

**ENERGY CONSULTING & PROJECT MANAGEMENT**  
**استشارة وإدارة مشاريع الطاقة**

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Above: South China sea resources mapped out. Photo: File

IN THIS ISSUE

| TABLE OF CONTENTS  |    |
|--|----|
| Russia two-times China: Keeps options open after gas deal            | 2  |
| South China Sea conflict between China and Vietnam bodes ill for oil | 3  |
| Asia a pivotal player in world energy markets                        | 4  |
| Key MENA energy issues scorecard                                     | 5  |
| Energy Prices and Generation Costs in the Middle East                | 6  |
| Regional Energy Statistics   | 7  |
| Energy Statistical Report for Iraq                                   | 9  |
| Oil and Gas Rig Counts   | 10 |
| Licensing Rounds   | 11 |
| MENA in Image  | 13 |
| Current Studies and Events   | 12 |
| Key Manaar People  | 13 |
| Sources and disclaimer   | 16 |



**Russia two-times China: Keeps options open after gas deal**

Photo: File

An overview of Russian Chinese relationship, as Russia looks to diversify its gas market. Page 2



**Asia a pivotal player in world energy markets**

Photo: File

A comment on Asia's growing comfort on energy investments and its impact on oil demand. Page 3

## Russia two times China: Keeps options open after gas deal

Russia has long been seeking to diversify its gas markets. The European market is lucrative and Russia's existing gas export pipelines, long paid for, run west. *By Robin Mills*

On a map, Siberia looks quite close to China. It isn't. A gas pipeline from East Siberia to Shanghai would run about 5,000 kilometres, almost as far as Alaska to New York or London to Dubai. But last Wednesday, Russia and China signed a gas export deal that has been a decade in the making.

Is this a geopolitical master stroke that cements a Russo-Chinese alliance and undermines western attempts to isolate Russia over the Ukraine crisis? A move of desperation in conceding to Chinese demands? Or a straightforward commercial decision?

Russia has long been seeking to diversify its gas markets. The European market is lucrative and Russia's existing gas export pipelines, long paid for, run west. But it is not sensible to rely solely on Europe – an anaemic economy, which is seeking both to find other gas suppliers, and to reduce its overall dependence on fossil fuels.

Two days after the China deal, Gazprom announced it would be buying liquefied natural gas (LNG) from the Yamal project in the Arctic, with India the intended market. It has also been seeking to build up its LNG markets in the Far East, such as Japan, and even to build a pipeline through North Korea to South Korea.

Russia, though, has for many years been coy over the Chinese gas agreement. It is not coincidental that it was finally signed during Vladimir Putin's visit to China, amid the continuing dispute over Ukraine.

The Russians both denied that the Chinese deal was a warning to Europe and simultaneously hinted at it. **"The eagle is looking in both directions," said the prime minister – and former Gazprom chairman – Dmitry Medvedev, referring to the country's coat of arms to indicate that Russia would sell gas both west and east.**

The exact terms are unclear, but the quoted value – US\$400 billion for 38 billion cubic metres annually over 30 years – implies a price very similar to what the Russians get in Europe. However, building \$55bn of pipelines through the East Siberian forests and mountains means the Russian gas monopoly Gazprom will realise only about half the value of its European sales. But there is huge scope for Russian insiders to enrich themselves through contractual kickbacks and overpricing.

The gas will not start flowing until 2018 at the earliest, and represents just 10 per cent of estimated Chinese demand. By the time it reaches China's heavily populated east coast, it will still be cheaper than LNG, but not dramatically so. Either the

Russian supplies will displace imported LNG, which is then free to flow to Europe, or more likely the Chinese will take all the gas they can to reduce use of polluting coal. In either case, as long as the gas comes primarily from new fields, it will not reduce supplies to Europe.

Of course the two authoritarian giants have common political interests – which is a concern to the West. But Russia is very much the junior partner in its relationship with China. Its corrupt economy remains heavily dependent on commodity exports, and the Russian Far East contains only around 6 million people, a population shrinking even faster than that of the rest of the country.

The Kremlin, which has shown a tendency to hanker after Tsarist-era borders, might recall that large parts of its Far East, including modern Vladivostok, were surrendered by Beijing only in 1858-60, in what China still refers to as the "Unequal Treaties".

Western countries should not panic over this deal or consider it a geopolitical defeat. It seems a good deal for China, and an excellent one for the Russian elite. But a future Russian government may yet recall that Moscow is much closer to Brussels than to Beijing.

## South China Sea conflict between China and Vietnam bodes ill for oil

Nationalists are playing with fire – oil and gas are just another element in a combustible mix. *By Robin Mills*

We might think gunboat diplomacy died out in the 19th century. But if so, events in the South China Sea suggest drilling rig diplomacy has taken its place.

On May 2, the Chinese Offshore Oil Corp moved its HD-981 deepwater drilling rig into part of the South China Sea claimed by Vietnam. Immediately east of the area lie two blocks where the United States' ExxonMobil, in partnership with the state firm PetroVietnam, has made sizeable oil and gas discoveries.

The Vietnamese objected and both sides sent reinforcements, with 80 Chinese ships, including seven warships, now confronting 29 Vietnamese vessels attempting to stop the rig. On May 4, the confrontation heated up when the Chinese reportedly sprayed water cannon on the Vietnamese ships and rammed some of them. The US called the Chinese rig deployment "provocative and unhelpful".

And so a trivial dispute has escalated into a more serious stand-off, in an area where the two countries have fought sea battles before. This argument will also probably be resolved without serious violence, but it is a reminder that – like Ukraine's Crimea – this is a resource-rich spot of friction between great powers and their proxies.

The disputed area is about 220 kilometres off the Vietnamese coast and 330km south of China's Hainan Island. But it is close to the Paracel Islands, a collection of small sandbanks completely controlled by China since fighting in 1974.

Some extravagant claims have been made for the hydrocarbon resources of the South China Sea. But a study from the US energy information administration suggested that most of the area's oil and gas lay in uncontested waters. The central part of the sea, farthest from anyone's coastline, has no petroleum prospects.

The total potential of the disputed regions was estimated as 25 billion barrels equivalent of oil and gas – about the reserves of Australia or Indonesia, but less than a tenth of Saudi Arabia's. **For the littoral states – energy-short Vietnam, the Philippines and China – this is worth having, but not worth fighting to have.**

The Paracels give China a claim over promising oil and gas acreage down the Vietnamese coast, just as the other controversial island chain, the Spratlys, does in the southern part of the sea where it abuts the Philippines, Malaysia and Vietnam. But marine boundary experts find it doubtful that some barely inhabitable sandbanks would confer the same legal rights as the Vietnamese mainland.

Agreement is not impossible. Malaysia, Brunei, Thailand, Indonesia and Vietnam have resolved their respective South China Sea claims. But these squabbles can persist for long periods – the Thailand-Cambodia overlapping area remained unexplored for 43 years.

China may have chosen this particular moment for a confrontation tactically – while the US is distracted by the crisis with Russia. Apart from oil and gas, it can also be seeking to assert dominance over this strategic sea, and its neighbours, after Barack Obama's recent tour of Asia.

But in contrast to its generally restrained and pacific foreign policy, China has been surprisingly strident and jingoistic over these maritime disputes. The South China Sea may not be worth the bones of a Chinese geologist, but oil beguiles the popular imagination and makes it hard for any state to appear to relinquish its claim. Far from increasing Chinese security, such confrontations cause its neighbours to build up their navies, draw closer to each other and seek support from the US.

Fiercely nationalists may choose such disputes to bolster domestic support. But they are playing with fire – oil and gas are just another element in a combustible mix. Even if they do not ignite a serious conflict, the best deterrent of oil companies is the sight of admirals playing sea battles.

## Asia a pivotal player in world energy markets

**As Nietzsche might have said, if you pivot to Asia, Asia also pivots to you.** *By Robin Mills*

Over the past few years – and especially this year – the Middle East, Russia and the United States have all been trying to boost their engagement with the continent. But simultaneously, Asia's voracious appetite for energy is causing it to look outward.

The three players' plans in Asia are different. Middle East energy exporters are mostly seeking a reliable and fast-growing market and some diversification of long-standing diplomatic and security alliances. Kuwaiti, Saudi and Emirati state companies are investing in refineries, storage facilities and petrochemical plants in China, Vietnam, Japan, South Korea and elsewhere. No major oil producer can ignore China, which recently overtook the US as the world's largest energy importer.

Russia aims to profit from Asian energy sales while protecting sparsely-populated but mineral-rich Siberia. Even before the Crimean contretemps, the Russian president, Vladimir Putin, was boosting cooperation with Asia, planning to upgrade the Trans-Siberian railway and send more oil to China through long-term deals with state-controlled Rosneft.

Now, concerned about its European market amid plans from Brussels and Washington to diversify supplies, Russia may make another push to build a gas pipeline to China. For their part, the Chinese have the chance to secure the more favourable gas prices they have long sought.

The US wants to both contain and cooperate with China, its potential superpower competitor, and avoid conflict over resources. It seeks to help energy-poor friendly states such as India, Pakistan, Japan and South Korea – but this goal is undermined by its punishing sanctions on Iran.

Asian oil companies continue to look outward for energy investments. Except in some parts of Central Asia and Africa, though, it has proved very difficult to unseat the established players. Even in the Russian energy sector, western companies such as BP, Shell and ExxonMobil are much more prominent than Asian ones – and they have the advantage of new expertise in shale and offshore Arctic fields.

The same is true in the Middle East. The Japanese have long been trusted partners in Abu Dhabi, with the South Koreans gaining influence more recently. But except in Iraq, where the Chinese, Russians and Malaysia's Petronas have a strong role, American and European firms dominate as partners to the national oil companies. Even in Iran, Chinese companies are increasingly unpopular, seen as failing to deliver. And the Arabian Gulf's next-door neighbour, India, hardly plays a role, outranked in Iraq even by Pakistan.

Instead, in a remarkable development that could hardly have been foreseen even five years ago, Asian oil companies are turning to North America as an investment destination. They are interested in Canada's oil sands, but even more than that they want to participate in the continent's shale boom and attract its forthcoming liquefied natural gas exports.

Despite some unwise Canadian and US restrictions on foreign state investment and energy exports, the invisible hand of market economics is delivering better results than government control of the economy's commanding heights and supposedly strategic resources.

**Asian countries are also growing more comfortable in relying on the market to supply their swelling energy needs. The result is a far more diverse and interlocking set of energy investments than seemed likely a decade or so ago, when gloomy resource-war theorists predicted a struggle between Asia, Russia and the West over the world's last petroleum reserves.**

Nevertheless, the Middle East remains central to global energy, even as it increasingly looks East itself. In order to pivot, you need to have one foot solidly planted. And despite some Asian engagement, it is still the US that has the firmest foothold in the region.

## Key MENA Energy Issues Scorecard

|  |   |   |   |
|--|---|---|---|
| MENA energy price reform                 | ● | ↑ | Jordan Finance Minister Umayya Toukan states electricity subsidies will be cut by 2017; Iran raises gasoline price to 75% of market and semi subsidised gas to 65% to save \$16 billion annually from state budget  |
| MENA unconventional oil & gas            | ● | ↔ | Only Lukoil ready to drill for tight gas in Rub' Al Khali; Jordan Minister of Energy and Mineral Resources Hamed announced government plans to award a project set to deliver 456 MW of electricity through oil shale   |
| MENA alternative energy                  | ● | ↑ | Saudi Aramco to take over \$109 billion solar energy project aiming to produce 41 000 MW by 2032; two bus stops near Jafiliya metro station in Dubai will use solar power for air-conditioning in a pilot project; Jordanian PM Abdullah Ensour announces 400 MW solar contract to be awarded in next 4 months  |
| MENA nuclear power                       | ● | ↔ | Abu Dhabi has received its first nuclear reactor container from South Korea on 21 <sup>st</sup> May from Korean Electric Power Corporation  |
| Energy infrastructure security           | ● | ↓ | A Yemeni woman blew up a pipeline in Marib demanding release of her detained brother by state officials, but crude resumed flow by the end of May after repairs; Iraq's Deputy PM says Army must pay attention to insurgency aimed at Northern Pipeline alongside combating militancy.  |
| OPEC production                          | ● | ↑ | Call on OPEC rises in reversal of trend from 6 months ago; OPEC production climbed in May with increased production by Saudi Arabia and Angola leading to claims by members that oil is at a 'sweet spot' and prices will remain steady   |
| East Mediterranean gas commercialisation | ● | ↔ | IEA Chief Economist Birol claims Turkish pipeline will be most convenient to export gas found in East Mediterranean around Israel and Cyprus; East Mediterranean energy producers become hopeful as EU looks for alternative to Russian energy following Ukraine crisis; further moves to export Israeli gas to Egypt   |
| Kuwait energy projects progress          | ● | ↔ | Dorra gas field jointly owned by Saudi Arabia, Iran and Kuwait has generated interest with Iran and Kuwait who aim to develop the field known as Arash in Iran. Kuwait has signed six MoUs with Iran for infrastructure development and gas imports   |
| Abu Dhabi concessions renewal            | ● | ↓ | CNPC establishes E&P joint venture with ADNOC 'Al Yasat'. According to Energy Minister, US and European IOCs have "good chance" of winning renewals for concessions. ExxonMobil though will not bid for ADCO renewal  |
| Baghdad-Erbil oil agreement              | ● | ↓ | Kurdish region has made its first oil shipment through its own pipeline to the international market through Ceyhan, bypassing central government in Baghdad; however oil apparently not sold yet; Iraq's Oil Ministry filed for arbitration with Paris-based International Chamber of Commerce against Turkish government and Turkey's state-run BOTAS pipeline company |
| Iraq oil production build-up             | ● | ↑ | Exports up to 2582 kbpd in May, from 2509 kbpd in April; Lukoil signed modified contract with Iraq for development and production of West Qurna 2 field which will also include Tuba-Fao pipeline construction  |
| Egypt subsidy reform                     | ● | ↔ | Egyptian Petroleum Minister Sherif Ismail announced Egypt considering cutting energy prices for steel factories as subsidy situation worsens; stated overall subsidies will decrease from EGP 140 bn to EGP 130 bn by end of June 2014  |
| Iran news and oil sanctions              | ● | ↓ | Approaching end of interim sanctions relief on 20 <sup>th</sup> July, but only limited signs of progress in negotiations; US to hold direct talks with Iran   |

|   |               |   |                             |   |               |
|---|---------------|---|-----------------------------|---|---------------|
| ● | Very positive | ↑ | Improvement in last month   | ● | Very negative |
| ● | Positive      | ↔ | No change                   |   |               |
| ● | Negative      | ↓ | Deterioration in last month |   |               |

## Energy Prices and Generation Costs in the Middle East

The following table represents February 2014 gasoline, diesel and electricity prices (top rate for residential consumers) in selected MENA countries, with the US for comparison, and the direction of change since last month.

|           | Gasoline (\$/litre) | Diesel (\$/litre) | Electricity (\$¢/kWh) |
|-----------|---------------------|-------------------|-----------------------|
| Saudi     | 0.21                | 0.09              | 6.9                   |
| Qatar     | 0.25                | 0.25              | 2.7                   |
| Bahrain   | 0.27                | 0.26              | 4.2                   |
| Kuwait    | 0.32                | 0.27              | 0.7                   |
| Iraq      | 0.34                | 0.72              | 6.7                   |
| Yemen     | 0.35                | 0.47              | 7.9                   |
| Oman      | 0.40                | 0.48              | 7.8                   |
| UAE       |                     |                   |                       |
| Dubai     | 0.48                | 1.01              | 10.35                 |
| Abu Dhabi | 0.48                | 0.88              | 4.0                   |
| Sharjah   | 0.48                | 0.90              | 8.0                   |

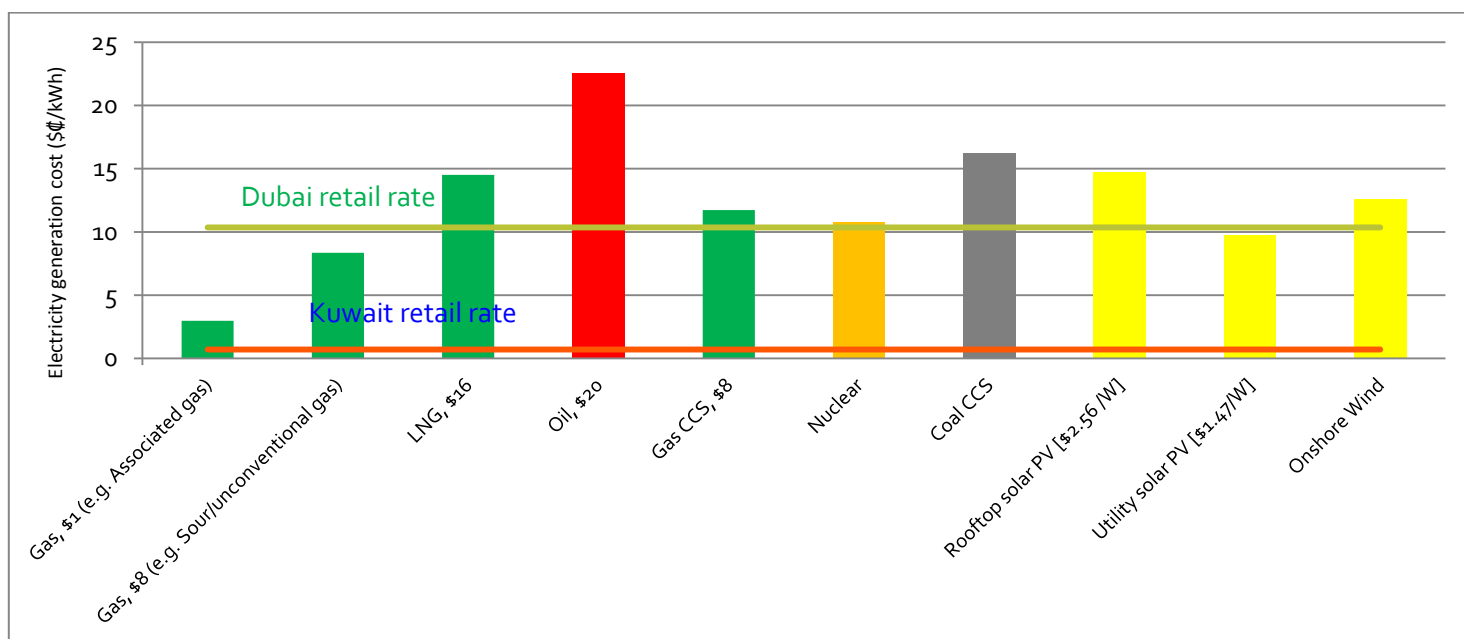
|         | Gasoline (\$/litre) | Diesel (\$/litre) | Electricity (\$¢/kWh) |
|---------|---------------------|-------------------|-----------------------|
| Egypt   | 0.59                | 0.46              | 6.8                   |
| Iran*   | 0.7** ↑             | 0.35** ↑          | 1.64**                |
| US      | 0.87 ↓              | 1.027 ↑           | 12.61                 |
| Lebanon | 0.878 ↓             | 0.87              | 13.3                  |
| Jordan  | 1.4 ↑               | 0.98 ↑            | 33.2                  |

\* Non-subsidized allocation, at current (volatile)

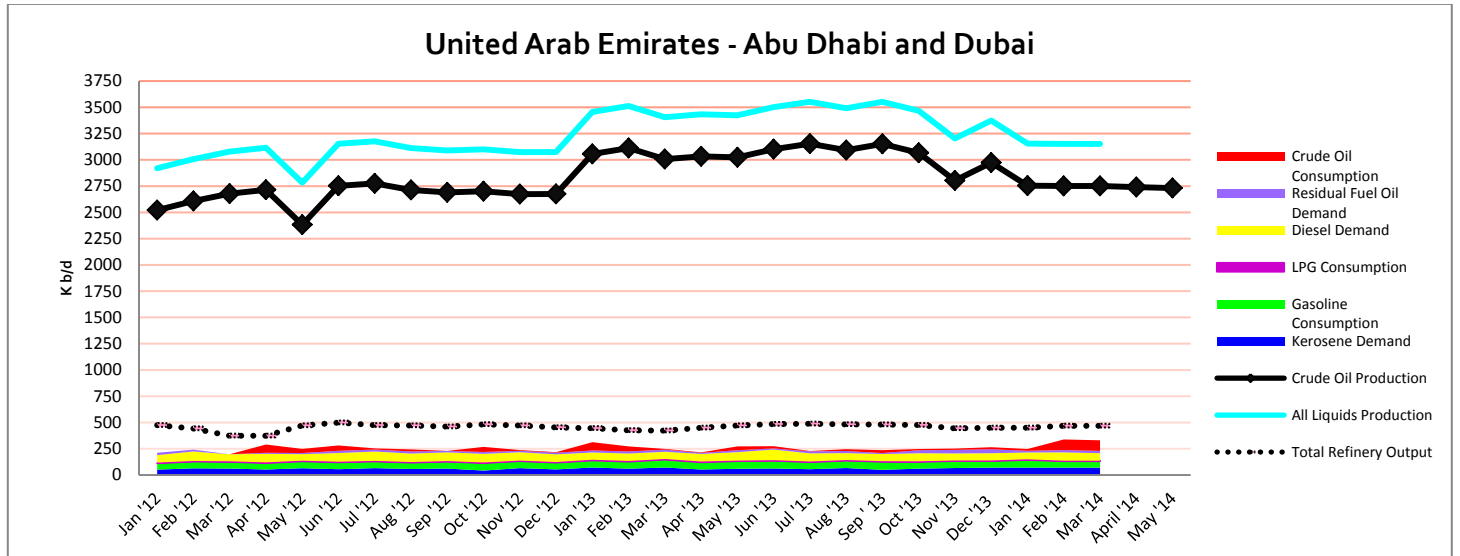
\*\* Values changed mainly due to changes in the exchange rate  
Open-market exchange rate (US\$1:IR 24942)

Note: Gasoline & diesel are pump prices. Only the US, Lebanon and Jordan prices can be considered non-subsidized.

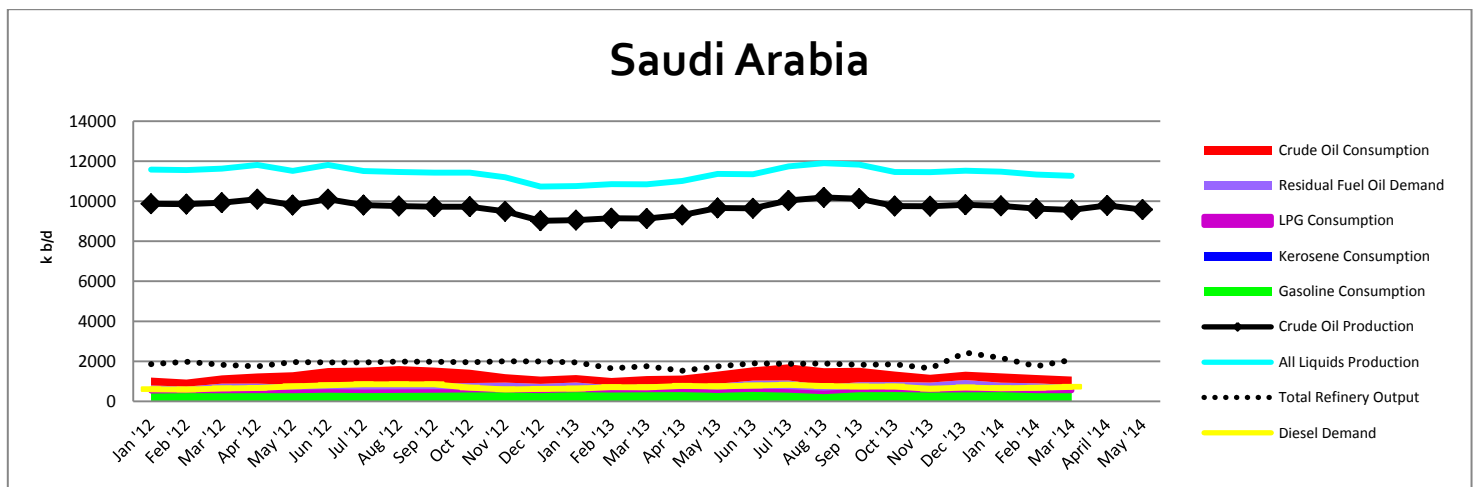
Source: Gulf Oil Review; Manaar research



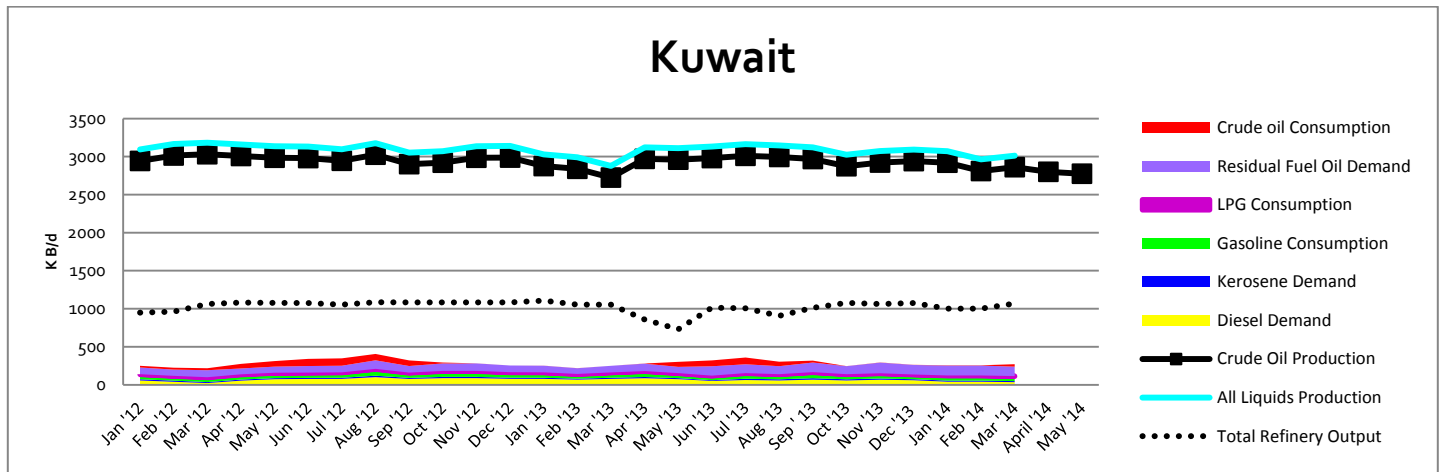
## Regional Energy Statistics



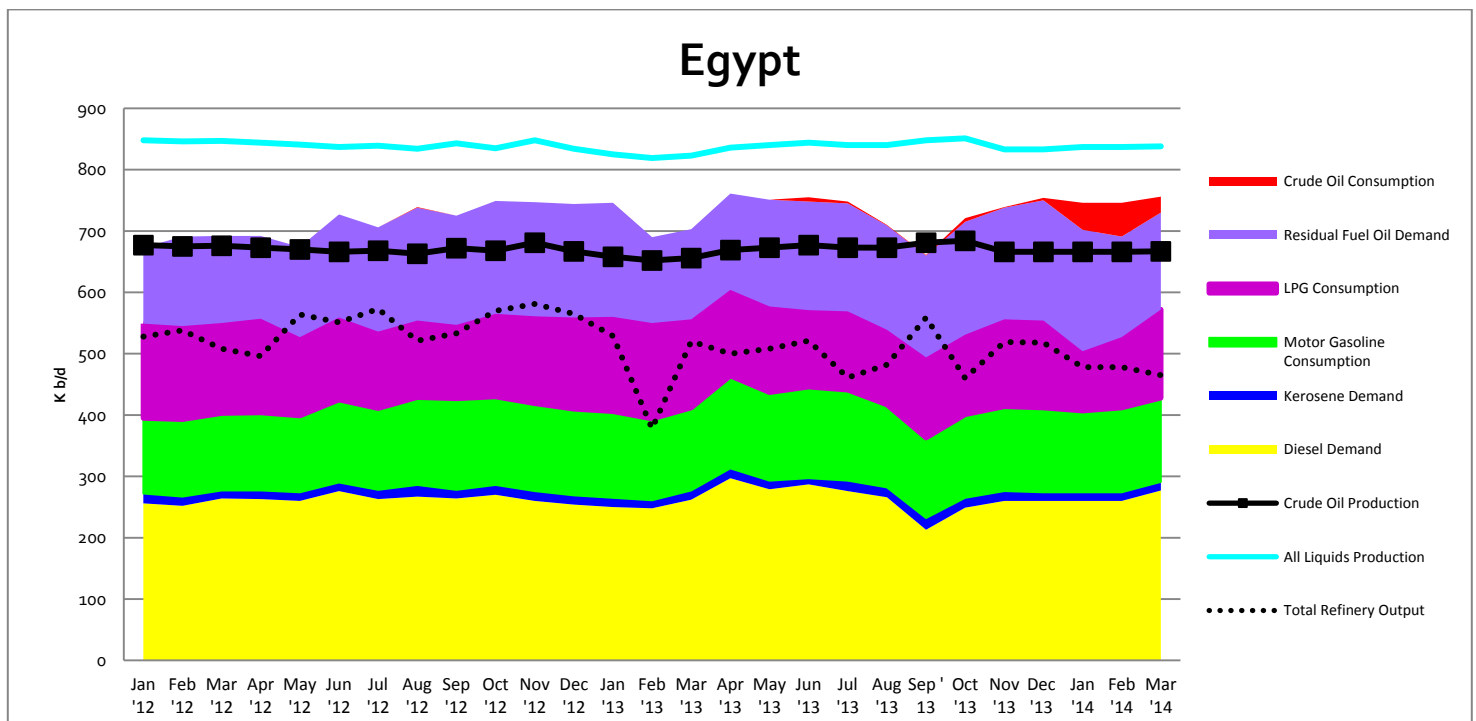
- Abu Dhabi Oil Company oil refinery in Ruwais is to be commissioned by the end of 2014. Contracts worth US \$9.6 billion have been signed by Takreer to increase Ruwais output by about 415 000 barrels per day.



- Saudi Arabia produced 9.579 million barrels per day (bpd) of crude oil in May, down from 9.790 million bpd in April 2014. However production may increase following the OPEC meeting on 11<sup>th</sup> June to fill in from lost output from Libya



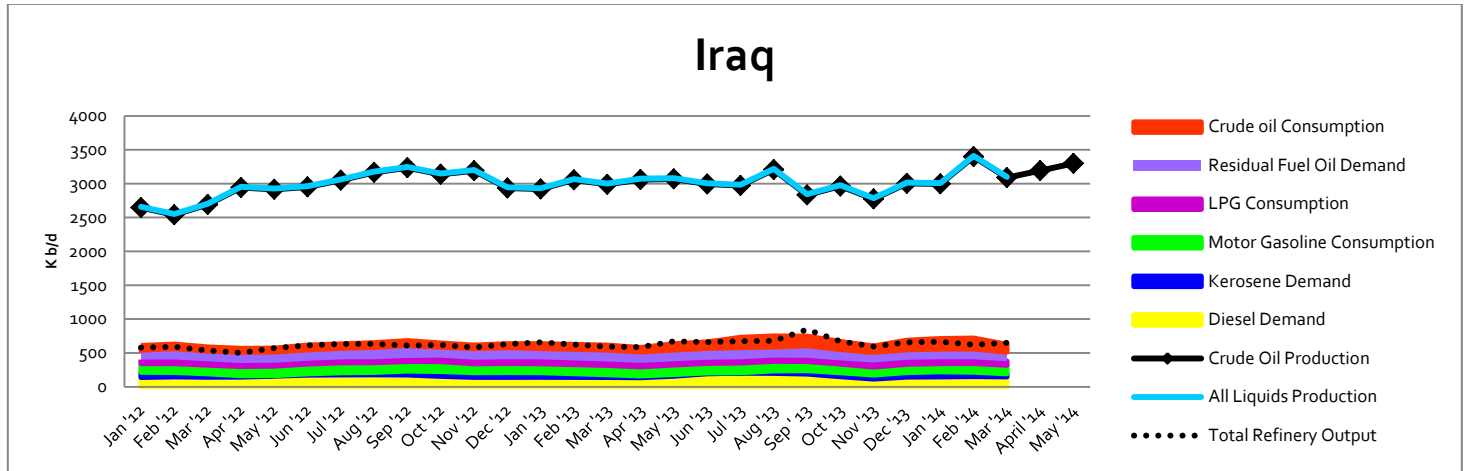
- Combined Group Contracting Company won two contracts from state-owned oil major Kuwait Oil Company worth \$70 million to increase oil production.
- Kuwait Petroleum International (Q8) will start the execution of a mega joint venture to build a 200 kbpd refinery and petrochemical complex in Vietnam by end of 2014
- Emerson Process Management has helped Kuwait Oil Company realize its vision of integrated operations for the Sabriyah oil field in North Kuwait. The project is part of KOC’s enterprise-wide Kuwait Integrated Digital Field strategy for enhancing oil production.



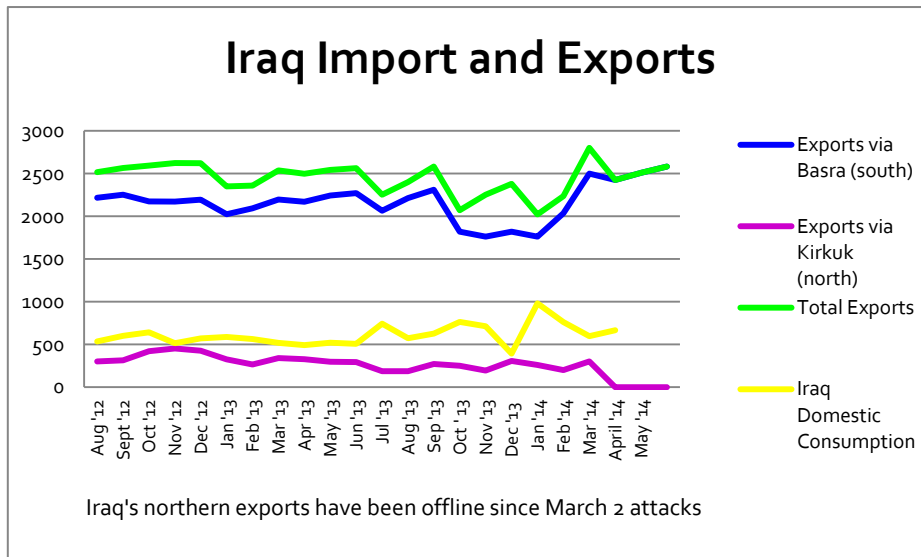
- Oil production and energy figures seem to be achieving stabilisation pointing towards Egypt’s settling political atmosphere. This may point towards a growing economy, as Egypt gains stability from political turmoil.
- Egypt will start exporting crude oil per barrel produced from the Western Desert’s fields in July, and importing shipments of Arabian Crude, the latter of which is more productive in Egyptian refineries; extra margin from the exports will amount to \$2 per barrel
- UAE Vigo Petroleum won an Egyptian contract to explore for oil in Southwest Gebel El-Zeit (SWGEZ) offshore field located in the Gulf of Suez, over an area of 69 km<sup>2</sup>



## Energy Statistical Report for Iraq



- OPEC gives Iraq credit for increased oil output which bounced back in April thanks to surging Iraqi production which gained 131 000 barrels a day, taking OPEC output 29.6 million barrels a day.
- Norway's DNO International reported that production from its Tawke field in the Kurdistan region of Iraq hit 120 021 barrels of oil per day in May – the first time average monthly production from the field has exceeded 100 000 barrels per day.



Kurdish chartered oil tanker is still sailing in circles off the coast of Morocco as Baghdad creates obstacles for Kurdish exports.

Oil exports from Iraq's southern terminals are on track for a record high in May, according to loading data and industry sources, reflecting its efforts to accelerate supply growth in 2014 after a slowdown in 2013, as northern pipeline remains offline.

### Iraq News in Brief

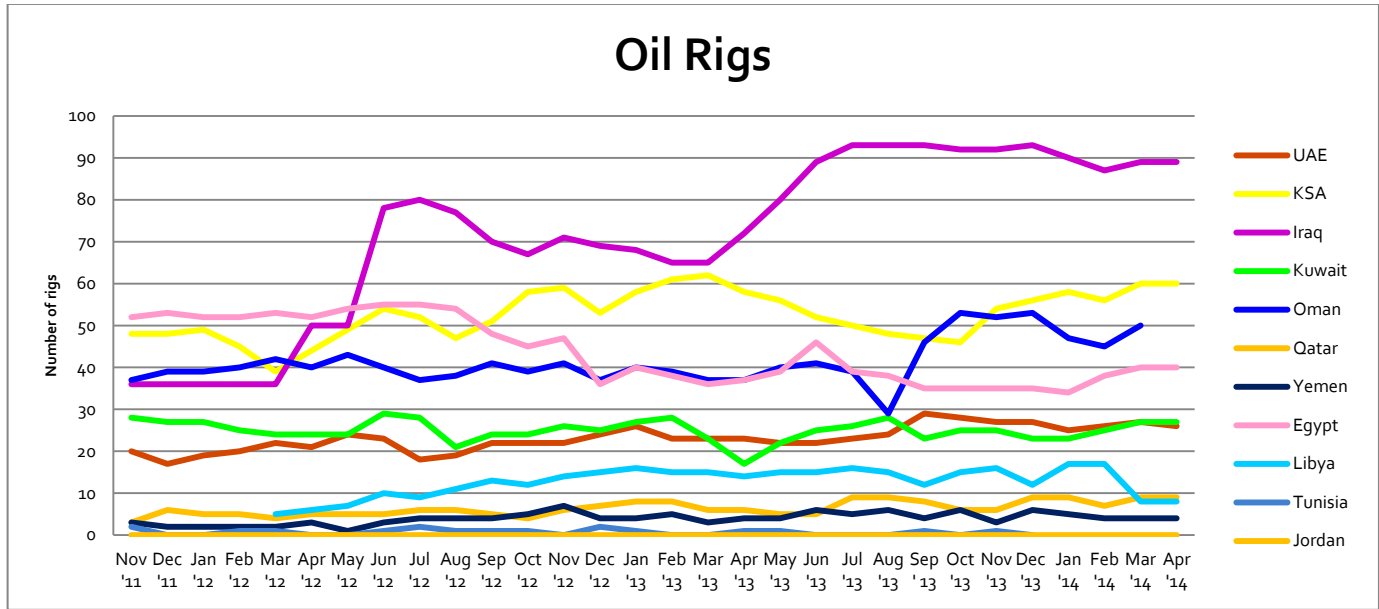
#### Win for Norwegian IOC in Iraq

Norwegian DNO Oil Company announced that its oil production of Tawke oilfield will reach to 200 000 bpd by the end of this year, pointing that it exported 40% of its production. Tawke oil field, situated in Duhuk, produced 120 000 bpd last year.

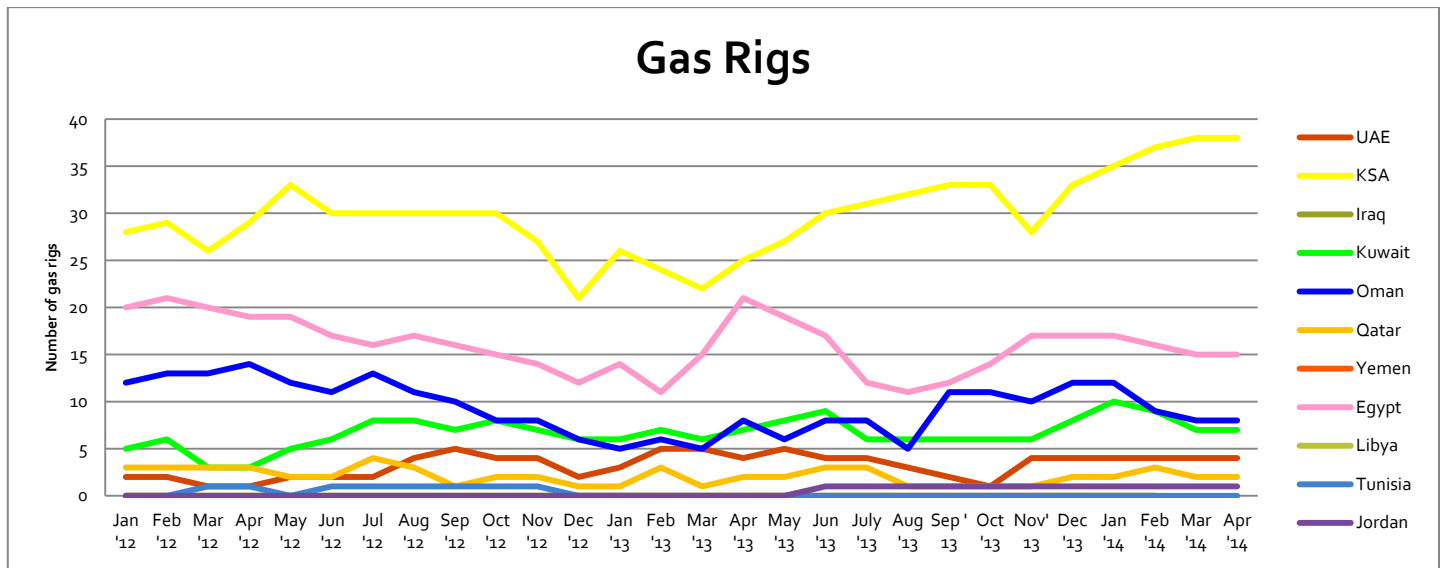
#### Russia's Gazprom Neft ventures in Badra

On 31 May, Gazprom Neft began production at the Badra oilfield. The central gathering station is currently undergoing complex testing of its crude oil processing system. Badra field will then be ready to reach planned production levels of 15 kbpd. Production in the field will reach its peak of 170 kbpd in 2017.

## Oil and Gas Rig Count



- The International Energy Agency has announced that Iraq's oil exports have hit 3.6 million bpd, a record 30 year high, as rig count stayed at an average of 90 active rigs in 2014.



- Iraq teamed up to import gas from Iran. The project is aimed at supplying Al-Baghdad and Al-Mansouriyah power plants in Iraq with 25 million cubic meters (mcm) per day of natural gas.

## Recent and forthcoming MENA Licensing Rounds

| Country | Round                           | Launch Date | Blocks on Offer | km <sup>2</sup> offered | Blocks Awarded | Closing Date |
|---------|---------------------------------|-------------|-----------------|-------------------------|----------------|--------------|
| Egypt   | Ganope                          | Dec – 12    | 20              | 125,577                 | 1**            |              |
| Jordan  | South Jordan Block              | April - 12  | 1               | 10,416                  | -              | June - 13    |
| Egypt   | EGAS                            | Dec – 13    | 22              | NA                      | -              | May - 14     |
| Iraq    | Nassiriyah                      | Dec - 13    | 1               |                         |                |              |
| Iraq    | 5 <sup>th</sup> Licensing Round | NA          | 10              | NA                      |                | NA           |
| Lebanon | 1 <sup>st</sup> Licensing Round | May – 13*   | 10              | 17,901                  | -              | Jan – 14*    |
| Oman    | MOG                             | Jan – 12    | 4               | 26,837                  | 2              | Aug – 12     |
| Oman    | MOG                             | Nov – 12    | 7               | 103,422                 | -              | Jan – 13     |
| Yemen   | 6 <sup>th</sup> Licensing Round | Sep – 12    | 5               | 20,132                  | -              | NA           |
| Yemen   | March 2013 Licensing Round      | March – 13  | 20              | 222,812                 | -              | May - 13     |

\* Delayed due to government formation; expected July 2014 \* Participating in the Ganope International 2012 Bid Round #1, Dragon Oil awarded 100% interest in shallow-water block 19 in the Gulf of Suez.

## In Image



Photo: Manaar photo stock

“Pakistan Petroleum’s investment could be a driving force behind Islamabad-Baghdad relationship, as Iraq’s emergence puts Saudi Arabia on guard.

-Mahin Khalid Siddiqui, Industry Analyst at  
Manaar Energy in Oil and Gas Journal Middle East

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## Current Studies

### Hydraulic Fracturing

Manaar has recently updated its study of the market for hydraulic fracturing in the MENA region, with PacWest Consulting. The 2014 MENA hydraulic fracturing report addresses historical and forecasted frac demand, supply, utilization, constraints and trends for all MENA countries. Market coverage also includes current hydraulic fracturing projects, unconventional potential assessments, past and forecasted unconventional wells in Oman and Saudi Arabia, historical proppant volumes in all MENA countries as well as the dominant proppant type and detailed basin and play maps. The majority of the information gathered in the reports relies on primary intelligence: in-depth surveys and conversations with industry leading experts and technical specialists.

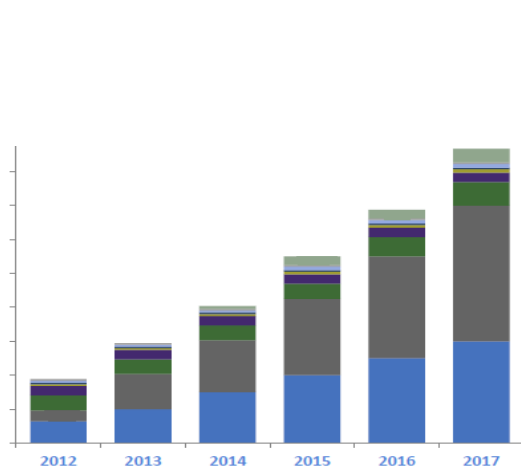


Figure 1. Oman frac capacity, by pumper (also available for Saudi Arabia, Algeria, Egypt, Libya, Tunisia, Bahrain, Kuwait, Iraq and Jordan)

### MENA petrochemicals

Manaar is preparing a potential study of MENA petrochemicals and gas feedstock. The study will focus on

- the current gas situation in MENA,
- implications for petrochemicals in the region
- the downstream / speciality petrochemical value chain
- competitiveness of MENA petrochemical companies versus the US, EU and Asia

This study will be of key interest to Gulf-based and international petrochemical producers and gas suppliers.

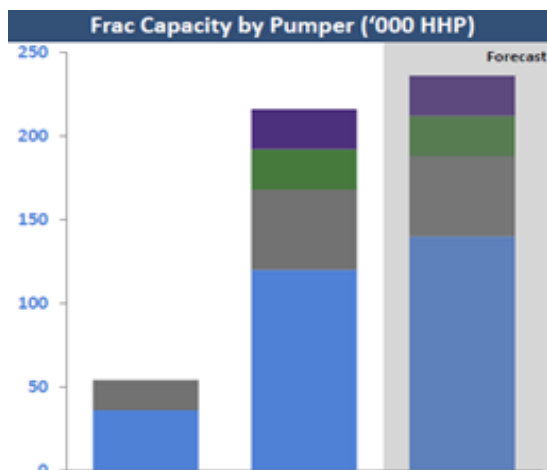
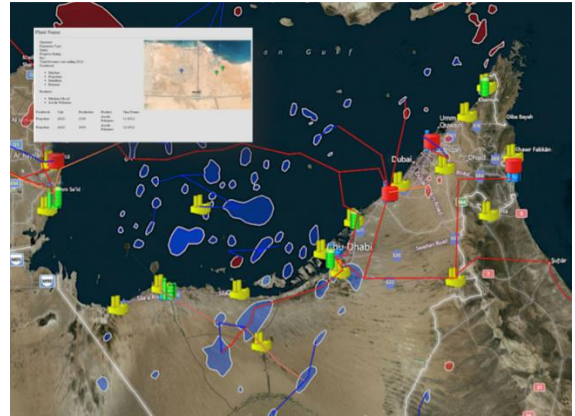


Figure 2. Forecast frac capacity, per MENA country

## MENA Shale Study

Manaar has prepared a study on the impact of global shale resources on MENA. The study focusses on:

- The strengths, weaknesses, threats and opportunities of unconventional gas in the MENA region.
- Differences in the development of unconventional gas between North America and MENA.
- Identifying MENA's unconventional gas potential; understanding current and planned activity levels per country, company and basin.
- The impact of the shale boom on future demand for MENA oil & gas, oil and gas prices, possible new pricing hubs, and oil and gas exports.



## Recent & Forthcoming Events

- Robin Mills spoke in the DMCC Iraq Conference on 3<sup>rd</sup> June in Dubai

## Manaar Presentations

- [EPC Market Study 2014](#)
- [Gas Development in Middle East: Impact on Product Demand](#)
- [Feedstock Challenges and Market Implications for Middle East Petrochemical Products](#)

For more presentations and research, please visit [www.manaarco.com](http://www.manaarco.com)

## Key Manaar people



### JAAFAR ALTAIE MANAGING DIRECTOR

- Jaafar founded Manaar in 2009. He is an energy economist and petroleum business advisor to IOCs and NOCs on regional upstream business and economics issues.



### ROBIN MILLS HEAD OF CONSULTING

- Head of Consulting at Manaar Energy, Robin is an expert on energy strategy and economics, described by Foreign Policy magazine as "one of the energy world's great minds".



### MOHAMMED JAMBAZ HEAD OF KURDISTAN OFFICE, ERBIL, IRAQ

- Mohammed represents Manaar in the Kurdistan Region of Iraq from our office in Erbil. He leads our support of companies in seismic, geoscience, exploration & production, logistics, laboratory services, energy market analysis, and other sectors of the oil industry.



### DR. SADIK AL JADIR LEAD CONSULTANT

- Dr. Sadik is a Lead Consultant at Manaar with a focus on business operations consulting in Iraq and the UAE.

## ROA IBRAHIM CONSULTANT

• Roa is a specialist in assessing markets for energy industry technology in the Middle East, with a background in finance.



## GARY LAKES SENIOR ASSOCIATE

• Gary Lakes is a Nicosia-based editor and journalist whose current primary focus is East Mediterranean energy.

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## Sources

Joint Organisation Data Initiative (JODI)

Energy Information Administration (EIA)

Baker Hughes

International Energy Agency (IEA)

OPEC

Wood Mackenzie

Manaar Research

Versions of Robin Mills's articles appeared in The National on 16<sup>th</sup> March 2014

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