar Corporation, cooperating with Drexel since 1996, specializes in the design development and manufacturing of multi-phase flow meters, oil-water monitors, interface detectors and oil skimmers with the aim of conserving resources and the environment. Agar instruments are used in upstream and downstream applications such as real-time and automatic well testing, process control, desalting, heat-treating, automatic tank de-watering and waste water treatment.

Total Safety Services Ltd., the world's largest provider of comprehensive safety services, has been cooperating with Drexel since 1997. It is known for providing complete safety solutions in a reliable, cost-effective manner without compromise. The solutions offered include the rental, sale and servicing of portable respiratory and instrumentation equipment. Total Safety also designs systems for fire and gas detection and suppression as well as providing safety training and consultation.

Sonar Research Development UK (SRDUK) provides specialized innovative sonar services and products for visualization and measurement aspects of the sub-sea environment. Supporting offshore operations for the dredging construction and hydro-carbon industries, as well as port authorities and government agencies Seatrax UK Ltd. manufactures and services support of offshore cranes, gear track and pinion drivers and hoists, in addition to crane engineering, design, inspection and testing.

In cooperation with Drexel, ASEP Group manufactures well service equipment including modular winches which allow maximum flexibility in utilization, wire line units and wire line/crane units, automation products and other wire products.

Since 2004 Drexel has been cooperating with Castrol Offshore, which is a specialist organization providing lubricants and lubrication services to the oil and gas exploration and production industry. The combination of Castrol Offshore's specialist knowledge, technology team's technical advisors, together with Drexel's extensive resources in Egypt, allows the company to supply products and services that meet customers' needs, as well as the highest levels of sub sea production system reliability and environmental performance under a wide range of operating conditions.

Dominian Technology Gases is a top provider of gases for diving, welding, laboratory, test and calibration and other applications of the energy sector. To support the demands of the industry, Dominion operates independent production and HQ facilities in Aberdeen and Singapore, exporting over 50% of their products. In addition, Dominion offers single cylinders, tube skids, egg skids and cylinder quads.

Edulan offers Edulan Whether in expanded form or as a solid material. Edulan Polyurethane products can be used for any number of industrial applications including a wide range of blowing agent technologies, fire classifications and tailor made physical properties.

For 20 years, Fantoft Process Technologies has been a world leading supplier of dynamic process simulation services and systems for the development and operation of oil and gas field, LNG, LPG and natural gas treatment plants and transportation pipelines. Complex deepwater developments, long-distance subsea tiebacks and LNG facilities are among Fantoft's core specialties. Through specialized process services, dynamic engineering software and simulators, Fantoft contributes to highly specialized, cost-effective solutions to the new challenges in development and operations. Drexel has been operating with Fantoft since 2004.

Norse Cutting & Abandonment (NCA) offers all kinds of on-site abrasive water jet cutting and operates both light and compact systems for use on cutting applications in air, and more powerful systems for cutting sub-sea and down hole well cutting. NCA systems allow cutting through multiple casing below the seabed – eliminating the need for a drilling rig. Based on years of experience in casing cutting, NCA has developed a unique system for surface sectioning of multiple-casing when removing conductors from seabed to topside. NCA systems can be integrated in any drilling rig or jacking system for conductor retrieval. Drexel has been operating with NCA since 2003. Sag Stahl has been supplying steel and metal products to the oil & gas sector for years. The company specializes in carbon, alloy and stainless steel in full accordance with DIN and all international standards. Sag Stahl also offers to adhere to any customer's individual specifications, in all produced sizes, materials and grades.

Seatrax supplies the offshore industry with reliable, cost-effective and easily maintained marine cranes. With numerous international patents – Seatrax proves proficiency in engineering, design and manufacturing. Every system on a Seatrax Crane is designed and engineered to adhere to exact customer specifications and exceeds all applicable international design codes and classification society requirements including ABS, API, DnV, HSE, LRS, NPD and USCG.

The value of beam pumping system automation

By Mohamed Ghareeb, Lufkin, Nael Sadek, Lufkin Automation, Emad Okasha and Said A. Moniem, Khalda Petroleum Company, Egypt

Abstract

THE need to enhance well-performance is driving the growth of well automation and optimization systems. In today's efficiency demanding business world, producers require systems that are capable of more than simply increasing the rate of production. Producers also desire the ability to decrease system failure rates consequently minimizing well down time and lifting cost by extending equipment running life, thus maximizing total system efficiency.

This paper will present the experience gained through the implementation of Smart Sucker Rod System (SSRS) at Khalda field in the western desert of Egypt. The key operating device of the SSRS is the Smart Well Manager (SWM) which is an electronic device with the state of the art technology to obtain control of the sucker rod well based on analysis of surface and downhole data. Moreover, this paper will show the contribution of SWM to: reduce the frequency of well interventions, predict and accelerate the detection of well failures and decreased associated downtime, faster production optimization for new wells, and save on energy demand. Taking advantage of the SSRS, we feel we are maximizing the benefits of Sucker Rod as an artificial lift method.

Introduction

Khalda Petroleum Company is a joint venture between EGPC (Egyptian General Petroleum Corporation) and Apache Corporation. Khalda is spread across nearly 2 million acres about 250 miles west of Cairo, see figure 1, in the western desert of Egypt. The Khalda complex holds two dozen oil and gas fields producing from 58 sandstone reservoir units in seven formations from one mile to three miles below the desert. The successful drilling program pushed daily gross production to approximately 150,000 barrels of oil per day in August 2005.

After discovering Khalda field in 1986, ESP was initially used as an artificial lift system. By 1989 Khalda had 27 wells, which were equipped with ESP's in Salam, Safir, Khalda, Hayat & Tut fields. Today, Khalda have 25 fields with 250 wells produced with ESP (main artificial lift), natural flow and sucker rod pump. By the end of the year 2000 it was observed that some of the new development wells, mostly producing from BAHARIA reservoir, showed very low productivity (around 150 BFPD at the maximum possible drawdown) with high depletion rate. As the goal of every operator of artificial lift systems is to maximize production and minimize operating costs, Khalda started intensive efforts to study all the available Sucker Rod system combinations (surface units, rod strings and down hole pumps) which are capable to produce rate of 200 BFPD from depth of 6000-7000 ft. Early in year 2001 Khalda selected and ordered the most appropriate Sucker Rod System for its wells. In March 2002 Khalda started the first SR system in well Renpet-1X and currently Khalda is running 49 Sucker Rod wells in Salam and Sumpetco fields in the western desert. The depths of the wells range between 5600~9200ft equipped with Lufkin surface pumping units (C912D-365-168, C640D-305-144 and C456D-256-120) and downhole pump size of 1.25"~1.75". The producing rate is from 45 to 300 BFPD using the SR system with total production of around 5000 BFPD. Some of these wells were ESP and were changed to sucker rod and others started with sucker rod system. Khalda is the pioneer in Egypt in implementing the Smart Sucker Rod System where all of its sucker rod wells have Smart Well Managers since the first day of operation.

The Smart Well Manager (SWM)

The basic purpose of the Smart Well Manager (SWM) is to determine when the fluid level in the well bore is pumped down to the point where pump intake pressure is no longer sufficient to completely fill the pump barrel with fluid during the upstroke. Incompletely filling the pump barrel reduces the efficiency of the pumping operation and the resulting "fluid pound" causes extra wear and tear on pumps, rods, tubing, and surface equipment.

The SWM is a pre-programmed device mounted at the well site that gathers, processes, stores, and analyzes analog data obtained from a load cell mounted between the clamp and the carrier bar at the polished rod and digital data obtained from Hall Effects (two digital position sensors at the motor for RPM and the crank arm). The SWM uses the data from these input devices to monitor and control the operation of the pumping unit and to display graphic data on a LCD display or portable laptop computer in a format easy to understand.

The SWM also uses this information to detect malfunctions and problems with the pumping unit. Current information about pumping activity can be obtained on demand. Historical data at the well site can also be obtained at any time, and this data can be plotted and produced on reports.

The Polished Rod Load Cell (PRLC) and Hall-Effect transducers combination of input sensors, see figure 2, is preferred for downhole percent fillage control and in-depth analysis of the pump cards when accurate surface dynagraph data needs to be obtained.

The PRLC provides a quantitative measurement of the load on the rod string. It is mounted on top of the carrier bar under the rod clamp. The PRLC directly measures the weight of the rod string and fluid column on the pump plunger. A spherical washer set between the PRLC and the carrier bar ensures concentric loading even if the carrier bar is tilted.

Two Hall-Effect transducers are used. One transducer measures precise motor speed and the second transducer marks the crank arm passage at the bottom of each stroke. These two digital signals, coupled with precise pumping unit dimensional data (from the controller's database), allow the SWM to accurately calculate surface stroke position. In addition to accuracy, the two Hall-Effect transducers offer the advantage of being able to monitor for belt slippage and to instantaneously shutdown the pumping unit when a "locked rotor" equipment failure occurs.

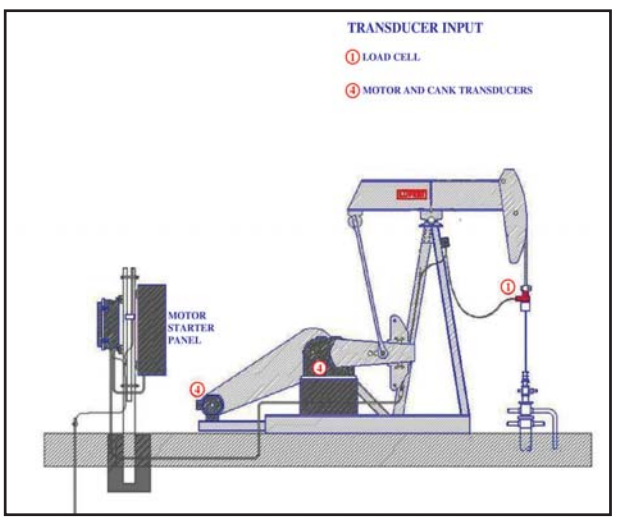


Fig 1 ***Khalda Location***

Control methods for the SWM

The Primary control method is using the pump fillage percentage. This method is based on a downhole pump card using polished rod load and position inputs, and is the most accurate control method. The SWM receives information from the input devices to determine whether sufficient fluid is present in the well bore. If the control unit determines that the well is in a pumped off condition, the control unit turns off the motor control output to stop the pumping unit and places the pumping unit into a downtime mode. Downtime mode allows fluid to flow back into the well bore. After downtime elapses, the control unit turns on the motor control output to start the pumping unit again. Downtime is programmed by the operator based on experience and production tests.

The SWM also performs many secondary control functions to detect pumping equipment malfunction and to help protect equipment against further damage in the event of an equipment failure.

The SWM allows for a programmable number of re-tries when a malfunction event occurs. If the condition continues for the programmed number of re-tries, the SWM shuts down the pumping unit in a Malfunction state that requires the operator to solve the problem and return the pumping system to a pumping state. The malfunction controls include:

- Shutting down the well if the polished rod load exceeds a Peak Allowed or falls below a Minimum Allowed.
- Shutting down the well if surface load on the upstroke falls below a Malfunction set point for programmed number of consecutive strokes. Detects pumping equipment failures such as rod parts, or traveling valve not closing.
- Shutting down the well if the fluid load falls below a minimum allowed level for programmed number of strokes. Fluid load is calculated by subtracting the average downstroke load of the pump card from the average upstroke load of the pump card. Fluid load checking is an alternative method to detect pumping equipment failures, such as rod parts or the traveling valve not closing.
- The SWM will shut down the pumping unit if the measured motor RPM drops below an allowed low limit. Provides protection against stuck pump conditions with quicker response than peak load detection.
- The SWM counts the number of motor revolutions each pump stroke. If that number rises above a set reference by more than an allowed percentage, an alarm flag is set to alert the operator to possible belt slippage.

Gathered Dynamometer Data

The SWM displays a real-time dynagraph trace for on-location analysis of present pumping conditions. The SWM also stores a number of dynagraph cards as an historical record as follows: Five most recent strokes, single stroke at the last transition from minimum pump strokes to pumping, last five strokes before a shutdown decision is recorded for each of the last two shutdown decisions and single-stroke card at the start of the minimum pump stroke well state.

The SWM includes an inferred production algorithm (IPA) to calculate the total fluid production of the pumping unit. The SWM uses measured strokes per minute, programmed surface stroke length and pump plunger diameter, and a pump plunger stroke length inferred from the downhole pump card. The IPA has a K factor to adjust for slippage around the pump plunger and/or shrinkage of fluid volume as gas breaks out of solution in the production tank.

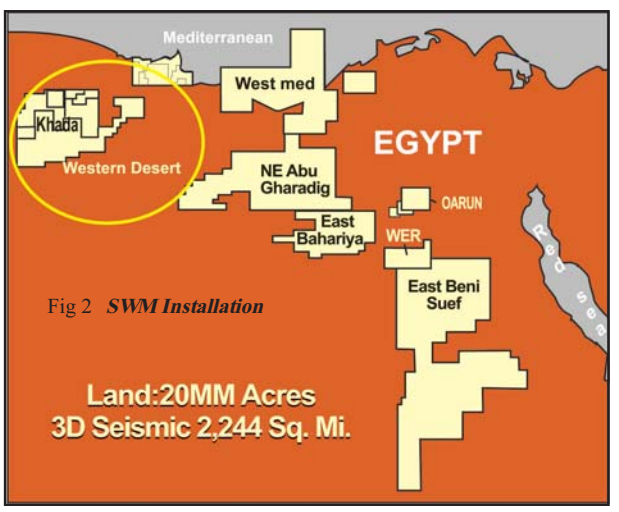


Fig 2 ***SWM Installation***

The SWM calculates the polished rod horsepower (PRHP) from the surface card and the pump HP from the downhole card each stroke. The user can enter a reference PRHP immediately after a hot oil treatment. The Smart Well Manager stamps that reference entry with the date and time. The user can also set a peak PRHP limit. If the calculated PRHP exceeds the set peak limit, an alarm flag is set to alert the user that it can be time to treat for paraffin again.

The SWM has separately resettable accumulators, Rodometer and Pumpometer, to keep count of the number of pump cycles for a rod string and a pump. This feature is used as a tool for monitoring the operation and failure analysis of downhole equipment.

The SWM maintains a historical record of the previous 60 days of run time for the day in percent, inferred production for the day in barrels, highest and lowest values for the polished rod load for the day, and highest value for polished rod horsepower for the day.

The SWM record polished rod load versus time and save the data for analysis. The analysis feature includes the ability to record standing valve and traveling valve load values and calculate traveling valve leakage in barrels per day.

The SWM uses the real-time clock to date/time stamp historical performance actions. One buffer track predefined significant events to enable the user to see the last time the event occurred.

Case History

In order to show the performance of SWM, statistical comparison was performed between wells equipped with the SWM at Khalda from day one and wells running without control in the field of another company in the western desert. These wells are producing same fluid properties from depletion drive reservoir. The publications of that company, in the western desert, shows very low equipment running lives compared with Khalda which shows only one rod parted over the last four years of sucker rod system operation. All the rod failures reported in the other company were fatigue failure plus coupling unscrew. Fluid pounding and/or gas interference leading to sucker rod parted and pump failures can be easily indicated as the main factors affecting the subsurface equipment failure.

Fluid pound, see figure 3, is generally experienced when the lifting capacity of the pump exceeds the liquid inflow rate to the well. In such cases, the pump barrel is not completely filled with fluid on the upstroke. As the downstroke starts, the traveling valve can not open as it should, and the plunger begins its downstroke with the full load on it. Then, when the plunger hits the fluid level in the pump barrel, the sudden impact force is transmitted to the surface along the rod string. The great dynamic loads occurring during fluid pounding make the rod string experience buckling leading to rod breaks and rod-to-tubing wear. On the surface, the excessive shock loads can damage pumping unit bearings and can lead to instantaneous torques that overload the speed reducer. The main factors affecting the equipment performances in are highlighted as follows:

- Fast decline in reservoir pressure with production since the reservoir is depletion drive type the fast decline in reservoir pressure was affecting the pump intake pressure. Therefore, the gas and fluid pounding phenomena became serious problems.
- Weak monitoring system, only conventional dynamometer and fluid level shooting device are used once every three months.

Figure 4 shows the history of the subsurface pump and sucker rod history for the last nine years in the company mentioned above. It reflects that the average failure per well per year is 3.6 which means the well stops at least once every 100 days. With very simple calculation, if we assumed that the well produces about 200 BOPD with average oil price $50/barrel then the losses per well per year will be $18,000. If we add a service rig daily rate plus replacing the damaged rods and/or pump, the average total cost will be $25,000 per well per year. The field under study has 75 sucker rod wells, which means the total losses will be $1,875,000/year. In case of Khalda, cost of rod parted failure is saved.

Moreover, power consumption is another key factor which can show the great effect of controlling the sucker rod wells using SWM to shut them down in case of low pump fillage.

In addition to optimizing the well performance, good reference for the well production could be achieved with

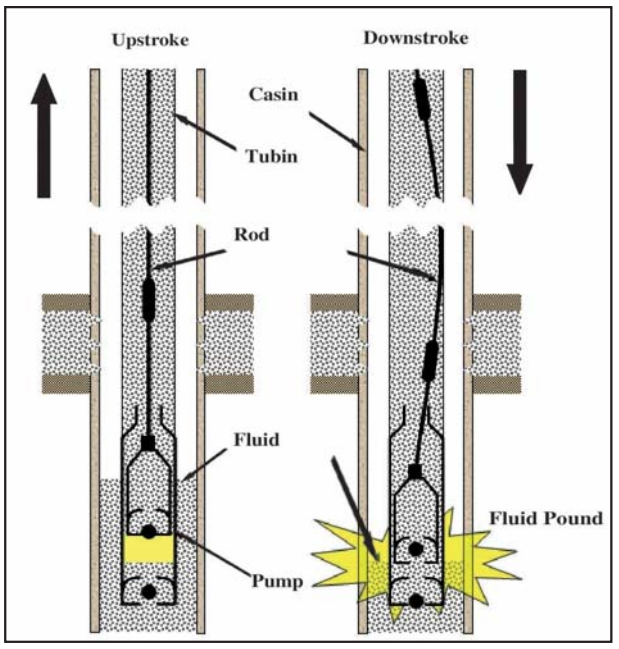


Fig 3 ***Fluid Pound***

the right adjustment of the SWM K-factor. Khalda compared the test figure calculated by SWM and that measured by well test equipment and found them matching. Where for example; the test of well Hyatt-29 at Salam field on July 6, 2005 by test separator show that well produces 167BFPD where the SWM gave a production of 171.4 BFPD with a difference of 2.3 %. Since SWM gives accurate production figure, Khalda can eliminate the frequent use of test equipment for rod pumping wells where the other companies in the same area still use the mobile test equipment to test their wells. These companies usually use the test separator on wells to test production once per month which means they get only two values for the well production within 30 days period. What about the period between the two tests, how much was the production? In Khalda they get a continuous record of the production by using the SWM.

Balancing the pumping unit is another critical aspect in the performance of the overall system. The conventional method of balancing the unit is by trial and error while measuring the peak amps after moving the crank weights randomly. It usually takes several tries until the unit is balanced. Khalda used sucker rod automation software to aid in deciding the exact required position for crank weights. A surface card is downloaded from the SWM and run on automation software and gives the suggested position of existing counter weights for balancing the unit. This saves time by saving the hassle of trial and error and also leads to accurate unit balancing.

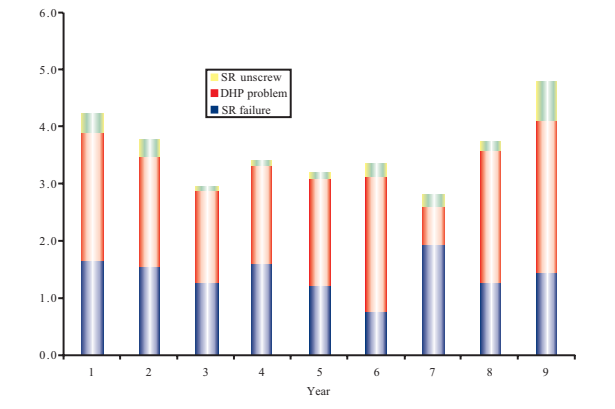


Fig 4 ***Average Sucker Rod and DHP Failure per Year***

Performance of SWM

Since the installation of the smart system in Khalda, very few automation failures occurred during work over. The load cell failed two times because of improper handling of the load cell and its connector. The load cell cable failed 3 times because of improper handling when disconnected. A modified coiled cable was used to lower the probability of failure. Most of these failures appeared at the beginning of the operation until all parties involved at the well site got used to the system.

Conclusion

Even though the sucker rod is an old method of artificial lift but state of the art technology still participate in the operation of the sucker rod well. It is important to have a controller at each well, whether it has high or low production rate, in order to protect the investment made in the downhole and surface equipment as well as continuous monitoring and analysis of well data.

Automation is a very important component of the sucker rod system but it shares the success with other components. The optimum sucker rod system performance can be achieved after applying the following:

- System Design is very important in order to choose the correct size and material of surface and downhole equipment for each well independently as well conditions are different from one well to another.
- Installation of the surface equipment and Carry, Handling and Running of the downhole items extremely effect the failure probability for the well.
- Monitoring and control are very important for increasing equipment lifetime, managing the well and keep a record of the well history to evaluate the system performance and take corrective actions.

Things to improve

In order to download the data from all the wells, the engineer has to drive from one well to another. In some cases that distance is very long where the wells in Sumpetco are 70 km from the office in Salam base. The implementation of a SCADA (Supervisory Control And Data Acquisition) system for remote monitoring, control and analysis will save the driving time required to download the data from each well and also have quicker response to problems. The engineer can easily view the status of all wells and perform analysis at the tip of his finger in the field office. Also the data could be shared with the headquarter office in Cairo over a wide area network.

Recommendations

- All sucker rod wells should be automated to help the engineers and technicians to optimize the wells and do their job more efficiently.
- In case of sand and heavy oil, it is recommended to install a Variable Speed Drive (VSD) with the SWM in order to increase and decrease the pumping speed based on pump fillage instead of completely stopping the unit for a programmed downtime.
- With the implementation of sophisticated control systems, personnel's training is vital in order to utilize the system.
- In case of hundreds of wells, the field automation can start with a pilot project for a group of wells and then implemented over all the wells.

Addicted to Oil: America's relentless drive for energy security

By Sarah Broberg

IN *Addicted to Oil: America's Relentless Drive for Energy Security*, Ian Rutledge portrays the motorization of the United States of America. He argues that America's oil dependence determines how it makes foreign policy decisions and offers a convincing historical, sociological, economical, and political assessment of how and why this has come to pass.

Rutledge begins by providing a history of America's dependency on oil. By reviewing the US industrial age in this context, he highlights the immense role motor vehicles and oil corporations played in the country's growing need for oil. He points out that the 50-year period from 1910-1960 was fundamental to the creation of individualized motor reliance, whereby man eschewed public transportation in favor of his own vehicle. In addition, huge corporations, such as Ford and Chevron, lobbied congress for the greatest construction endeavor in American history: the interstate highway. Under the auspices of effective city evacuation in times of crisis, the highway initiative was approved and passed by congress.

The author declares the construction of the interstate highway system as the monumental success of the motorization of America. He notes that once the infrastructure was complete, reversion would be virtually impossible both physically and psychologically, as society would push motorization forward on its own—albeit with a little help from their friendly local advertisers. With cities built around the idea of automobiles, in the 1960s America became the biggest importer of oil with the bulk of its resources coming from Venezuela, although the Middle East was quickly becoming one of the main sources of fuel for the nation.

Rutledge describes a point in the American imagination where the citizenry consumed mass amounts of a resource from a region they hardly knew. He points out the irony that despite America's technological development of motorization, it was based on and advanced by the resources of a country that later many Americans viewed as backward. In a country known for the highest ownership of cars (832 cars per thousand population as of 2001), America's dependence on oil is uncontested. As such, any occurrence in the domestic and international oil realm will undoubtedly affect the oil addicted nation. Therefore, it was not at all surprising that when daily production of US domestic crude oil reached its peak and then began to decline in 1970, it caused an oil shock and led to a rapid increase in oil imports by the mid-1970s. What was surprising however was the fact that many Americans had no idea that their country even imported oil in the first place; so adamant were the US administration and oil companies to keep Americans consuming oil that they seemingly chose to ignore evidence that the country's oil reserves were quickly declining.

Once this realization hit home and could no longer be denied, the rigorous search for fuel began. The domestic search brought Alaska to the forefront but not without complications or controversy. The American public had serious concerns about endangering the environment and Alaska's Arctic National Wildlife Refuge in addition to the fact that some government administrators began lobbying for drilling under the direction of special interest groups in hopes to improve their chances for reelection. With the domestic search temporarily put to rest in order to appease the population's desire to save their earth, the global search commenced in earnest. It soon became clear however that it was exceedingly dangerous to depend on countries that were politically unfriendly or unstable for such a crucial and irreplaceable natural resource.

America had to secure a fuel source that would have no political strings attached through the burdensome holds of diplomacy.

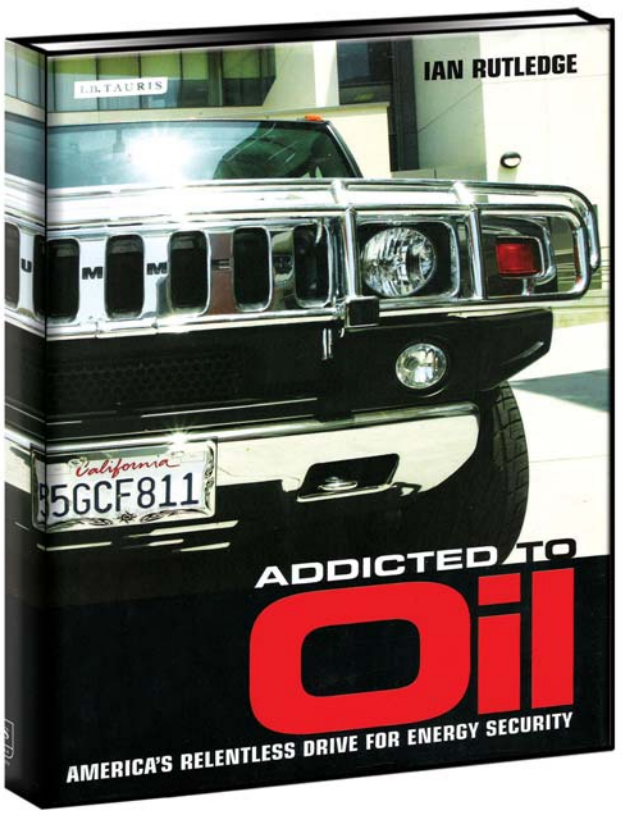
With hostile nations such as Iran holding the wealth of petroleum, the Gulf catering to the ever increasing oil demands from fast growing countries like China and India, and Americans just simply not wanting to change their mode of transportation to more fuel efficient vehicles, it would seem that the only means of finding and securing fuel is to control an area with the desired resource. As Rutledge argues, the Iraq war did just that for America.

One of the many problems of relying on another state's natural resources is the concept of "eminent domain," which Rutledge discusses in depth as the right of any independent state to turn private property into public property and by so, allocating that land for whatever purpose it so desires. In terms of oil exploration, eminent domain allows states to profit from their natural resources by taking a share of the profits from whichever company it gives a concession. Eminent domain also provides the state with the ability to retract any land it has given to any company. However, this is not a problem under the rules of occupation where a state loses its legal rights of eminent domain. Thus, occupation becomes a means to a very specific end: oil.

Rutledge points out that with its occupation in Iraq, the US will no longer have to rely on Saudi Arabia's oil supply or kneel politically to the conflicting will of a hostile nation for its domestic demand; it now had its own private reserve of proven oil wealth. Also, by controlling global oil reserves and having the ability to maintain a higher price for fuel, oil companies will be able to bolster their profits. Providing a noteworthy differentiation, the author explains that not all oil companies aim for the same results and stresses the distinctions between global conglomerates and independent oil companies.

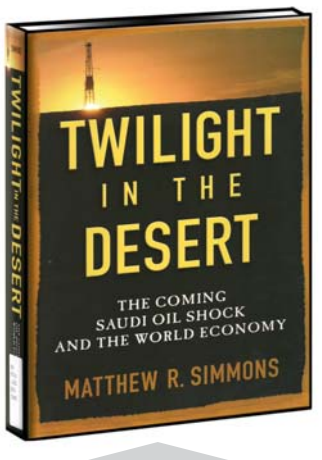
According to Rutledge, the linkage between oil consumption and American foreign policy is problematic. Several solutions are given; chief among them is the need to find alternative energy sources. But more importantly, his description of a nation consumed by the culture of motorization presents the most logical solution to its transformation: The mentality of mass consumption must be tackled before any real solution is able to be put to work, let alone succeed.

About the author: In 1989, Ian Rutledge, together with a colleague, established the Sheffield Energy & Resources Information Services (SERIS), an information provider for the energy sector. SERIS has carried out consultancy work in the UK, France, Cuba, Colombia and Bolivia, and has participated in conferences in the UK, France, Holland, Colombia, Algeria and Qatar. Rutledge received his Ph.D. in Economic History from Cambridge and at the Centro de Investigaciones en Ciencias Sociales (CICSO) in Buenos Aires in 1973. His other works include *The Integration of the highland peasantry into the sugar-cane economy of Northern Argentina, 1930-1943* and *Land and Labour in Latin America: Essays on the Development of Agrarian Capitalism in the nineteenth and twentieth centuries.*



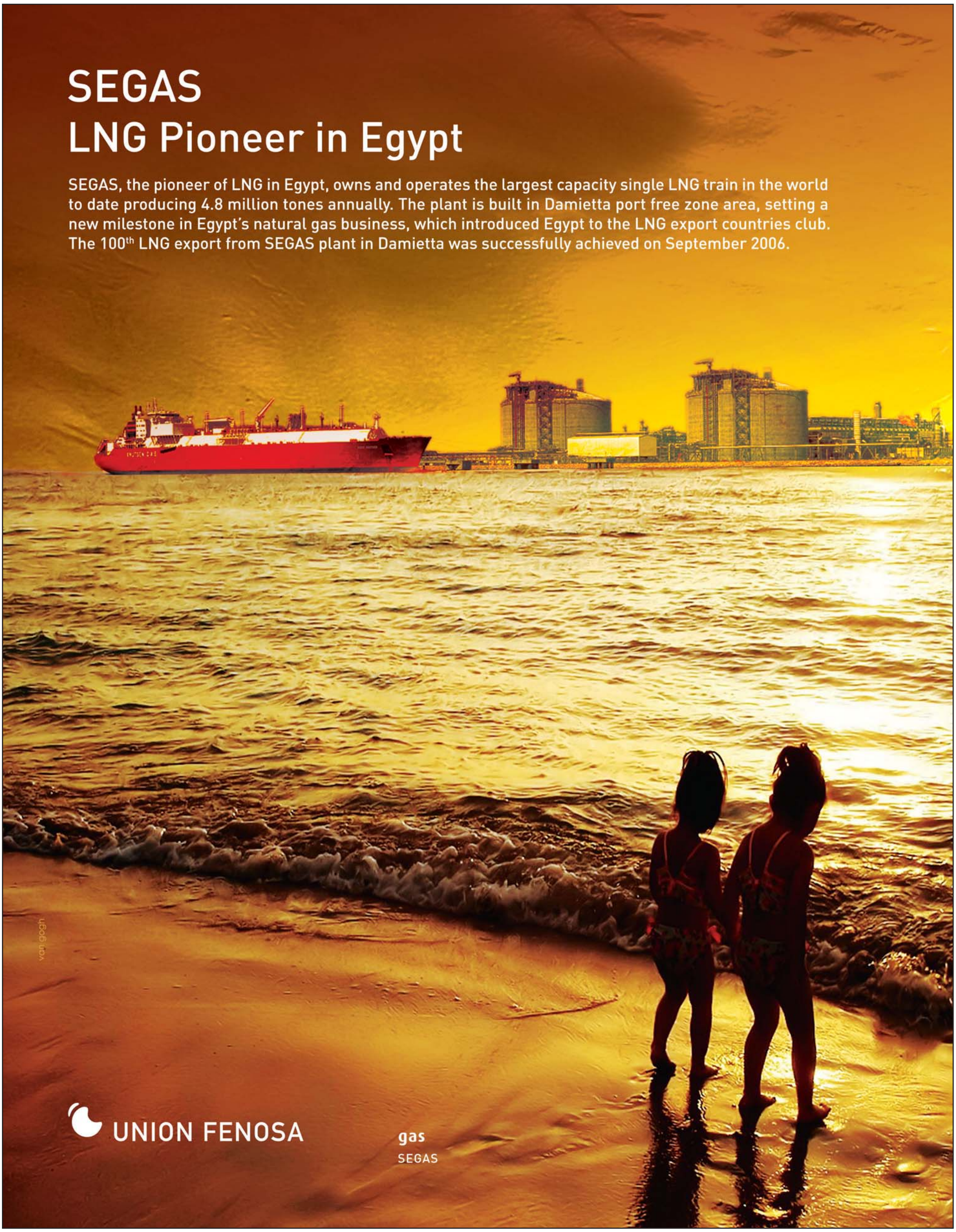
Addicted to Oil: America's Relentless Drive for Energy Security by Ian Rutledge Published in 2005 by I.B. Tauris & Co. Ltd., London.

Featured in next month's issue



TWILIGHT IN THE DESERT

MATTHEW R. SIMMONS


SEGAS
LNG Pioneer in Egypt
SEGAS, the pioneer of LNG in Egypt, owns and operates the largest capacity single LNG train in the world to date producing 4.8 million tones annually. The plant is built in Damietta port free zone area, setting a new milestone in Egypt's natural gas business, which introduced Egypt to the LNG export countries club. The 100th LNG export from SEGAS plant in Damietta was successfully achieved on September 2006.
van gogh
UNION FENOSA
gas
SEGAS

Adding fuel to competition

Oil companies' teams have yet to fuel the national football league competitions

By Mohamed El-Sayed

SINCE oil companies' teams began to show up in the national football league, they have always been the dark horses of the country's most prestigious football competition. However, this season, despite the fact that there are three oil clubs participating in the national league, they could hardly impress critics.

Enppi, the first oil club to make it to the national league in 2003, failed to continue the illustrious streak it achieved in the past three seasons. After finishing second in the 2004-2005 season and third in the 2005-2006 season, it seems that the club will not end this season amongst the first four positions. Up till the ninth week, the club has garnered only twelve points out of nine matches. The team won three games (after beating the Olympic Club of Alexandria 1-0, Assiut Petrol 4-1, and the Coastal Guards 2-0), lost in three encounters (to Zamalek 3-0, the Arab Contractors 2-1, and Suez Cement 1-0) and drew in three games (with Ismaili 1-1, with Tanta 0-0, and with Ittihad of Alexandria 0-0). Having scored 9 goals, the team's net received eight goals. The club currently lags behind in the eleventh position with one delayed match against Al-Ahli – who was busy with their African Champions League final match against Tunisian Sfaxien – in hand.

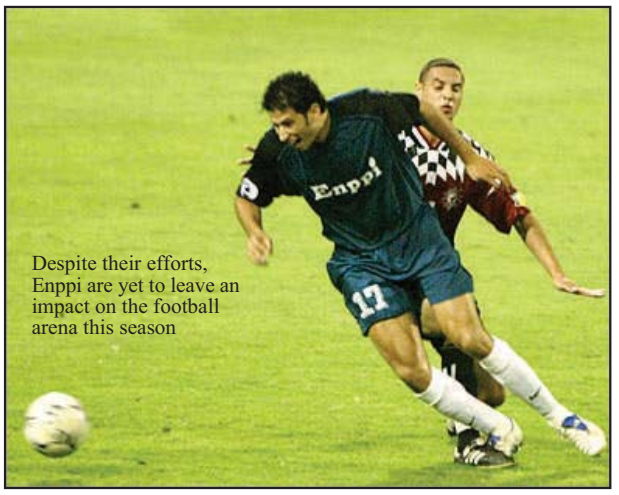
Many critics refer the deterioration in the team's results this season to the sacking of its former coach Taha Besari, who contributed to the club's illustrious history since its inception in 1980. Besari, who helped the club get promoted from the second division league to the premiership, managed to carve a niche for Enppi among the country's top-notch teams within five years. Having won the Egyptian Cup in 2005, and finishing as runners-up in the Arab Champions League earlier this year, the club has earned itself a good reputation on the national and regional arenas. They also paid LE2.5 million for Ittihad of Alexandria's Ibrahim El-Shaib, and LE1.25 million for second-division El-Gouna's Mozambican import Manou.

Other critics attribute the drop in the team's performance to the departure of its most distinguished player Amr Zaki who left to Russian team Lokomotiv Moscow, before settling in Zamalek. They also argued that the LE15 million spent on new players has not paid off; the club has bought Ghazl El-Mehalla's top strikers Reda Metwalli and Ahmed El-Mohamadi for an astounding LE7 million.

Given the outstanding performance and results the club achieved last year, it was disappointing for the club's fans to see it lag behind in the league table. And despite the fact that its German coach Reiner Tsobel is experienced in Egyptian football tactics, he seems to be unable to bring the team back on track. He has however attempted to restore the team's past glories by buying 13 new players to build a new-blooded squad for the coming years. He imported players like Ahmed El-Mohamadi, 18, Ahmed Abdel-Zaher, 22, Shamama, 19, and Reda Metwalli, 21, all of whom have established themselves with the youth and Olympic national teams. Apparently, Tsobel aims to depend on new blood to bring the average age of the team to less than 23.

As the performance of Enppi has been on the decline this season, another oil team, Petrojet, began to rise. Having been promoted to the premiership for the first time in its history this year, the club is considered by many critics as the competition's "dark horse." The newly-promoted team has collected 15 points out of ten games that catapulted them to the eighth place on the league table. The team won four matches (beating the Army 3-2, Olympic Club of Alexandria 3-1, Tanta 2-1, and Assiut Petrol 3-2), drew three games (with the Arab Contractors 0-0, and with the Coastal Guards 2-2, and with Ittihad of Alexandria 1-1), and lost to Zamalek 2-0, to Ismaili 2-1, and to Suez Cement 2-1.

Thanks to its veteran coach Mokhtar Mokhtar, the team has presented top-class performances in the first seven games, a matter that led critics to nominate it to claim one of the first four positions by the end of the competition. Mokhtar was selected by analysts as the best coach in the league up till now, as they considered him the driving force behind the team's breakthrough. The team's two strikers, Mahmoud Abdel-Hakim and Ivorian import Djakba Tohori, were the major players behind the team's success. The club has also managed to sign former Al-Ahli and Misri star Khaled Bibo and Samir Kammouna to prop up other players who are still lacking premiership experience.



Despite their efforts, Enppi are yet to leave an impact on the football arena this season

The third oil club representing the oil sector in the league, Assiut Petrol, has been struggling due to their lack of experience in the premiership. Up till now the club has garnered only two points out of ten matches. Having drawn in two games with Misri of Port Said and powerhouse Zamalek, the team suffered eight losses (to the Coastal Guards 2-0, Ittihad of Alexandria 2-1, Al-Ahli 3-1, Ghazl El-Mehalla 3-0, Enppi 4-1, Petrojet 3-2, the Army 2-0, and to the Olympic Club of Alexandria 2-1), conceded 22 goals, and scored only seven goals. Veteran technical manager, Anwar Salama will have to exert as much effort as he can if the newly-promoted team is to participate in the premiership next season.

Rig Count-Africa

Africa	RIG COUNT Aug 2006	Prior Month	Change	YTD AVERAGE Through Aug 2006	Prior Year	% Change from Prior Year
ALGERIA	70	71	(1)	68	59	15%
Offshore	0	0	0	0	0	0%
Land	70	71	(1)	68	59	15%
ANGOLA	22	22	0	20	16	25%
Offshore	22	22	0	20	16	25%
BENIN	0	0	0	0	0	0%
Offshore	0	0	0	0	0	0%
Land	0	0	0	0	0	0%
CAMERON	1	1	0	2	2	0%
Offshore	1	1	0	2	2	0%
Land	0	0	0	0	0	0%
CHAD	4	4	0	4	3	33%
Offshore	0	0	0	0	0	0%
Land	4	4	0	4	3	33%
CONGO	9	9	0	10	8	25%
Offshore	3	3	0	5	4	25%
Land	6	6	0	5	4	25%
EGYPT	51	52	(1)	54	40	35%
Offshore	11	12	(1)	13	12	8%
Land	40	40	0	41	28	46%
EQUATORIAL GUINEA	3	3	0	3	4	(25)%
Offshore	3	3	0	3	4	(25)%
Land	0	0	0	0	0	0%
GABON	10	9	0	9	6	50%
Offshore	3	2	0	3	3	0%
Land	7	7	0	6	3	100%
GHANA	0	0	0	0	0	0%
Offshore	0	0	0	0	0	0%
Land	0	0	0	0	0	0%
GHINEA BISSAU	0	0	0	0	0	0%
Offshore	0	0	0	0	0	0%
Land	0	0	0	0	0	0%
IVORY COAST	1	1	0	2	3	(33)%
Offshore	1	1	0	2	3	(33)%
Land	0	0	0	0	0	0%
KENYA	0	0	0	0	0	0%
Offshore	0	0	0	0	0	0%
Land	0	0	0	0	0	0%
LIBYA	35	36	(1)	33	29	14%
Offshore	2	2	(1)	2	4	(50)%
Land	33	34	0	31	25	24%
MADAGASCAR	0	0	0	0	0	0%
Offshore	0	0	0	0	0	0%
Land	0	0	0	0	0	0%
MAURITANIA	0	0	0	0	2	(100)%
Offshore	0	0	0	0	2	(100)%
Land	0	0	0	0	0	0%
MOROCCO	0	1	0	1	0	100%
Offshore	0	0	0	0	0	0%
Land	0	1	0	1	0	100%
MOZAMBIQUE	0	0	0	0	0	0%
Offshore	0	0	0	0	0	0%
Land	0	0	0	0	0	0%
NIGER	0	0	0	0	0	0%
Offshore	0	0	0	0	0	0%
Land	0	0	0	0	0	0%
NIGERIA	20	18	2	20	24	(17)%
Offshore	16	15	1	15	17	(12)%
Land	4	3	1	5	8	(38)%
SENEGAL	0	0	0	1	0	100%
Offshore	0	0	0	0	0	0%
Land	0	0	0	1	0	100%
SOUTH AFRICA	1	1	0	0	0	0%
Offshore	1	1	0	0	0	0%
SUDAN	23	24	(1)	24	19	26%
Land	23	24	(1)	24	19	26%
TANZANIA	0	0	0	0	0	0%
Offshore	0	0	0	0	0	0%
Land	0	0	0	0	0	0%
TOGO	0	0	0	0	0	0%
Offshore	0	0	0	0	0	0%
TUNISIA	5	5	0	4	3	33%
Offshore	2	2	0	2	1	100%
Land	3	3	0	3	3	0%
UGANDA	0	0	0	0	0	0%
Offshore	0	0	0	0	0	0%
Land	0	0	0	0	0	0%
TOTAL AFRICA	**255**	**257**	**(2)**	**254**	**0**	**254000%**

Table 1.1a World Crude Oil Production (Including Lease Condensate), 1997-Present (Thousand Barrels per Day)

	Algeria	Indonesia	Iran	Iraq	Kuwait[1]	Libya	Nigeria	Qatar	Saudi Arabia[1]	United Arab Emirates	Venezuela	Total OPEC
2006 January	1,825	1,045	4,100	1,603	2,600	1,650	2,560	835	9,400	2,602	2,540	30,760
February	1,825	1,050	4,050	1,803	2,550	1,650	2,410	835	9,500	2,602	2,540	30,815
March	1,825	1,043	4,000	1,903	2,525	1,680	2,370	835	9,350	2,602	2,540	30,673
April	1,825	1,035	4,000	1,903	2,525	1,690	2,370	835	9,350	2,602	2,540	30,675
May	1,785	1,038	3,950	1,903	2,525	1,700	2,370	835	9,200	2,602	2,540	30,448
June	1,795	1,027	4,030	2,153	2,550	1,700	2,465	835	9,100	2,602	2,540	30,797
July	1,805	1,020	4,035	2,203	2,550	1,700	2,380	855	9,300	2,702	2,440	30,990
2006-7-Month	1,812	1,037	4,023	1,925	2,546	1,682	2,418	838	9,313	2,617	2,525	30,736

[1] Except for the period from August 1990 through May 1991, includes about one-half of the production in the Kuwait-Saudi Arabia Neutral Zone.
Kuwaiti Neutral Zone output was discontinued following Iraq's invasion of Kuwait on August 2, 1990, but was resumed in June 1991.
From August 1990 through May 1991 all production in the Neutral Zone was included in the data for Saudi Arabia. In July 2006, Neutral Zone
production by both Kuwait and Saudi Arabia totaled about 570,000 barrels per day. Data for Saudi Arabia include approximately 150,000 barrels per day from the Abu Safah field produced on behalf of Bahrain.
Revised data are in ***bold italic font.***
Notes: OPEC=Organization of Petroleum Exporting Countries. See Appendix A for countries in this group at:
http://www.eia.doe.gov/emeu/ipsr/appa.html
Monthly data are often preliminary and also may not average to the annual totals due to rounding.
See Table 4.1a for historical series at:
http://www.eia.doe.gov/emeu/ipsr/t41a.xls
Sources: See sources for Section 1 at:
http://www.eia.doe.gov/emeu/ipsr/source1.html

Table 1.1b World Crude Oil Production (Including Lease Condensate), 1997-Present (Thousand Barrels per Day)

	Norway	United North Kingdom	Sea[1]	Angola	Argentina	Australia	Brazil	Canada	China	Colombia	Ecuador
2006 January	2,657	1,707	4,737	1,428	686	335	1,688	2,591	3,670	521	559
February	2,620	1,639	4,635	1,418	665	400	1,692	2,482	3,662	533	551
March	2,610	1,597	4,594	1,428	695	380	1,696	2,423	3,710	535	528
April	2,407	1,591	4,372	14,28	692	370	1,737	2,471	3,680	536	546
May	2,535	1,488	4,405	1,328	705	380	1,748	2,353	3,712	539	547
June	2,365	1,391	4,111	1,239	717	***370***	1,630	2,405	3,700	***538***	536
July	2,571	1,453	4,387	1,468	709	410	1,725	2,340	3,716	536	543
2006-7-Month	2,538	1,552	4,463	1,399	696	378	1,703	2,437	3,693	534	544

[1] North Sea includes the United Kingdom Offshore, Norway, Denmark, Netherlands Offshore, and Germany Offshore.
Revised data are in ***bold italic font.***
Notes: Monthly data are often preliminary and also may not average to the annual totals due to rounding.
See Table 4.1b for historical series at:
http://www.eia.doe.gov/emeu/ipsr/t41b.xls
Sources: See sources for Section 1 at:
http://www.eia.doe.gov/emeu/ipsr/source1.html

Table 1.1c World Crude Oil Production (Including Lease Condensate), 1997-Present (Thousand Barrels per Day)

	Egypt	Gabon	India	Malaysia	Mexico	Oman	Russia	Former U.S.S.R.	Syria		United States	Other[1]	World
2006 January	654	238	669	760	3,372	771	***9,030***	---	345	E	5,047	6,049	73,536
February	657	238	679	760	3,311	765	***9,040***	---	345	E	5,048	6,144	73,464
March	651	237	686	700	3,350	754	***9,150***	---	345	E	5,016	6,128	73,292
April	663	237	685	680	3,370	744	***9,170***	---	340	E	5,067	***6,211***	73,299
May	655	237	689	700	3,329	734	***9,160***	---	340	E	5,100	***6,385***	73,122
June	607	237	704	695	3,287	739	***9,260***	---	340	E	5,219	***6,309***	73,139
July	620	237	691	690	3,232	726	9,260	---	340	PE	5,171	6,370	73,796
2006-7-Month	644	237	686	712	3,322	747	9,154	---	342	PE	5,096	6,229	73,377

[1] Other is a calculated total derived from the difference between "World" and the sum of production in "Total OPEC" (Table 1.1a) and all other countries listed (Tables 1.1b and 1.1c).
See Tables 1.1a and 1.1b at:
http://www.eia.doe.gov/emeu/ipsr/t11a.xls and http://www.eia.doe.gov/emeu/ipsr/t11b.xls
The total "North Sea" is not subtracted from the world total, though Norway and the United Kingdom have been subtracted.
Revised data are in bold italic font.
-- = Not applicable. E=Estimated. PE=Preliminary estimate. RE=Revised estimate.
Notes: Monthly data are often preliminary and also may not average to the annual totals due to rounding.
See Table 4.1c for historical series at:
http://www.eia.doe.gov/emeu/ipsr/t41c.xls
Sources: See sources for Section 1 at: http://www.eia.doe.gov/emeu/ipsr/source1.html

Table 1.3 World Natural Gas Liquids Production (Thousand Barrels per Day)

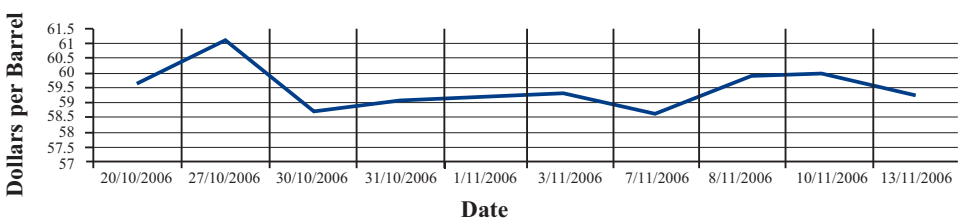
	Algeria	Canada	Mexico	Saudi Arabia	Russia	Former U.S.S.R.		United States[1]	Persian Gulf[2]	OAPEC[3]	OPEC[3]	World
2006 January	295	640	438	1460	***410***	---	E	1,684	2,281	2,652	2,883	***7,765***
February	295	640	436	1460	***410***	---	E	1,677	2,286	2,660	2,898	***7,828***
March	295	640	432	1460	***410***	---	E	1,688	2,286	2,660	2,898	***7,728***
April	295	640	441	***1480***	***415***	---	E	1,729	***2,310***	***2,682***	***2,922***	***7,842***
May	295	640	441	***1480***	***415***	---	E	1,753	***2,310***	***2,681***	***2,922***	***7,703***
June	***315***	645	436	***1480***	410	---	E	1,753	***2,310***	***2,701***	***2,942***	***7,673***
July	325	583	449	1490	420	---	PE	1,755	2,320	2,739	2,982	7,901
2006-7-Month	302	632	439	1473	413	---	PE	1,720	2,301	2,682	2,922	7,777

[1] U.S. geographic coverage is the 50 states and the District of Columbia. Excludes fuel ethanol blended into finished motor gasoline.
[2] See Appendix A for countries in this group at:
http://www.eia.doe.gov/emeu/ipsr/appa.html
[3] OAPEC=Organization of Arab Petroleum Exporting Countries. OPEC=Organization of Petroleum Exporting Countries.
See Appendix A for countries in these groups at:
http://www.eia.doe.gov/emeu/ipsr/appa.html
-- = Not applicable. E=Estimated. PE=Preliminary Estimate.
Revised data are in bold italic font.
Notes: Monthly data are often preliminary and also may not average to the annual totals due to rounding.
See Table 4.3 for historical series at:
http://www.eia.doe.gov/emeu/ipsr/t43.xls
Sources: See sources for Section 1 at:
http://www.eia.doe.gov/emeu/ipsr/source1.html

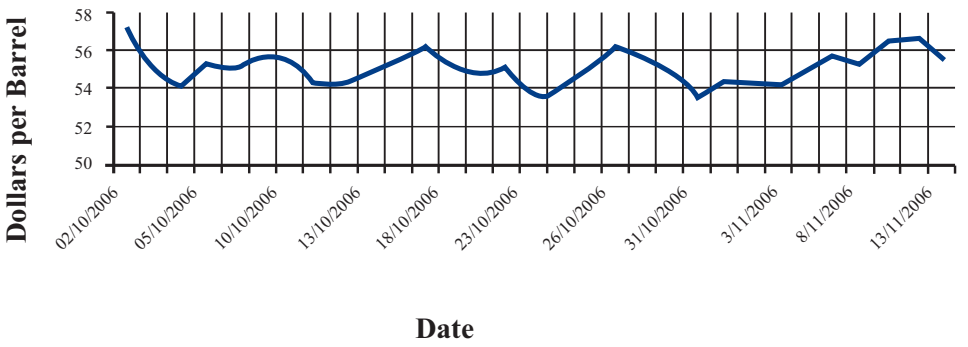
World Rig Count

Region	RIG COUNT Sep 2006	Prior Month	Change	YTD AVERAGE Through Sep 2006	Prior Year	% Change from Prior Year
Africa	269	255	14	256	220	16%
Offshore	74	65	9	67	66	2%
Land	195	190	5	188	154	22%
Asia Pacific	269	268	1	266	249	7%
Offshore	104	103	1	103	100	3%
Land	165	165	0	162	149	9%
CIS	374	370	4	317	222	43%
Offshore	17	15	2	13	10	30%
Land	357	455	2	304	212	43%
Canada	387	423	(36)	424	376	13%
Offshore	5	4	1	5	5	0%
Land	382	419	(37)	418	370	13%
Europe	188	178	10	175	163	7%
Offshore	96	97	(1)	98	91	8%
Land	92	81	11	77	72	7%
Latin America	392	379	13	395	379	4%
Offshore	82	79	3	84	83	1%
Land	310	300	10	311	296	5%
Middle East	323	316	7	300	264	14%
Offshore	51	46	5	49	48	2%
Land	272	270	2	251	216	16%
US	1961	1950	11	1874	1635	15%
Offshore	110	116	(6)	117	118	(1)%
Land	1851	1834	17	1757	1517	16%
Global Count	**4163**	**4139**	**24**	**4005**	**3508**	**14%**

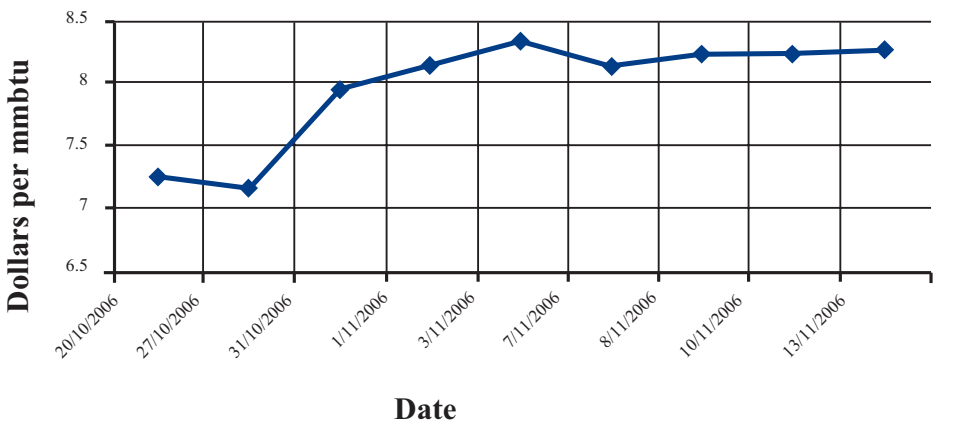
Brent Crude Prices



OPEC Basket Price



Natural Gas Price



10-11 November 2006

BG Egypt Energy Challenge Kicks Off Along the Coast of Hurghada

For the third consecutive year, BG Egypt has chosen CARE Egypt to organize its Annual BG Egypt Energy Challenge 2006, along the coast of Hurghada, the Red Sea where 30 teams have participated collectively, and pledged the total of US $ 150,000 to help fight poverty in Egypt.

Teams formed from oil and gas companies consist of 4-6 members, all male, all female, or mixed will hike an average of eight hours the first day. Each team raised US $ 4,000 or more to participate in this year's BG Energy challenge.

A new element has been added to this years challenge and that is each team will be presented with a set of mental in addition to the physical challenges. The goal is that participants learn to play each other's strengths, urging each other to perform their best, communicate clearly, resolve differences and put setbacks behind them. Participants of teams learn to bond and stand by each other to overcome the challenges.

The BG Energy Challenge - Egypt is part of a series of global team building events for the energy sector across five continents. Since 1996, BG Energy Challenges worldwide have contributed over US $3 million to charity. The challenge concluded with a ceremony honoring the participants and recognizing teams for the following achievements: most funds raised by a single team, most funds raised by a single company, best sportsmanship, best Novice team, best all-female team, best all-male team, best mixed team. The funds raised from this year's event will be used to support CARE's development projects in the poorest parts of Egypt.

BG Group is one of the largest investors in Egypt's natural gas business. A pioneer in LNG shipping, with expertise dating back to first ever transatlantic shipment in 1959, BG has operated in Egypt since 1989 and is a leading player in the development of the local gas business with upstream and downstream investments worth over $4 billion with partners.

From top: Participants had to hike for 4-7 hours north of El Gouna-Hurghada on the challenge's first day; participants went through five different stages of mental contests on the second day

2006 Society of Petroleum Engineers Awards

In 2006, Dr Sameh Macary and Dr Sherif El-Ghazaly achieved the SPE Regional Technical Awards for Reservoir Description and Dynamics, and Health Safety and Environment respectively.

The SPE Regional Technical Awards acknowledge exceptional contributions to the Society of Petroleum Engineers (SPE) at the section or regional level and recognize singular devotion of time and effort to the programs and development of technical expertise in one of the following six disciplines: Drilling and Completions; Reservoir Description and Dynamics; Production and Operations; Facilities and Construction; Health, Safety, Security, Environment and Social Responsibility; and Management and Information.

Each award is presented on recommendation of a Regional Technical Awards Committee appointed by the Regional Director based on nominations received from section leaders within the region. The nominations must also receive the approval of the appropriate SPE Technical Director for that discipline. The award is a plaque, which includes the name of the recipient, the year of the award presentation, and the citation accompanying the award specific to the individual's contribution to that technical discipline within the region.

On the other hand, Dr Hanafy Hussein received a SPE Century Club Membership for the year 2006.

The Century Club recognizes members who have recruited 100 or more new members. Century Club members receive many benefits for their membership development achievements including Life Membership, which exempts them from annual dues.

Sameh Macary
Graduate of Cairo University 1981 – Very Good with Honors
Work Experience:
Two years in Cairo University (Instructor)
Five years in Soviet Union for M. Sc. and Ph. D. in Petroleum Engineering
8 years with Gupco (consultant)
3 years with Schlumberger (consultant) - 2 years with IPR – Chief Reservoir Engineer
15 years with the Egyptian Petroleum Research Institute (EPRI) – Professor of Pet. Eng. and Head of Production Department

Sherif El-Ghazaly
Graduate of Cairo University – Faculty of Medicine
Work experience includes:
Petrosafe Co. Vice Chairman &CEO 2005 – current
Health, Safety & Environmental General Manager for the Badr Petroleum Co. 1994-2004
Environmental Advisor for the Badr petroleum Co. 1988-1994
Shell Egypt & Badr petroleum Co. medical advisor 1982-1987
"Sonatrach" Algerian oil Co. medical advisor 1976-1981

Hanafy Hussein
Graduate of Al-Azhar University 1980
Work experience includes:
Gupco 1982-1999
Khalda 1999-Current as Engineering GM
Educational achievements:
He has achieved an M. Sc. in Petroleum Engineering from Al-Azhar University
He has up to 12 SPE Papers

Eco-friendly vehicles in natural gas conference

Minister Sameh Fahmy (left) in discussion with the conference participants during the opening ceremony

With the participation of more than 100 international companies, Egypt hosted the 10th International Natural Gas Vehicles Conference for the first time in Africa and the Middle East under the patronage of Sameh Fahmy, the Egyptian Minister of Petroleum.

In opening his speech, Fahmy announced the intentions to switch 100,000 cars from diesel and gasoline to natural gas engines by the year 2010 and increase the number of natural gas stations to 200. He added that Egypt is one of the top 10 countries that own massive natural gas reservoirs and that the country should no longer rely on crude oil.

At the end of the two-day conference, Egypt has been recognized by the International Natural Gas Vehicles Association (INGVA) as the best country in the field of natural gas vehicles this year. Fahmy received the award from Juan Carlos, INGVA head.

SPE seminar tackles gas saturation

Left: Attendees listening to the discussion given during the SPE event; right: Dr. Mark Steel during the presentation

Under the title of "A New Approach to Quantifying Gas Saturation through Casing", the Society of Petroleum Engineers (SPE) in Egypt held its second technical meeting last November. The seminar given by Mark Steel, Regional Staff Geoscientist at Baker Atlas in the Middle East, discussed a new technique developed specifically to implement this approach. Examples covering a range of formation types and completion scenarios were used to demonstrate the effectiveness of the approach.