# Monthly Newsletter: March 2013

ENERGY CONSULTING & PROJECT MANAGEMENT

إستشارة و إدارة مشاريع الطاقة

*Powering Qatargas. Photo courtesy of Shell.*

## March 2013

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# Turkey takes a big leap forward over energy security

***By Robin Mills***

Last month I wrote how Turkey needed to rebuild constructive relations with its energy-rich neighbours. Two dramatic announcements later, and it seems to have done just that.

But big obstacles still lie in the way of improving Turkish energy security: Baghdad, a Mediterranean island, and the Kremlin.

On Thursday, Abdullah Öcalan, the leader of the PKK Kurdish separatist organisation, called a ceasefire. This capped years of cautious negotiations between Mr Öcalan, in jail since 1999, and the Turkish government.

On Friday, Israeli prime minister Benjamin Netanyahu apologised on the phone to his Turkish counterpart, Recep Tayyip Erdoğan, for the death of nine Turks in the 2010 storming of a ship that was taking aid to Gaza.

And a week ago, dramatic happenings on the island of Cyprus: the terms of the European Union-led bank bailout required depositors to pay a 10 per cent levy, triggering anger and frantic last-minute negotiations.

What is the energy significance of these events? They may open routes for two of the most exciting current oil and gas discoveries to reach markets, enhancing Turkey's economy and energy security on the way. The Turks need gas in particular to fuel their growing economy, that has become too dependent on Russia and on supplies from Iran threatened by sanctions and winter disruptions.

The 29-year insurgency waged by the PKK in south-east Turkey may be nearing its end. The Kurds of Syria have largely thrown off central government control.

The Syrian Kurds have balanced ambiguously between the president Bashar Al Assad's government and the Syrian opposition, and gaining leverage over them has become urgent for Ankara.

Under Mr Erdoğan, Turkey has developed increasingly close economic links with the autonomous Kurdish region of Iraq, where international companies have found major oil and gasfields.

But independent Kurdish oil and gas sales are blocked by Iraqi government policy, and relations between Baghdad and the Kurdish regional authorities in Erbil have deteriorated sharply.

Permitting direct large-scale exports would require the Turks to take the dramatic step of breaking with the Iraq central government. For now, this is a pipeline too far - but a solution to the Kurdish dispute surely brings an Ankara-Baghdad showdown closer.

Meanwhile, in the eastern Mediterranean, Israel has found some 30 trillion cubic feet of gas, enough to supply it for the next 80 years. Cyprus has also discovered a major field, and Lebanon is launching exploration this year.

Mr Netanyahu's apology to Mr Erdoğan adds to recent rumours of discussions over a pipeline. This is probably the cheapest way for Israeli gas to get to Turkey and Europe - and would help to rebuild a key regional alliance for Tel Aviv.

But Israel's route to Turkey is blocked by Lebanon - with whom it is technically at war - and Cyprus, divided between Greek and Turkish Cypriots.

Turkey disputes the right of the internationally recognised Republic of Cyprus to explore for gas, in the absence of a political settlement.

When the deposit haircut was announced, the Cypriot government offered to compensate savers with "gas bonds" backed by future revenue from its hoped-for offshore gas fields.

The idea then emerged for Russia's Gazprombank, loosely linked to its state gas giant Gazprom, to offer its own bailout, in return for stakes in those fields. This would allow the Kremlin to defeat, divert or delay a threat to its market dominance.

Turkey has opposed the use of Cypriot gas to pay such compensation. But to make use of the thaw with Israel, and access Mediterranean gas, Mr Erdoğan will have to replicate his Kurdish rapprochement with Cyprus. Foreign governments may be lesser obstacles to Turkish energy security than domestic nationalists.

***A version of this article appeared in The National newspaper on March 25th, 2013***

## Russia, Kazakhstan and the China Relationship

***By Chad Al-Sherif Pasha***

Beneath Kazakhstan's oil industry plans lie increasingly overt tensions in its relations with Russia.

With Kazakhstan's oil refineries increasingly outdated and over capacity, since 2011 Astana has been planning to further develop a two-pronged oil and gas export strategy to upgrade its Caspian Sea production levels aimed at the European market while expanding production to China and East Asia. In 2011 Kazakhstan announced plans to build at least one new oil refinery by 2020 as well as supporting infrastructure that could allow increased export directly to China.

On July 1, 2010, the Customs Union joining Belarus, Russia and Kazakhstan came into effect. The union has two main provisions; the lifting of all economic restrictions between member states and the imposition of a Common Customs Tariff on goods imported from outside the union.

The path to ratifying the convention was fraught with debate between its candidates, which at one point had included Kyrgyzstan. Within Astana government circles, there was intense debate as to whether the Customs Union would dampen the fast-growing Kazakh economy and hand over significant influence to Moscow, submerging Kazakhstan under the larger Russian economy. Despite these concerns and the withdrawal of Kyrgyzstan due to similar fears, the union was established.

Two years into the union, the cracks have already appeared particularly between Russia and Kazakhstan. As a result of upgrading works in Atyrau and Aktau due to be completed in 2016, Kazakhstan was an estimated 7 million tons above refining capacity for the year of 2012 with an increasing volume of unrefined crude oil unable to be processed domestically. With existing pipeline networks to Russia, Kazakhstan at first exported crude to Russian refineries under an arrangement where its crude oil would be priced far below average export prices and the refined oil pumped back into Kazakhstan for domestic consumption would be priced closer to the market export prices. As a result Kazakhstan was paying more overall for the export and re-importation of its own oil.

In contrast, Kazakhstan's relationship with China, which was lukewarm following the breakup of the USSR due to fears of China's influence on the fragile new republic, has improved dramatically since 2009 when China pumped billions of dollars of foreign direct investment into the Kazakh economy at the height of the global financial crisis, much of it going directly into shaken Kazakh banks under a loan-for-oil arrangement. The Shanghai Cooperation Treaty and increasing numbers of large-scale infrastructure and mining joint ventures have further tightened relations while to some degree

assuaging Kazakh fears of Chinese control.

By January 2013, new plans released by Astana redefined Kazakhstan's energy export strategy moving forward. While remaining anchored within the Customs Union and continuing the upgrade of its European-facing assets in western Kazakhstan, the country would reduce its dependence on Russia by developing infrastructure towards the Chinese border aimed at pumping 10 million barrels per day of crude into western Xinjiang for refining in 2013. This is projected to continue until 2015/16 when domestic refineries are fully operational, at which point Astana intends to ramp-up export infrastructure to China via the Xinjiang-Gansu corridor under a cooperative framework between the China National Petrochemical Corporation (CNPC) and KazMunaiGas.

Currently Kazakhstan exports 16% of its oil to China, but under new plans this share is expected to grow significantly higher. Russia's plans to develop an energy export corridor from its East Siberia fields overland to China are faltering, due to high capital costs that would be incurred across a vast mountainous and unpopulated geography. This will increase China's reliance on accessible and relatively cheaper Kazakh oil.

The strong historical, economic and cultural links between Kazakhstan and Russia, forged during 80 years of the Soviet state remain strong. However, with ageing leaders once part of the Soviet nomenklatura on the way out, a younger generation of educated and cosmopolitan Kazakhs are keen to build stronger ties with Europe and the US while laying the foundations for an equitable and mutually beneficial relationship with China.

Kazakhstan is often touted as Europe's bridge to China and is keen on growing into that role as an equal partner. As long as China maintains an economic-focused relationship with Kazakhstan and doesn't meddle in its domestic affairs - as Moscow has been accused of doing - and manages its ongoing internal Xinjiang dilemma in a sustainable manner, the Kazakh-China relationship could be a lynchpin for economic development and stability in Central Asia as well as a key support to China's development ambitions.

## Who is winning the great energy rat race?

***By Robin Mills***

It is a shift as momentous as the U.S. eclipse of Britain's Royal Navy or the American economy's surpassing of the British economy in the late 19th century.

According to preliminary figures reported this week, China has overtaken the United States as the world's largest net oil importer. Nearly 6 million barrels per day flowed into the United States in December - the lowest figure since February 1992 - while Chinese imports jumped to 6.12 million barrels per day. The United States

had held the top spot since 1972, just before the oil crises and stagflation of the 1970s.

The exact figure is not so important: Monthly estimates are volatile, Chinese imports peak during the winter, and the United States is still a much bigger gross importer of crude oil (it exports ever larger amounts of refined products). But China will clearly move into a consistent lead during this year, or next.

Americans may not like to be second in anything, but this news actually affirms the superiority of the U.S. energy model over China's. The United States is consistently employing new technology to produce more energy in ways that are increasingly environmentally friendly. Beijing's growing weight in world oil markets, meanwhile, should not be a matter of pride, but of concern. China's rising dependency on energy imports doesn't make the country stronger - it makes China more vulnerable to forces beyond the country's control.

Nevertheless, this is the latest in a series of milestones that illustrate the economic rise of the Middle Kingdom. In 2006, it passed the United States as the world's largest carbon dioxide emitter. In 2010, it became the world's leading energy user. Its ravenous appetite for resources makes it the biggest consumer of coal, iron ore, aluminium, copper, gold, wheat, rice, meat, and many other commodities. In the next few years, China will overtake the United States as the world's largest economy - if it has not already done so.

China's growth has been the largest single factor in the record oil prices over the last decade. That has led to a host of geopolitical consequences: the economic boom in the Persian Gulf, the empowering of authoritarian leaders from Russia's Vladimir Putin to Venezuela's late Hugo Chávez, economic stress in developed countries, rising food and fuel prices, and a new push for breakthrough energy technologies such as shale oil and gas, as well as wind and solar power.

The United States is setting energy milestones of its own. Its drop in imports is partly due to an anaemic economy, which has resulted in dwindling consumption, tighter mileage standards, and an incentive for efficiency spurred by high prices. More important, however, is the U.S. boom in production, driven by the breakthrough in hydraulic fracturing, which has unlocked oil from shale deposits in North Dakota and south Texas - with Louisiana, California, Ohio, and others to come - and revived production from oil fields.

The Wall Street Journal also contended this week that the United States moved ahead of a different kingdom: The newspaper said the country became the world's largest liquid-fuel producer in November, surpassing Saudi Arabia. The calculation is a bit dubious, as it depends on throwing everything - crude oil, biofuels, propane, other extracts from

natural gas, gains from refinery processing - into the bucket. Beyond the hype, however, the United States is set to become the world's biggest oil producer by 2017 and will begin exporting large quantities of liquefied natural gas (LNG).

North America, with Canada supplying the United States, might be a net oil exporter as early as 2020, according to Citigroup's veteran oil watcher, Ed Morse - though that seems optimistic. Renewable energy has also boomed, and greenhouse gas emissions have dropped.

China's strategic purchases have, with rare exceptions, not improved its energy security. They have also landed it in political trouble abroad. After financing and arming Khartoum during Sudan's civil war, China suffered a backlash when the pipeline from newly independent South Sudan - where most of its fields lie - was cut over border and transit-fee disputes. Now Chinese state companies are buying stakes in American shale projects, which the United States should welcome despite some attempts to raise spurious national security concerns.

At the same time, China has tussled over speculatively oil-rich islands in the East China and South China seas with Japan, the Philippines, Vietnam, and others, encouraging its neighbours to turn to the United States for protection. Beijing also continues to worry over long energy supply lines from the Persian Gulf and West Africa. However it solves this problem, it also must heed the fact that pollution is increasingly a hot-button political issue. In the city of Guangzhou, for example, the lungs of people in their 40s have turned black from coal smoke.

Can China repeat the United States' success? It is thought to have massive shale gas resources of its own and probably shale oil too. It also plans to use natural gas vehicles to cut oil consumption, has tougher mileage standards than the United States, and is working on electric vehicles, synthetic fuels, and renewable energy. But Beijing still has a long way to go. It does not even have a real energy ministry - though a "super-ministry" is said to be in the works - meaning policy responsibility is scattered across the government.

In the face of political, social, and environmental threats, Beijing has to keep the economic juggernaut rolling. Economic slowdown could not only lead to severe domestic unrest in China, but it could upset all the calculations of the world's energy companies and oil exporters.

There are dangers too for the United States in this new situation. Given that the country has spent much of the last few decades talking of "jawboning OPEC" to increase production and complaining about Russia's gas monopoly, it would be monumentally hypocritical of the United States to continue its ban on crude-oil exports or put major restrictions on LNG projects. To do so would undermine its relations with key allies such as Japan and

South Korea, which are critical partners in balancing China's growing power in East Asia.

Whatever happens, the improving U.S. energy position will not cause it to abandon the Middle East. The U.S. Navy's 5th Fleet will not pull up its anchors in the Persian Gulf tomorrow. American oil imports from the Middle East have not yet fallen much - Africa has borne the brunt of the decline. And even an energy self-sufficient United States would be exposed to world oil prices - its key allies in Europe and East Asia even more so.

Washington also has other reasons - Israel, Iran, terrorism - to remain engaged in the Middle East. Indeed, it is booming U.S. oil production - along with that of Iraq and Saudi Arabia - that has allowed such stringent sanctions on Iran without triggering another great oil shock. Both producers and customers well remember how energy crises swiftly followed the end of previous Gulf security orders, such as the withdrawal of British forces from the small Gulf states in 1971 and the fall of the shah of Iran in 1979.

Nevertheless, Washington is battling a fiscal crisis, and it's searching for ways to reduce its military commitments. That has led some to wonder whether others should share more of the burden of guaranteeing energy security. The Arab Gulf states, looking nervously at America's oil boom, worry they might be left to the tender mercies of Iran. As a result, they have begun to deepen relations with their Asian customers, though predominantly with Japan and South Korea rather than China. At the moment, however, they are not worried enough about the big threat: a slump in oil prices colliding with bloated budgets.

Energy windfalls can be a blessing and a curse: An oil boom allowed Soviet leader Leonid Brezhnev's regime to coast through the 1970s and avoid vital reform. Without drawing a false analogy between the United States and the Soviet Union, Americans should still be wary of allowing swelling oil and gas revenues to divert them from addressing deep domestic economic, environmental, and political problems, or tempt them into reckless overseas adventures. Beijing, meanwhile, may find that it is energy that compels deep changes in how it engages with its own people and the rest of the world.

***A version of this article appeared in the Foreign Policy Magazine on March 8th, 2013***

## Masdar may have the glamour but Baraka has real nuclear power

***By Robin Mills***

A Google search for Masdar UAE yields more than two million hits; a search for Enec UAE, the Emirates Nuclear Energy Corporation, just 19,000. Abu Dhabi's renewable energy ambitions have attracted the world's attention in a way that its nuclear power plans have not.

But for the country's future energy and environmental needs, the plant now taking shape at Baraka in the Western Region is more important than the solar panels at Masdar City.

Construction began on the first reactor last July, and last week Enec applied for a licence to build the third and fourth. The first reactor should begin generating power in 2017, easing an uncomfortable crunch in the UAE's gas supplies.

By 2020, Abu Dhabi's planned solar power should save about 1 million tonnes of carbon dioxide emissions (the Emirates as a whole produces about 227 million tonnes of the global warming gas annually). By comparison, Baraka could make a quantum leap, cutting some 16 million tonnes.

Not only is the nuclear plant almost four times as large as the planned solar installations, but it will operate virtually all the time - while solar panels average only a fifth of their rated capacity, yielding less in the winter, dawn and dusk, and nothing at night.

The big challenge will be to avoid the massive cost overruns and delays that have plagued plants in France, Finland, the United States and elsewhere. Inevitably, Enec too will face snags along the way. But if its reactors come in around budget, their electricity will be cheaper than that from solar power.

This is not a criticism of solar power, which has an exciting future in the Arabian Gulf.

The costs of solar panels are falling all the time; they can be installed quickly and flexibly. Renewable and nuclear power are not alternatives for the UAE - they are complementary. Enec will provide steady baseload supply, perhaps ultimately up to 40 per cent of capacity, while solar meets daytime peaks. Of all the Middle Eastern countries, the UAE has the best blend of political relations, money, economic rationale, public support and organisational competence to make a success of nuclear power. It has taken great pains to stress the peaceful nature of its programme and to agree to international safeguards.

But the future of nuclear power is less clear elsewhere in the region - politically explosive and a hot issue environmentally. Kuwait, which has foresworn nuclear, points out that Iran's Bushehr plant is closer to Kuwait City than Tehran, and lies in an earthquake-prone region.

Energy-poor Jordan has keenly pursued both solar and nuclear power - it has some uranium resources of its own.

But the nuclear plant has been held back by concerns over safety and water, by Jordanian environmentalists, and the sheer price tag.

Similarly, Egypt's relaunch of its nuclear power programme is almost laughably

optimistic amid the current political and financial turmoil.

Saudi Arabia's ambitious nuclear plans are vital for its future energy supply - with rising oil consumption and gas failing to keep up with demand. But the kingdom has a large technological and managerial gap to close, making the target date of 2019 for its first reactor wildly over-ambitious. And it suffers from the perception that its civilian nuclear power programme is at least partly intended as a signal to Iran over Tehran's alleged pursuit of nuclear weapons.

Given such radioactive concerns - political, environmental and budgetary - Enec has probably been wise to keep a low profile.

But if all goes well, as its electrons enter the grid in 2017, Baraka could become the UAE's top future energy champion.

***A version of this article appeared in The National newspaper on March 5th, 2013***

## Key MENA Energy Issues Scorecard

| | | | |
|---|---|---|---|
| Gulf gas price reform | 🟡 | ⇔ | Increased media attention; continued speculation on Saudi gas price increase |
| MENA unconventional gas | 🟡 | ⇔ | Saudi Arabia plans to drill 7 shale wells; announces estimate of ~600 Tcf resources in country |
| MENA renewable energy | 🟢 | ⇔ | Abu Dhabi's Shams-1 CSP plant starts operations; KA CARE white paper puts heavy stress on local Saudi content |
| MENA nuclear power | 🟡 | ⇔ | Survey reveals positive public opinion in the UAE; Baraka reactor vessel construction begins |
| Energy infrastructure security | 🟡 | ⇔ | Further pipeline attacks in Yemen; reported hostage-taking in Iraqi Kurdistan; South Sudan oil exports to resume |
| OPEC production | 🟡 | ↓ | 16-month low in February, down 30 kbpd on January, mostly due to Saudi Arabia and Nigeria; OPEC countries admit concerns over US shale oil, demand |
| East Mediterranean gas commercialisation | 🟢 | ↑ | Israeli apology to Turkey improves chances of a pipeline; possible impact of Cyprus bail-out negotiations |
| Kuwait energy projects progress | 🟡 | ⇔ | Kuwait announces $10.2 billion spending over next 5 years on oil infrastructure, heavy oil and gas |
| Abu Dhabi concessions renewal | 🟡 | ⇔ | Names of qualified companies unofficially released |
| Baghdad-Erbil oil agreement | 🔴 | ↓ | PKK ceasefire improves chance of KRG-Turkey oil deal; Iraqi budget cuts KRG allocation, and is agreed without Kurdish lawmakers'; Turkey-KRG deal reportedly in the works |
| Iraq oil production build-up | 🟡 | ⇔ | Production up 100 kbpd and northern exports increased; however exports dropped 3% due to bad weather around Basra |
| Egypt subsidy reform | 🔴 | ⇔ | Fuel rationing system to start in July; funds for diesel imports exhausted, causing shortages |
| Iran oil sanctions | 🔴 | ⇔ | New sanctions imposed on exports of Iranian gas; Indian refineries may have to halt purchases over insurance sanctions; further nuclear talks in Almaty 5-6th April |

Source: Manaar research

| | | | |
|---|---|---|---|
| 🟢 | Very positive | ↑ | Improvement in last month |
| 🟡 | Positive | ⇔ | No change |

| | | | |
|---|---|---|---|
| 🟡 | Negative | ↓ | Deterioration in last month |
| 🔴 | Very negative | | |

## Energy prices and Generation Costs in the Gulf

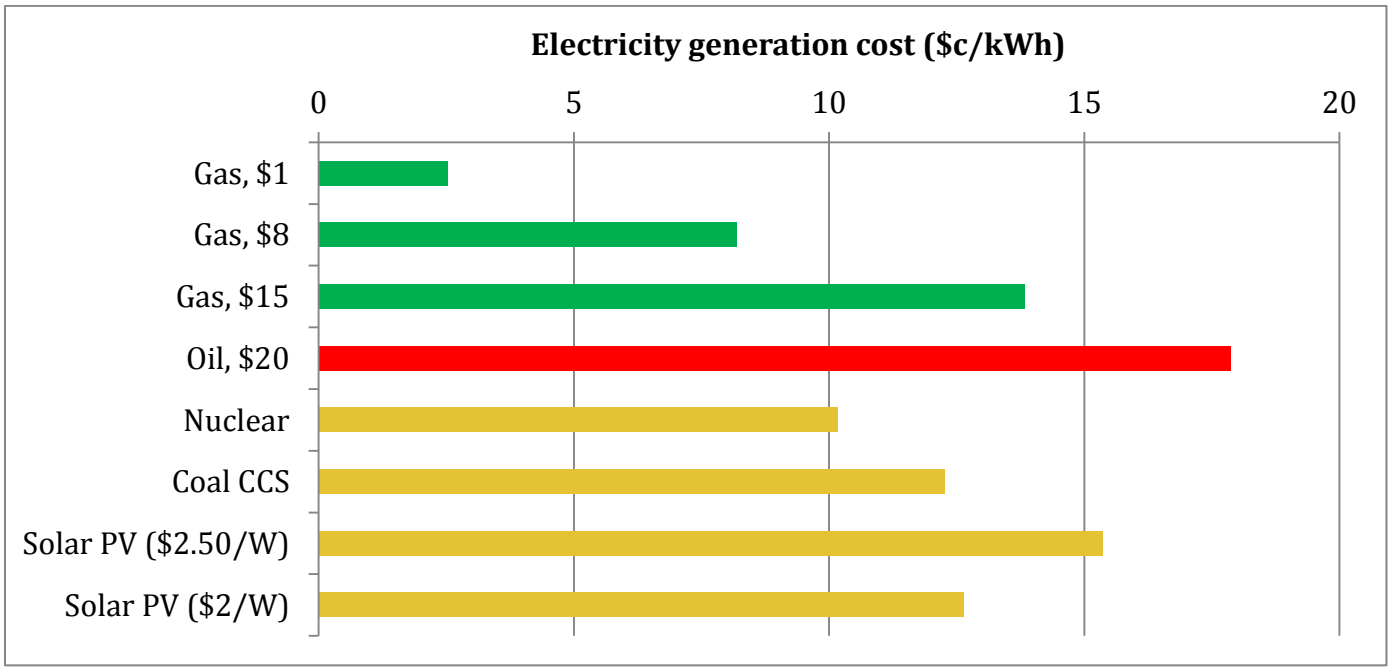
The following table represents March 2013 gasoline and diesel prices in selected MENA countries, with the US for comparison, and the direction of change since last month.

| ($/Litre) | Gasoline | Diesel |
|---|---|---|
| Iran* | 0.17 ↓ | 0.11 ↓ |
| Saudi | 0.21 | 0.09 |
| Qatar | 0.25 | 0.25 |
| Bahrain | 0.27 | 0.17 |
| Egypt | 0.27 | 0.27 |
| Kuwait | 0.30 | 0.27 |
| Oman | 0.40 | 0.48 |
| Yemen | 0.44 | 0.30 |

| ($/Litre) | Gasoline | Diesel |
|---|---|---|
| UAE | 0.48 | 0.67 |
| *US* | *0.965* ↑ | *1.055* ↑ |
| Iraq | 1.00 | 0.72 |
| Lebanon | 1.20 | 0.90 |
| Jordan | 1.54 | 0.975 |

*Non-subsidized allocation, at current (volatile) open-market exchange rate

Source: Gulf Oil Review; Manaar research




- Thermal generation (gas, oil) assumes combined-cycle turbine, baseload
- Alternative generation (solar, nuclear, coal CCS) is cheaper than LNG or oil
- However, high-cost domestic gas (e.g. unconventional) at approximately $8/MMBtu is still competitive against alternatives

## Current studies

### Hydraulic fracturing

Manaar has recently completed a study of the market for hydraulic fracturing in the MENA region, with PacWest Consulting. The report is available in MENA-only (29 pages) and worldwide versions (45 pages including the MENA section). The report addresses historical and forecasted frac demand, supply, utilization, constraints and trends. Market coverage also includes current hydraulic fracturing projects, unconventional potential assessments 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.

| Dimension | Score | Description |
|---|---|---|
| Geology | | • Excellent geology that underlies the most prolific petroleum system in the world; Rub' Al Khali results disappointing thus far |
| Pricing regime | | • State-set at very low $0.70 per mcf; unlikely to change soon; very problematic for foreign operators seeking JVs; less of an issue for Aramco, which wants to displace oil |
| E&P diversity | | • Aramco dominates; JVs with three IOCs in the Rub' Al Khali have been disappointing; fiscal terms are difficult |
| OFS capacity | | • SLB and HAL already serve the country, and BHI and others should enter the market in the next few years |
| Regulatory landscape | | • Aramco is able to operate with little government interference, but challenges exist for foreign operators, if allowed to operate in unconventional development at all |
| Infrastructure | | • Very well-developed infrastructure from existing petroleum output in Ghawar and northwest, but Rub' Al Khali is isolated |
| Development constraints | | • Public very supportive of increased output |
| Weighted Score | 2.6 | |

Figure 1. Country attractiveness matrix for Saudi Arabia

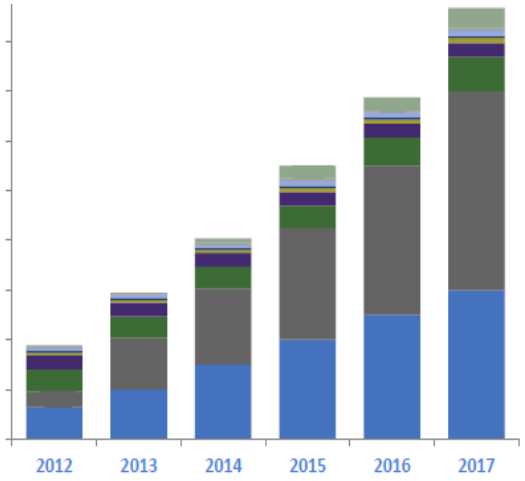



Figure 2. Forecast frac capacity, per MENA country

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### 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 large Gulf-based and international petrochemical producers and gas suppliers.

## Recent & Forthcoming Events

Robin Mills spoke at the Argus Mideast Gulf and Indian Ocean Oil Conference. Key messages were:

- MENA is seeing fast growth in all product categories, particularly naphtha, diesel and gasoline
- More gas imports and regional unconventional gas developments will leave the refining and petrochemical sectors mismatched
- New regional gas markets and new sectors of gas use can have an important impact

Robin spoke at MEED Petrochemicals to address the petrochemicals and gas feedstock situation in the MENA region. Key messages were:

- Regional gas shortages are threatening the energy-intensive model of industrialisation
- The major shifts in the MENA and global gas industry will impact the region's petrochemicals sector
- The development of new MENA gas resources, and their type (dry/wet) is critical for the region's petrochemical industry
- Petrochemicals producers need to expect higher feedstock prices, but can remain globally competitive

Robin Mills spoke at the 2nd Annual Enhanced Oil Recovery & Heavy Oil Conference, Le Royal Meridien, Abu Dhabi on the 27 to 28th of March 2013. Key points were:

- MENA has the largest global potential for EOR, with more than 500 billion bbl of additional reserves accessible
- Carbon capture & storage, with CCS-EOR, is a critical technology for the MENA region
- The region's fiscal systems and NOCs need to adapt to make the most of EOR

Robin Mills participated in a discussion on Natural Gas and Investments in the Middle East at the Brookings Doha Energy Forum from April 1-2nd 2013.

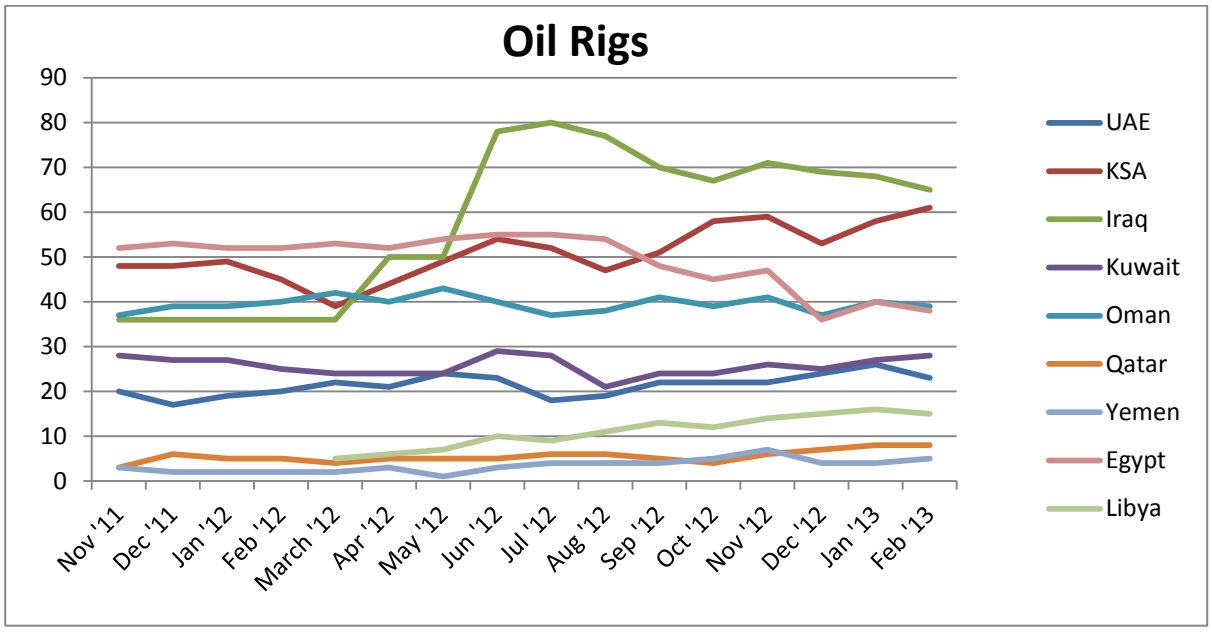
Jaafar Altaie will speak at the Middle East Petroleum & Gas Conference, Jumeirah Al Etihad Towers, Abu Dhabi on 21-23rd April 2013, on the Iraq oil market and its future outlook.

Jaafar Altaie will speak at the Doha Forum, Sheraton Hotel, Qatar from the 20th-22nd of May, 2013 on the effect of the US shale gas boom on the MENA region.

Please visit the links below to view some of the presentations by Manaar:

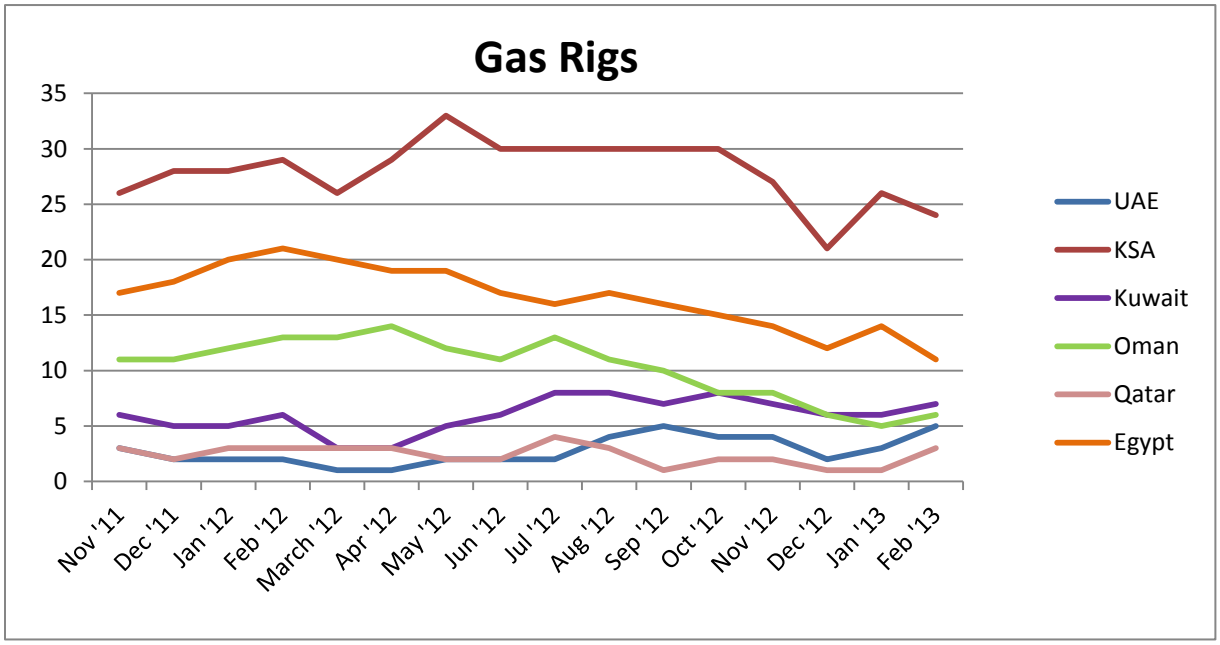
- Argus Conference, Dubai 2013
- Fleming Gulf EOR & Heavy Oil, Abu Dhabi 2013
- MEED Petrochemicals, Dubai 2013

## Regional Energy Statistics



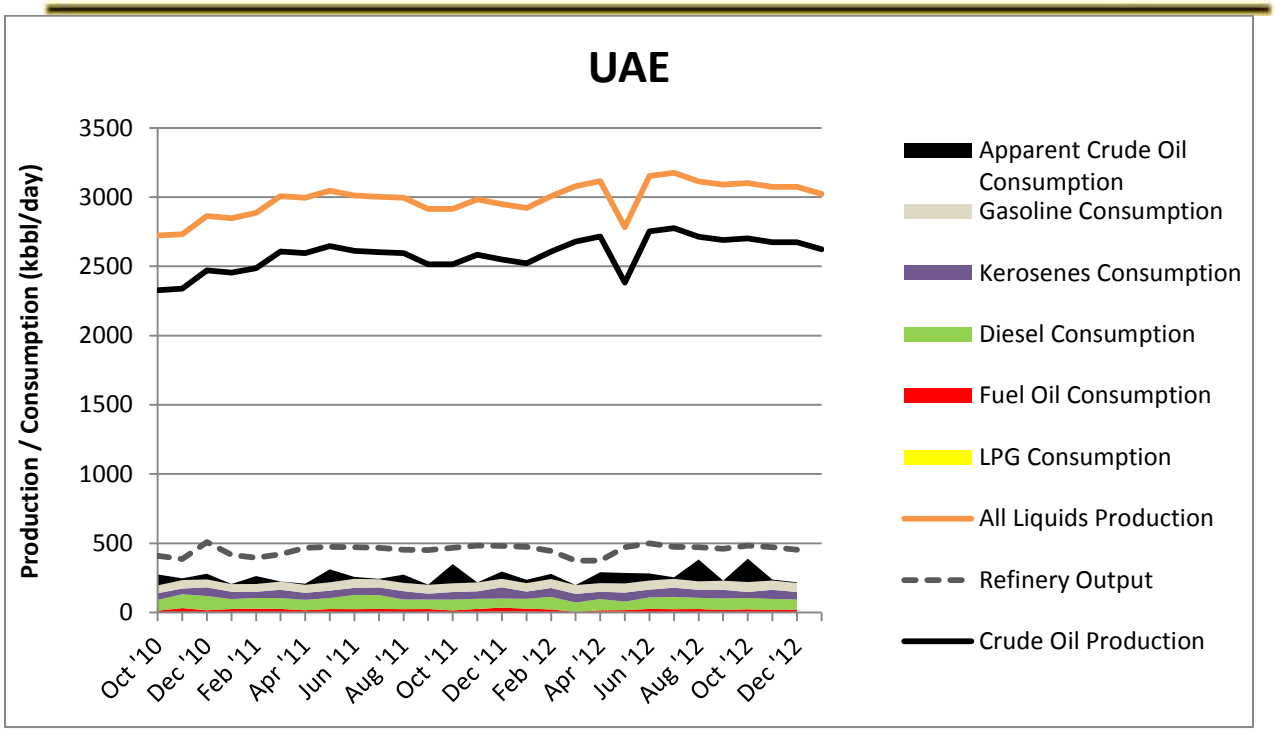

Source: Baker Hughes, Iraq: Baker Hughes and OPEC Monthly Oil Market Report

- Saudi Arabia remains close to a record rig-count with 61 rigs as of February 2013
- Egypt drilling recovered slightly in January, an increase in 4 rigs from December, but went down to 38 rigs in February, well below the levels sustained up to August 2012
- Iraq rig count is volatile and still settling down given that data collection was only resumed in June 2012; however, Iraq has the highest number of oil rigs in the MENA region with 65 as of February 2013
- Libya rig count was steady at around pre-revolution levels

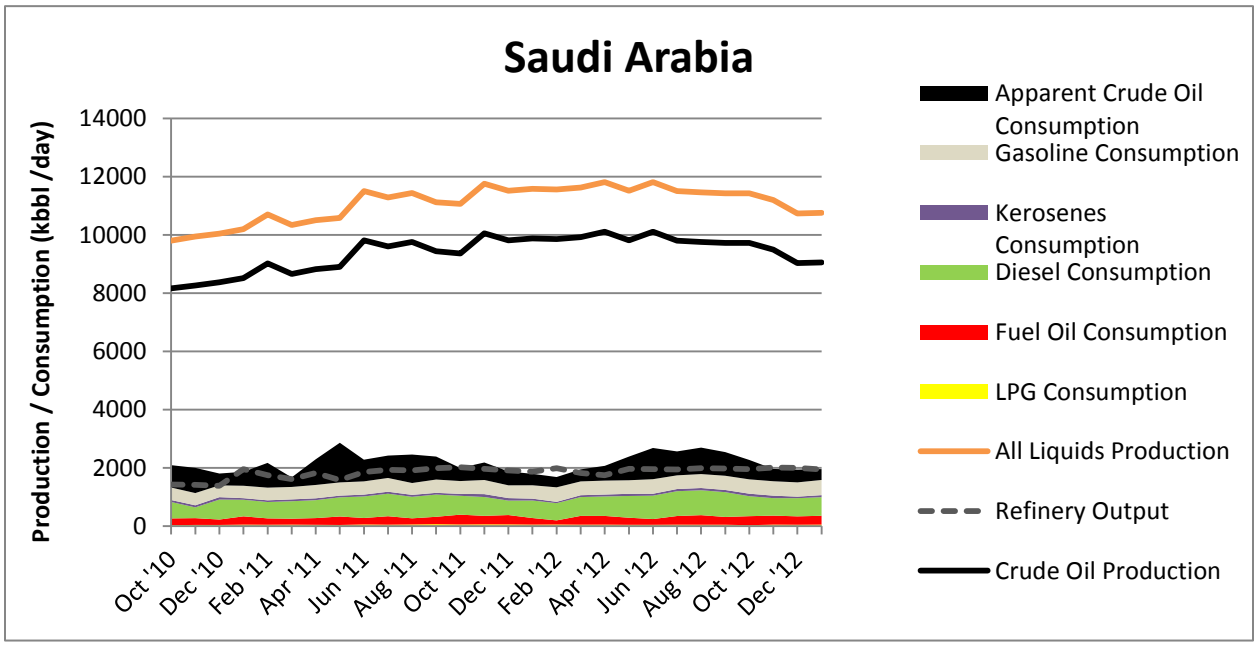



Source: Baker Hughes

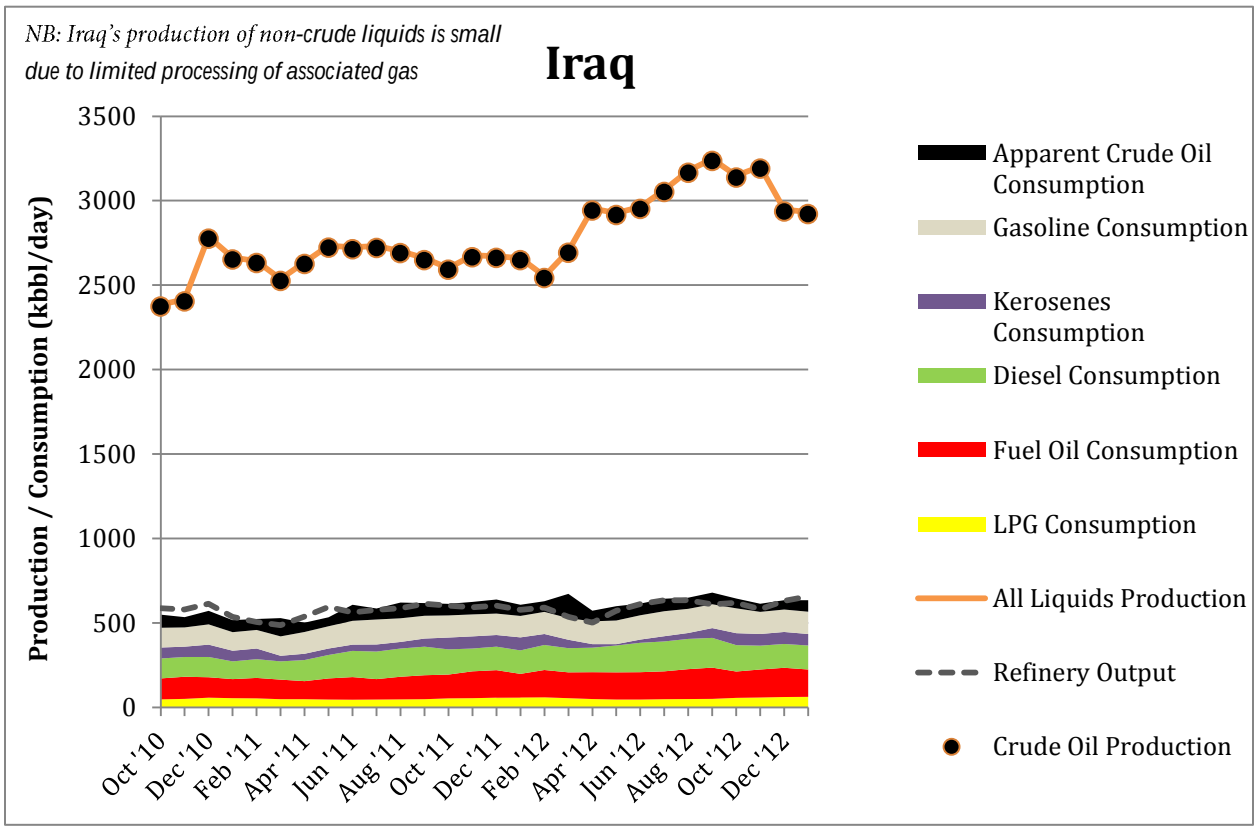
- Saudi Arabia's gas rigs rebounded from the low level in December. Gas drilling decreased again in February
- Egypt's gas rig count continued its sharp fall after a slight rebound in January, amid payment and political problems
- All UAE gas rigs are located in Abu Dhabi; there are no current gas projects in Dubai
- Oman gas rig count fell by 14% from August 2012 to January 2013, but increased to 6 in February 2013
- Qatar, UAE, Oman and Kuwait gas rig counts have increased from January 2013

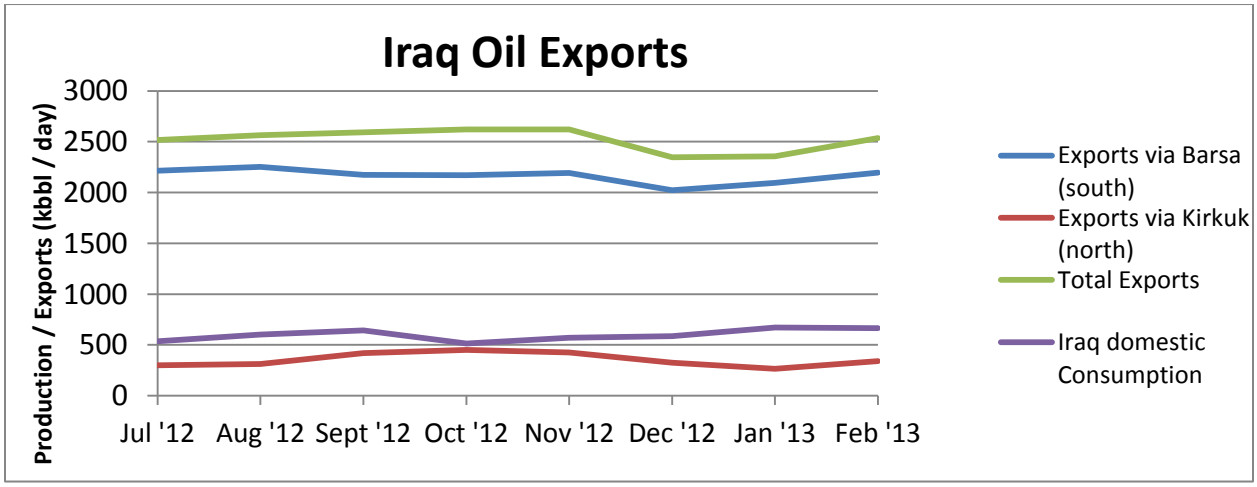



- UAE crude production continued to fall in February from 2.674 Mbpd in December to 2.623 Mbpd in January 2013, in alignment with Saudi Arabia's production cuts



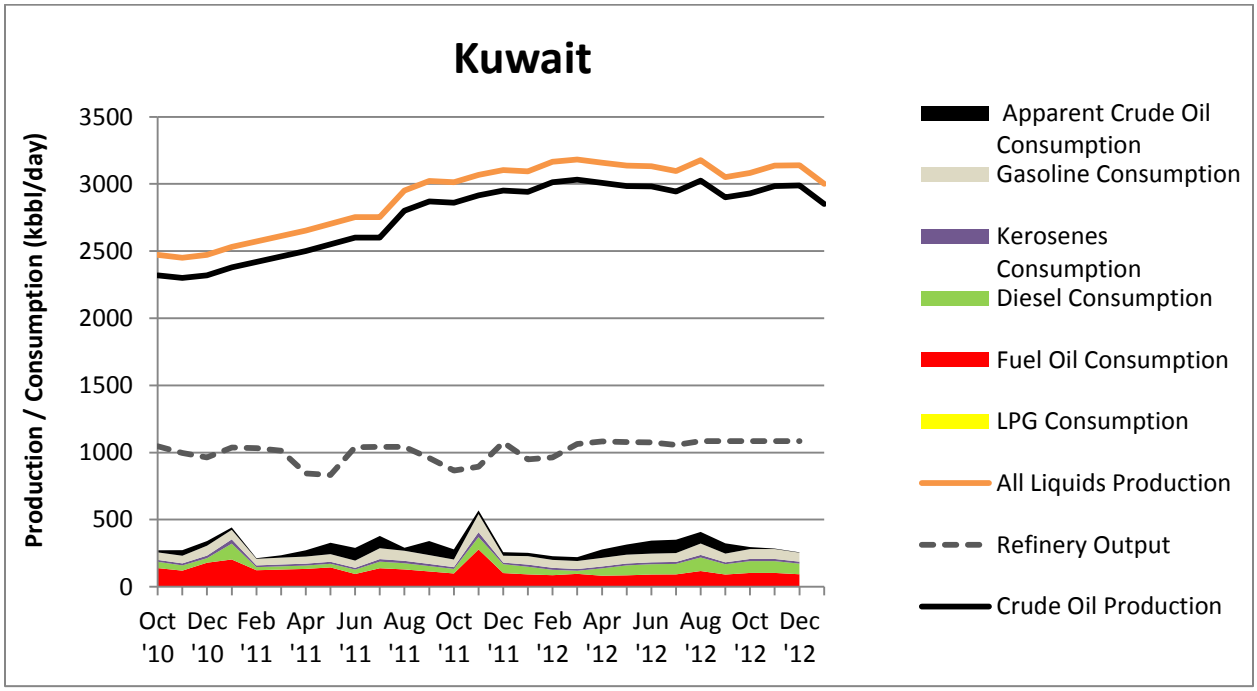
- Saudi crude production was up slightly at 9.050 Mbpd in January as against 9.025 Mbpd in December, the December cut having achieved its aim of preventing inventory build
- Total January crude consumption was down 0.065 Mbpd from December 2012
- The decrease in consumption may be linked to the temporary shutdown of Yanbu refinery for maintenance

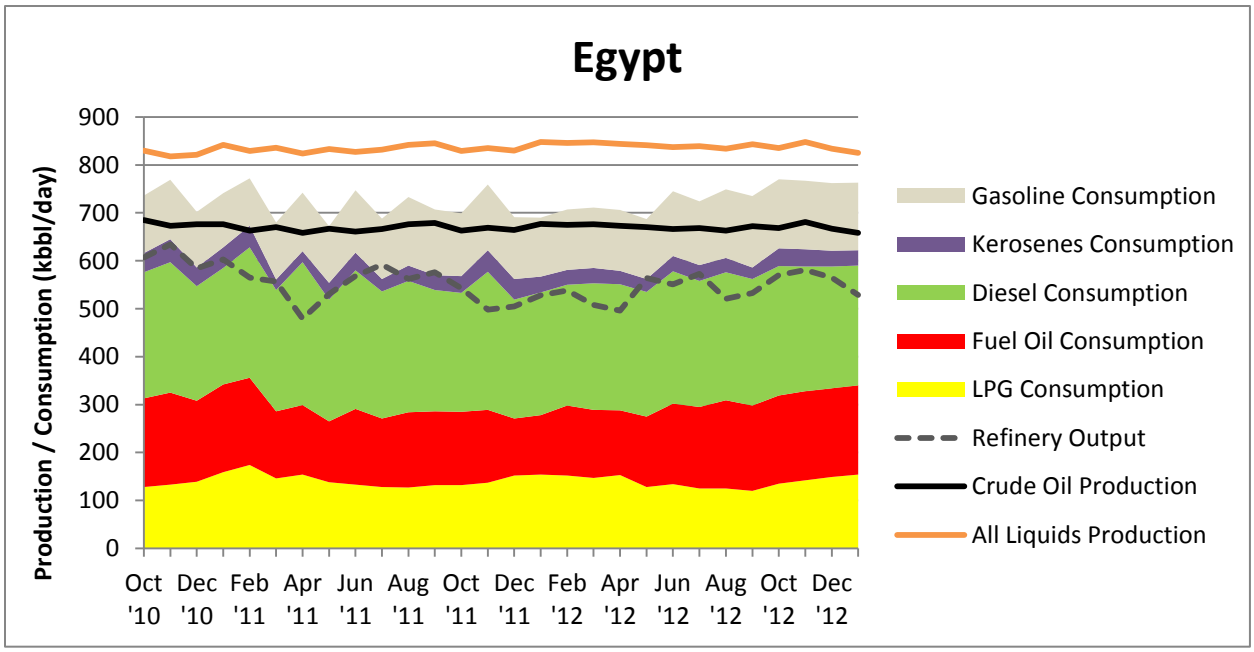



Source: Iraq Oil Ministry

- Iraqi production rose in January to 3.03 Mbpd in January, contradicting official figures which show that production fell below 3.0 Mbpd
- Southern exports recovered from December but are still at their lowest since June 2012; they were affected by bad weather and maintenance at Rumaila
- Crude oil exports began to rise as demand from Asian countries climbed



Source: JODI, OPEC, Middle East Economic Survey & EIA

**NOTE: All crude oil consumption values are apparent due to unreported / misreported stock change values and refining gains/losses.**

## Recent & Forthcoming MENA Licensing Rounds

| Country | Round | Launch Date | Blocks on Offer | km² offered | Blocks Awarded | Closing Date |
|---|---|---|---|---|---|---|
| **Egypt** | EGAS | Jun – 12 | 15 | 57,300 | - | Feb – 13 |
| **Egypt** | EGPC | Sep – 11 | 15 | 18,000 | 11 | Mar – 12 |
| **Egypt** | Ganope | Dec – 11 | 20 | 125,577 | - | May - 13 |
| **Iraq** | 4th Licensing Round | Apr – 11 | 12 | 80,700 | 3 | May – 12 |
| **Iraq** | 5th Licensing Round | NA | >60 | NA | - | NA |
| **Lebanon** | 1st Licensing Round | Feb - 13 | nk | 22,730 | - | May -13 |
| **Syria** | Offshore | May – 11 | 3 | 9,038 | 0 | Oct – 11 |
| **Oman** | MOG | Jan – 12 | 4 | 26,837 | 2 | Aug – 12 |
| **Oman** | MOG | Nov – 12 | 7 | 103,422 | - | Jan – 13 |
| **Yemen** | 6th Licensing Round | Sep – 12 | 5 | 20,132 | - | NA |

Source: Deloitte

## Key Manaar people

**Jaafar Altaie,**
**Managing Director**
Jaafar founded Manaar in 2009 in response to growing international interest in Iraq. With a background in economics and engineering, Jaafar has worked for BP, Nomura, Petrobras and the Iraq Ministry of Oil.

**Robin Mills,**
**Head of Consulting**
Robin is an expert on Middle East energy strategy and economics. He is the author of two books and a prolific writer on energy and environmental issues. He worked for 15 years in geology and economics for Shell and the Dubai government.

**Chad Al-Sherif Pasha**
**Advisor**
Chad is a geo-political advisor and senior project manager with a successful track record developing strategic initiatives with corporations and governments. He has particular expertise in Central Asia.

**Roa Ibrahim**
**Industry Analyst**
Roa Ibrahim received her Bachelor's degree in Finance from the American University in Dubai and her Master's degree in Applied Finance and Banking from the University of Wollongong in Dubai. Roa has produced expert analysis of petroleum fiscal systems, hydraulic fracturing and shale gas.

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