Newsletter

August 2017

Issue 16: Read our piece on the Syrian Oil Conundrum

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A Syrian boy working at an oilfield near Deir El Zour (Photo courtesy of McClatchy)

About Our Newsletter

Our monthly newsletters are organized into three sections:

The first is the *Articles* section which contains 3-4 articles relating to energy in MENA written by our CEO and other contributors from Qamar.

The second section is the *MENA Energy Review* where we give our readers an overview of the previous and current month's energy developments. This includes oil and gas rig counts; fuel prices; OPEC and its engagements; and a synopsis of MENA's positive and negative energy updates.

The third section is *About Us* – a look at what we do and who we are.

Read recent editions of our newsletter

- March 2017
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Qamar Energy Newsletters

In this Issue

Syrian Oil a Continuing Conundrum

By Robin Mills

A version of the article appeared on The National newspaper on July 23, 2017

Syria has never been a major petroleum power, but oil is a key resource fought over by all the factions in its civil war.

ISIS, the great profiteer from looted oil, is now under siege in its capital of Raqqa and largely defeated in its Iraqi base of Mosul. Yet hydrocarbons will continue to shape the country's war economy.

Conspiracy theories that the war was triggered by a Qatari desire to build a gas pipeline across the country, always ridiculous, have been further discredited by the current Saudi-led embargo of Doha. Similarly, absurd are ideas that western companies are set to profit in some big way from Syrian oil or perhaps offshore gas. On the contrary, Shell, Total and others lost valuable assets with the outbreak of the war.

The real importance of Syria's hydrocarbons is to be found within the country, and with its immediate neighbours. From 2014, when it captured the Omar field, ISIS controlled most of the country's production. National oil output of 385,000 barrels per day in 2010, the last year before the war, plummeted to about 100 000 bpd by 2015, of which ISIS extracted 65,000 bpd, the Assad regime 10,000 bpd and the Kurdish-held north-east 25,000 bpd, as reported by Hussein Al-Mohamad and Andreas Dittmann of the University of Giessen.

Along with fields in Iraq that it controlled for a time, Syrian oil was a key source of ISIS financing. It inserted itself into a complex web of smuggling, provision of fuel to hold the loyalty of its territories, and local deals with tribes who were given cuts of oil wells. It also continued to sell gas to Assad regime-controlled power plants, even while it seized gasfields around Palmyra, now recaptured.

Now the US-led anti-ISIS coalition has been attacking ISIS oil assets more aggressively than ever. Figures from the US consultant Matthew Reed indicate that, since the middle of last year, the US has bombed wells extensively for the first time, which were previously avoided in fear of environmental damage. It has stepped up the tempo of strikes on trucks and backyard oil refineries. ISIS's production may now be below 10,000 bpd.

Earlier this month, the Syrian army said it had captured small oilfields in Raqqa province and, advancing on the town of Sukhna, was on the way to approach Deir Al Zor, the heart of Syria's oil industry. But the fighting and the crude extraction methods will leave a damaging environmental legacy, as well as a wrecked local economy for whatever replaces ISIS's authority.

Perhaps revealingly, pro-Assad western outlets, shrill on the pipeline conspiracy theories, have said little on *New York Times* reports that Russian companies have been offered shares in any natural resources they can secure from ISIS. Stroytransgaz, which built gas pipelines in pre-war Syria, was given a phosphate deposit, while Evro Polis was reportedly promised a quarter of oil and gas on territory it captures from ISIS. Both are linked to Russian individuals sanctioned by the United States.

The Kurdish region contains large heavy oilfields, notably Rumailan and Suwaidiyah, which crosses the border into Iraq. After producing solely for local use, the Kurdish Democratic Union Party (PYD), now exports oil both through Turkey and the Kurdish region of Iraq, as well as to Assad-controlled areas. The PYD's armed forces have been the spearhead of the anti-ISIS campaign, but it remains to be seen whether the US will continue to back them, and how the Kurdish cantons will achieve economic independence.

Prospects for an autonomous Kurdish region, Rojava, to emulate its Iraqi cousin and develop and export oil on a large scale, are doubtful. Insecurity and legal uncertainty make it near-impossible for international companies to return. Possible pipeline routes are blocked by Turkey to the north, their Iraqi Kurdish rivals to the east and Assad to the south. But at some point the Kurds could strike a deal with the Assad regime to reopen the pipeline that runs south of Raqqa, to Homs and the Mediterranean.

A recent World Bank report lays out the toll the war has taken on all sectors of the Syrian economy. Petroleum, which made up about 27 per cent of the pre-war economy, has shrunk to negligible levels, while the total GDP has fallen 63 per cent.

The pariah Assad regime cannot expect much in terms of international aid – its main allies, Russia and Iran, have already spent lavishly on supporting his war effort, and have their own bills to pay. EU sanctions on Syrian oil exports remain, while efforts to block illicit trucking of crude by ISIS through Turkey and Iraq have escalated.

Terrorist-linked and sanctioned groups will remain deeply embedded in what remains of petroleum operations and trade. Control of fuel and electricity, like food, is a key tool of regime control.

Yet repairing the oil and gas sector will be critical to restoring electricity, providing local fuel, funding reconstruction and providing government revenues – whether to Damascus or local autonomous administrations. As the guns fall silent in some areas, even while slaughter continues in others, the tangled web of Syrian oil will continue to ensnare.

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ADNOC Proves to be Great Bridge Builder

By Robin Mills

A version of the article appeared on The National newspaper on August 14, 2017

"When a company faces challenging times," says a senior ADNOC executive, "it can build a wall or a bridge. ADNOC has chosen the bridge."

From its newly-opened offices, a panoramic view over the corniche is a reminder of how much the Abu Dhabi state oil major matters to the emirate. Its strategic transformation is a response to lower oil prices, to the choices of its competitors and to the need for it to continue driving the national economy.

The company has come out with a spate of initiatives in recent months: mergers of its offshore operating units in October, the award of shares in its onshore subsidiary ADCO to two Chinese companies in February, and discussions for strategic drilling and petrochemical partnerships in July. Last Monday it announced that it would split its offshore ADMA concession into two or more parts when re-awarding it next year, and is talking to more than a dozen potential partners.

Also reported, although not confirmed by the company, is the prospect of an IPO of its fuel retail arm, ADNOC Distribution, on the Abu Dhabi stock exchange. But ADNOC has stressed strongly that, unlike Saudi Aramco, it is not planning an IPO of the parent company or of its upstream (oil and gas-producing) units.

The company's financial management is also changing, with ADNOC said to be in discussions for a US$4 billion to 5bn loan and a $3bn project bond. Money, while always welcome, is not the key incentive either for the debt-raising or the IPOs. Instead, the aims are to optimise the capital structure, and attract new partners who bring finance, markets and new skills.

ADNOC, for long a traditional, staid and cautiously-moving national oil institution, has entered an unprecedented transformation. Along with the headline-grabbing announcements, the internal corporate culture is being reshaped to be more efficient, faster and commercially minded.

Such moves are essential. Oil prices are likely to remain around today's levels for an extended period, in the absence of a geopolitical upset. ADNOC has quite ambitious plans to grow production capacity from the current 3.1 to 3.5 million barrels per day by next year. But production may be constrained for a while by adherence to OPEC limits.

If volumes and price are not growing, the company needs to wring more value out of every barrel. Efficiency and cost-cutting, while vital, go only so far. As other national oil firms are belatedly discovering, it has to create value from integrating refining and petrochemicals, from oil storage and trading, and from retailing fuels.

ADNOC's competitors are not standing still. As noted, Aramco is looking to list 5 percent of its stock on an international exchange, though it remains undecided on some key details. Kuwait Petroleum Corporation is considering selling some shares in subsidiaries. Oman is divesting shares in drilling, petrochemicals and refining, and oil minister Mohammed Al Rumhy unashamedly says that cash is a key motive.

As Aramco does, ADNOC should see international oil companies as peers and competitors, too. Shell, BP, Total and others recently reported strong results as cost-cutting drives bore fruit. Shale oil producers are driving up productivity with new technology.

ADNOC itself is open-minded to who its new partners may be. Traditional oil companies, traders, firms from key customers such as China, Japan and South Korea, financial institutions and pension funds are all possible players in different parts of the business. Supporting infrastructure, such as gas pipelines, has proved in the US a popular area for specialist investors seeking long-term, steady returns. Most importantly, in keeping with the bridge-building strategy, is that ADNOC is not dogmatic about who its partners should be, and is open to new and creative possibilities.

Some significant questions remain. While other national oil companies have spent heavily on acquiring overseas refineries and retail networks such as Kuwait's Q8, believing this helps them gain market share, ADNOC has not. Other than some strategic storage in India and Japan, ADNOC has avoided such capital-intensive, inflexible investments. But what will be the future role of ADNOC International, set up with $1bn of capital in December 2015?

And how can the emirate's other energy investments best support ADNOC's strategy? Mubadala has a successful overseas oil and gas production business, and Ipic, which merged with it in January, owns international refining and petrochemical plants. About $38bn of the merged group's assets are in petroleum. It owns 64 per cent of Borealis, which works with ADNOC in the Borouge petrochemical complex, and 24.9 per cent of the Austrian oil company OMV, another partner with ADNOC in exploration and production in Abu Dhabi. Meanwhile, the future of the heavily-indebted Taqa's oil and gasfields in Kurdistan, the North Sea and Canada is unclear.

Choosing a few from the galaxy of potential partners is a tricky blend of financial, technical and political criteria. The new ADNOC strategy is distinct from its neighbours', for good practical and historic reasons. The definite new atmosphere of dynamism around ADNOC headquarters is encouraging – the country needs its prime engine to be firing on all cylinders.

Natural Gas Heads for Middle East Doldrums

By Robin Mills

A version of the article appeared on Bloomberg View on August 16, 2017

Conventional wisdom says that Middle East natural gas demand will continue to surge. In the 10 years through 2016, consumption rose by 25 billion cubic feet a day -- much more than in both the U.S., despite its shale boom, and China. BP Plc's 2017 energy outlook sees demand rising from 47 Bcf a day in 2015 to 73 Bcf by 2035. National oil companies and liquefied natural gas exporters are both relying on the region's appetite to justify ambitious expansion plans. But this is about to change.

The story of how we got here can be simply told. The region's economic boom from the early 2000s on, fueled by high oil prices, led to rapid growth, the construction of new cities and demand for air conditioning, winter heating, cooking, desalinated water and all the other accoutrements of a comfortable life.

Governments pursued energy-intensive industrialization, seeking to diversify their economies into sectors where they had a competitive advantage: petrochemicals, aluminium, steel and cement. Mindful of social pressures, they subsidized natural gas, electricity and water, leading to runaway demand and inefficiency.

At the same time, cheap gas, a byproduct of oil production, was increasingly fully utilized. Political and commercial differences derailed projects to export from Qatar's giant North Field and the contiguous South Pars Field in Iran. Similarly, a pipeline from Egypt to Jordan, Israel and Syria was repeatedly sabotaged; it then ceased operations as Egypt ran short of gas for its own needs.

Remarkably, states in one of the world's three most gas-rich regions began to import liquefied natural gas (LNG) by tanker: Kuwait in 2009, Dubai in 2010, Israel in 2013, Egypt and Jordan in 2015, Abu Dhabi in 2016. The city of Sharjah in the United Arab Emirates and Bahrain plan to import LNG in 2018 and 2019, respectively. Even Saudi Arabia has recently talked of LNG imports.

Every reaction, though, has its inevitable counterreaction. Gas producers and exporters eyeing the Middle East market should no longer see it as a bottomless well of demand.

The counterreaction is coming on three fronts: economics, efficiency and competition. Relatively low oil prices have led to subdued growth, even recession in places, and expatriate populations in parts of the Gulf have shrunk as state employers are told to save money. There is less money for flashy new infrastructure. The great wave of gasification in Iran has almost run its course, with even remote villages connected to the grid, so future demand isn't being driven by new customers. Similarly, new industry across the region can no longer rely on cheap gas to be viable, a contrast with the U.S., where shale is keeping prices low.

The oil and gas price downturn has made governments aware of the exorbitant cost of their subsidies. By reducing the gap between local regulated rates and international prices, it has paradoxically made them easier to reform. Iran boosted gas, electricity and fuel prices back in 2010, though inflation and sanctions have undone some of the effect. Subsequently, the U.A.E., Saudi Arabia, Oman, Bahrain, Egypt, Jordan and others have followed suit.

The elimination or reduction of subsidies is bringing energy efficiency into fashion. Profligate gas turbines, which turn only 25 percent of the fuel into electricity, are being replaced by combined-cycle plants with efficiencies of 50 percent or more. Governments across the region are introducing efficiency standards for buildings and appliances, and consumers are becoming more conscious of waste.

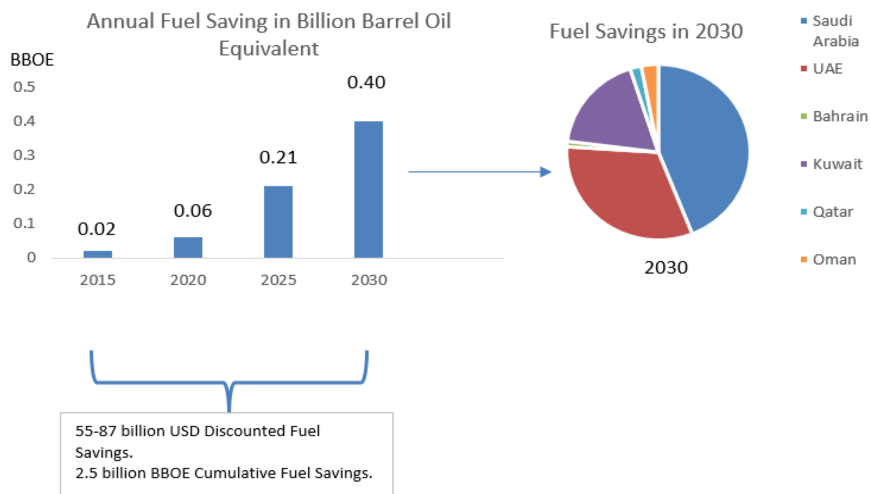
Higher natural gas prices and the shortage of domestic supply have led Middle East governments to turn to alternative sources. The U.A.E.'s large nuclear power program is set to begin generating soon.

On a different front, solar power, and in some places wind, is taking off, achieving world-record low prices in a region drenched in sun. With peak solar power production largely coinciding with summer air-conditioning use, this energy source could meet 20 percent of the region's electricity demand relatively easily, without the need for costly storage. Our research suggests that Saudi Arabia could meet its 2032 electricity goals by burning less oil, and a little more gas, at about the same cost as today.

Oman, meanwhile, is using solar thermal mirrors to make steam for enhanced oil recovery, saving gas. Dubai, Turkey and Egypt, however, are turning to coal, which is carbon-intensive but cheap.

Natural gas will still have a leading role, of course: It's relatively cheap and clean, and there's a large installed base of users. Existing gas-based industries won't stop working; Iran has many half-built petrochemical plants waiting for capital post-sanctions, and governments will keep pushing their diversification schemes despite the competitive challenges. Some countries will greatly boost domestic gas use -- most notably Iraq, but also Lebanon, Cyprus, and, security permitting, Syria, Yemen and Libya.

But regional gas demand growth, and especially LNG imports, are going to slow a lot. Companies targeting this market need to look to the future, not the past, to guide their plans.



Fossil fuel savings from GCC renewable energy targets by year and by country (Source: IRENA, 2016)

Arabia Monitor Energy

Description

The Arabia Monitor Energy (AME) reports highlight the key MENA events and data affecting short-term energy markets and economies and analyses the outlook on energy investments putting forward the key implications for those involved.

Our reports help companies, advisors and investors understand trends, risks and issues affecting the energy industry. We offer you scenarios on events that may affect your company's financials: the impact of devaluation in the GCC, return to stability in some unstable oil producers, economic diversification in the Gulf and more.

Our dedicated analysts from Qamar Energy and Arabia Monitor **use over 80+ years of experience** to produce forward-looking market oriented analysis at both country and asset level **across MENA**. Our forward-looking perspective places regional developments in a broader context and delivers strategic investment and decision-making insights.

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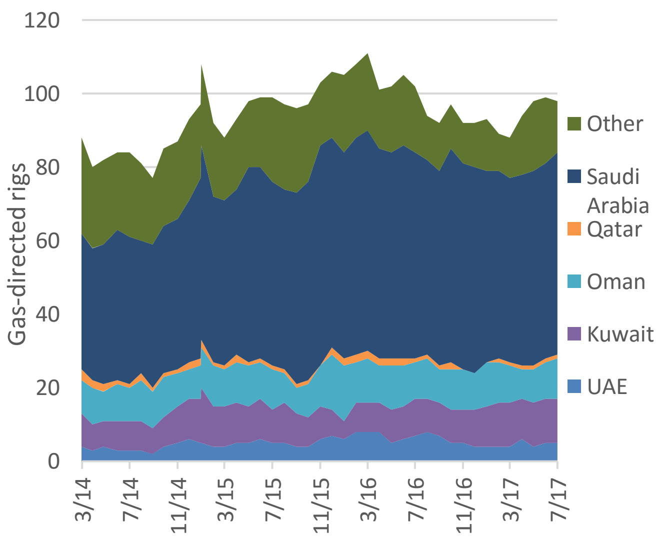
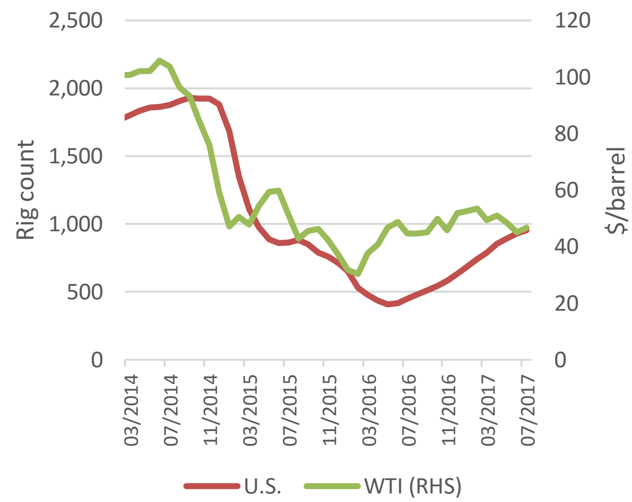
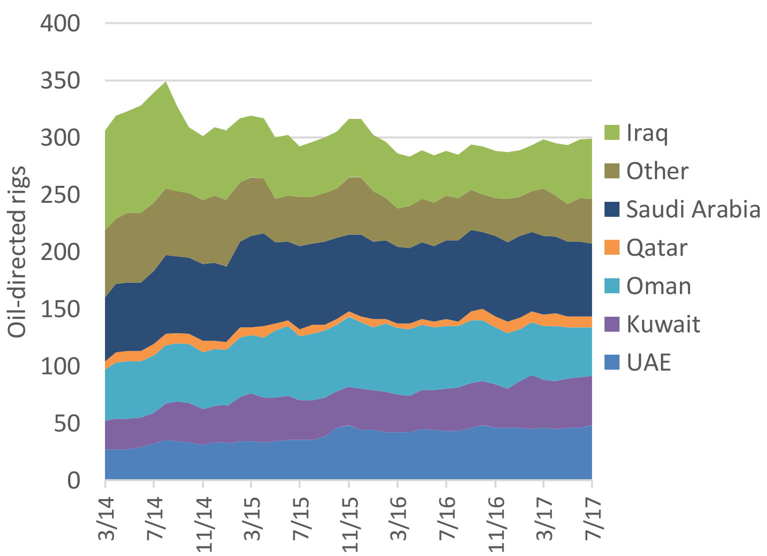
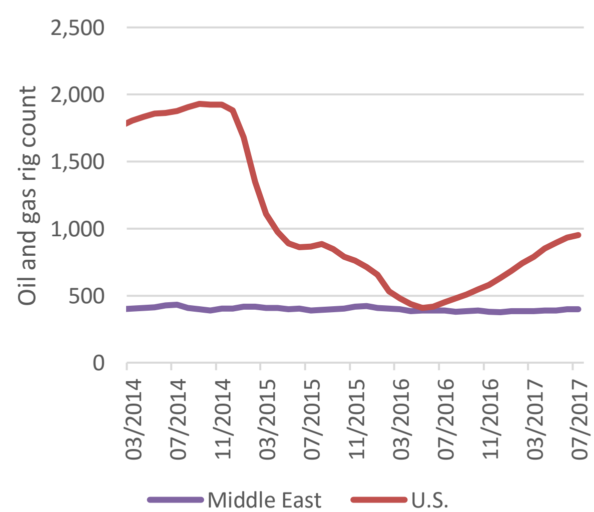
Rig Count Snapshot

- In July, Middle East oil rig count increased by +1 rigs and gas rig counts increased by -1 (not including Iran).
- **Oil rig count:** Kuwait -1, Oman -1, Other Middle East +1 (Pakistan, Sudan, Jordan, Syria, Egypt, Yemen).
- **Gas rig count:** Saudi Arabia +2, UAE 0, Oman +1, Other Middle East -4 (Iraq, Pakistan, Sudan, Jordan, Syria, Egypt, Yemen).
- Oil rigs increased by only +1 from last month. OPEC countries including Saudi Arab and Kuwait's oil rigs declined (-2 and -1 respectively) while Iraq's rigs increased by 2.
- For 2016 the average number of rigs (oil & gas) for the US was 510. This average has currently increased to 835 in 2017 (January - July).
- For July 2017, the number of active rigs in the US amount to 953 which is an increase of 22 from last month.
- Oil rigs are on the rise with higher efficiency lowering breakeven prices and higher availability of capital.









Rig count data: Baker Hughes; Oil price data: EIA

Fuel Prices and Subsidy Reform

The UAE was the first GCC country to remove fuel subsidies in August 2015. The other GCC countries, Saudi Arabia, Oman, Bahrain, Qatar and Kuwait have reduced subsidies. The UAE and Oman set prices monthly based on market levels, while Qatar adjusts them monthly based on a discount to the market. The following table represents the prices of gasoline and diesel ($/litre) for August 2017 in the GCC countries.

	Old ($/litre)		New ($/litre)	
	Gasoline 95	Diesel	Gasoline 95	Diesel
Saudi Arabia	0.16	0.07	0.24	0.12
UAE	0.46	0.63	0.52	0.54
Qatar	0.27	0.27	0.43	0.41
Bahrain	0.27	0.42	0.42	0.37
Kuwait	0.21	0.36	0.35	0.35
Oman	0.46	0.39	0.51	0.52
US (pre-tax)	0.62	0.57	0.62	0.55

Sources: EIA; News Sources

OPEC Watch

Strategy	Comments
Organization changes	• Created the Joint Technical Committee (JTC) to monitor adherence to the OPEC and NOPEC deal. • Saudi Arabia elected as OPEC president for 2017. • Equatorial Guinea joins OPEC as the 14th member. The country produced 157 kbpd in July. • Indonesia is open to re-joining OPEC, but only if it can determine its own production levels. No decision has been made on its membership yet.
Production Limit (Libya and Nigeria are exempt from deal)	• As of August, 2017, OPEC and participating non-OPEC producing countries achieved conformity level of 89% • Output from OPEC fell by 170,000 bpd in August, down from a year-long high in July – it stands at 32.83 Mbpd • Libya's production increased by 154.3 kbpd to 1,001 kbpd in July but decreased due to Libyan fields being shut down (militant attacks) - the supply outage may have prompted the fall in production by 350,000 bpd in August 2017. • Pressure on Nigeria from OPEC to decrease its oil output which stands around 1.8 Mbpd presently. OPEC agreed with several non-OPEC to cut oil output by a combined 1.8 million bpd from January 2017 until the end of March 2018.
Support from non-OPEC (NOPEC)	• NOPEC agreed to reduce output by 558 kbpd, but compliance rate of less than 100% so far. • Highest compliance rate was in May at 86% compared to 72% and 53% in April and March respectively. • Russian oil output slipped to a year-low of 10.91 Mbpd in August from 10.95 Mbpd in July • Russia, along with Saudi Arabia, is planning to extend the production cut deal for three more months until June 2018 • Kazakhstan has steadily increased output with the expansion of its Kashagan oilfield, but has now expressed its full support for the system to monitor the cutbacks • JMMC expressed its intention to invite Libya and Nigeria to attend the next meetings of the JTC and/or the JMMC.
Next OPEC meeting	• The Joint OPEC-Non-OPEC Ministerial Monitoring Committee (JMMC) plans to meet in Vienna, on the 22nd of September. • 30 November2017 – 173rd (Ordinary) OPEC Meeting in Vienna, Austria • The 5th Meeting of the JMMC is scheduled to take place in September 2017, or earlier if deemed necessary.

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Key MENA Energy Scorecard

Qatar crisis	🟠	⇔	Qatar announced return of its ambassador to Iran prompting negativity from Arab nations; Major Qatari shipping conglomerate Qatar Navigation launching direct service between Qatar and Karachi (Pakistan) (to counter sanctions); Bahrain to take legal action against Qatar's alleged role in supporting radical groups in the country; According to S&P, a lengthy Qatari crisis will lead to prolonged period of low economic growth; Official opening of Hamad Port set for early September; UK orders of LNG from Qatar continue as scheduled despite GCC blockade; Qatargas and RasGas completed first co-loading of LNG for split delivery.
MENA energy price reform	🟠	↓	UAE fuel prices rise in August from July; VAT impact on UAE's consumer price inflation will be limited says IMF; Oman's fuel subsidy for the needy awaiting final government confirmation; Slowdown in economic activity and fuel price reforms have impacted demand growth of petrol and gas oil in Oman and other GCC markets.
MENA unconventional oil & gas	🟠	⇔	Algeria considering shale gas again aiming to add unconventional gas production of 80 BCM to total output by 2025; Saudi Arabia estimates it has around 16.9 TCM (600 Tcf) and has earmarked $7 billion for unconventional gas.
MENA alternative energy	🟡	↑	DEWA (Dubai) awards 700 MW expanded solar CSP project at world record 7.3 c/kWh; Geothermal energy potential being researched by UAE in Al Ain and Ras Al Khaimah; Saudi Arabia aims to exceed its 2023 annual target of generating 9.5 GW electricity from renewable energy; Saudi Arabia issued regulatory framework for electricity consumers to operate their own, small-scale solar power generating systems; Acwa Power awarded 3 solar power projects (67.5 MW peak, 70 MWp, and 28 MWp) in Egypt - $190 mn project; UAE's Masdar signs EPC contract to build 50 MW wind power project in Oman – first large scale wind farm in GCC
MENA nuclear power	🟡	↑	China National Nuclear Corp signed MOU with Saudi Geological Survey to promote existing cooperation in nuclear energy and uranium exploration; Abu Dhabi's Barakah nuclear plant: construction of four units more than 82% complete and will open 2018; Rosatom to start construction on Turkey's Akkuyu nuclear plant in 2018; Turkey and Russia sign cooperation deal in the context of nuclear energy development on Aug 24; Egypt finalizes deal with Russia to build Dabaa nuclear power plant (4800 MW) with funding from Moscow
Energy infrastructure security	🔴	↓	Libya's Sharara oilfield shut down due to ongoing power battle in the country (some reports that it is reopen but not fully – others state it is fully closed); Libya's El-Feel and Hamada being shut down due to militias taking control of pipelines; Nigeria sent two ex US warships to protect oil facilities in strife-torn Niger Delta.
OPEC production	🟡	↑	OPEC-14 production avgd 32.87 Mbpd in July 2017 (+173 kbpd from June); Saudi Arabia's production increased to over 10,067 kbpd in July (+31.8 kbpd from June); Libya's production increased by 154.3 kbpd to 1,001 kbpd in July; Nigeria's production increased by 34.3 kbpd to 1,748 kbpd in July; Iraq's production decreased from 4,501 kbpd to 4,468 kbpd in July; According to Petro-Logistics, OPEC-14 supply expected to avg 32.8 Mbpd in August (decline of 419 kbpd from July); Petro-Logistics estimates OPEC crude oil exports fell by 750 kbpd through first half of August.
East Mediterranean gas commercialisation	🟡	↑	Egypt signs three oil and gas exploration deals for 16 new fields worth at least $81.4 million in total; Egypt speeding up negotiations with neighbouring countries to finalize demarcation of borders in the Mediterranean (for offshore discoveries); Shell considering selling Egyptian market Israeli gas from Leviathan field; Noble Energy and Delek (partners in Leviathan) in talks with Egypt's Dolphinus about exports to Egypt via Jordan; EastMed pipeline will be focus of four-party ministerial meeting on December 5th, in Nicosia, during which MOU expected to be signed.
Egypt energy reform	🟠	↓	Egypt increased cost of drinking water as much as 50% for all consumers; Egypt introduced sweeping economic reforms last year as part of three-year $12 billion IMF loan program; Egypt also raised electricity prices by up to 42% and fuel prices up to 50% this fiscal year to meet terms of IMF loan.
Kuwait developments	🟡	↑	Saipem wins $850m onshore E&C contract in Kuwait relating to the Al Zour refinery in Kuwaitl; Kuwait has given green light to issue tender to build phase 1 of Jurassic gas facility; Kuwait plans tender for 1 GW solar PV project –tender for $1.2 billion Dibdibah solar power plant will be issued in 1Q 2018; Kuwait aims to source 15% of electricity from renewable energy by 2030
Abu Dhabi developments	🟡	↑	ADNOC in discussions with over a dozen potential companies concerning future of ADMA-OPCO offshore UAE concession that expires next March; ADNOC to cut October oil supply by 10%; Abu Dhabi street lights (> 350,000) to be replaced by LED's; Abu Dhabi's Masdar along with GE and Spain TSK to build Oman's wind farm powering 16,000 homes.
Iraqi Kurdistan (KRG) developments	🟡	↑	Kurdistan struck two agreements with Norway's DNO and British Genel Energy to restructure oil exports and debt repayment; Turkey, U.S and other countries pleading Kurdistan to delay referendum on independence; Siemens expanded existing contract with Erbil based KAR Group to provide operations and maintenance for two new units at Khurmala power plant
Federal Iraq developments	🟡	↑	Russia ready to help Iraqi authorities restore energy supply to Mosul; UK Export Finance providing $117 million to Enka UK and GE to deliver power projects in Iraq –firms will use financing for construction of two 150 MW gas-fired power plants at Dhi Qar and Samawa; Gazprom Neft begins production of LPG at its Badra field in Wasit Province.
Iran developments	🟡	↑	Even with new sanctions, some European, Russian, and Asian firms signed preliminary agreements or letters of intent with Iran for billions of dollars of investment; Gas exports from South Pars rose 12% over past year says Iranian official; Foreign investors have filed proposals for total $3.6 billion to develop renewable energy projects in Iran - Iran's government targeting installation of more than 5GW renewable capacity by 2022 (includes 4,500 MW of wind power and 500 MW of solar power).

🟢	Very positive	↑	Improvement in last month
🟡	Positive	⇔	No change
🟠	Negative	↓	Deterioration in last month
🔴	Very negative		

bpd = barrels per day
Bcfpd = billion cubic feet per day
Tcf = trillion cubic feet
MMcfpd = million cubic feet per day
Mbpd = million barrels per day
kbpd = thousand barrels per day

About Qamar Energy – What We Do

Qamar Energy provides leading-edge strategy, commercial and economic consulting across the energy spectrum

Leading-edge energy consulting and advisory

Our professionals have more than 20 years of energy experience

Experience across the energy value chain

Energy market intelligence

Our clients

Investment banks

Oil traders

National Oil Companies and governments

Private investors

Oil service companies

Majors and International Oil Companies

About Qamar Energy – Who We Are

Robin Mills will be speaking at the Energy Markets Forum in Fujairah, UAE, on 19th September, and Platts Crude Oil Summit on 12th December at H Hotel, Dubai, UAE.

Robin Mills

CEO

Robin established Qamar Energy to meet the need for regionally-based Middle East energy insight and project delivery. He is an expert on energy strategy and economics, described by Foreign Policy magazine as **"one of the energy world's great minds".** Robin is the recipient of the 2016 'Energy of Words' Global prize at the St. Petersburg International Economic Forum.

Prior to this, he led major consulting assignments for the EU in Iraq, and for a variety of international oil companies on Middle East business development, integrated gas and power generation and renewable energy.

Robin worked for a decade for Shell, concentrating on new business development in the UAE, Qatar, Iraq, Iran and other Middle Eastern countries, when he was described as the "Shell expert on Iran".

He subsequently worked for six years with Dubai Holding and the Emirates National Oil Company (ENOC), where he advanced business development efforts in the Middle East energy sector, including major gas import schemes for Dubai and upstream developments in Iraq, Qatar, Yemen, Pakistan, Turkmenistan, Algeria and elsewhere.

He is the author of two books, *The Myth of the Oil Crisis*, which evaluates global long-term oil supply, and *Capturing Carbon*, the first comprehensive overview of carbon capture and storage for the non-specialist. He is the columnist on energy and environmental issues at The National newspaper (Abu Dhabi), and comments widely on energy issues in the media, including Foreign Policy, the Financial Times, The Atlantic, CNN, CNBC Arabiya, BBC, Al Jazeera, Bloomberg, Sky News and others.

Robin has authored the ground-breaking study, *Sunrise in the Desert: Solar becomes commercially viable in MENA*, on solar power competitiveness in the Gulf (with PWC/Emirates Solar Industry Association) as well U*nder the Mountains: Kurdish Oil and Regional Politics* for the Oxford Institute for Energy Studies and *Risky Routes: Energy Transit in the Middle East* for the Brookings Doha Center.

He has been Non-Resident Fellow for Energy at the Brookings Doha Center. He holds a first-class degree in Geology from the University of Cambridge, and speaks Arabic, Farsi, Norwegian and Dutch.

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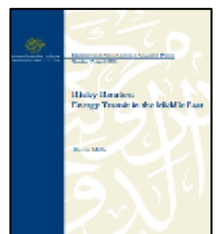

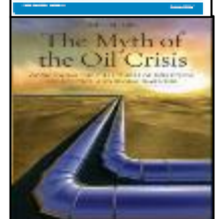

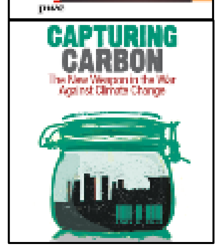

Robin Mills receives the 2016 'Energy of Words' at the Global Energy Prize in St. Petersburg, Russia.

[For prize announcement click here]