Traders work on the floor of the New York Stock Exchange (NYSE) in New York, U.S., March 8, 2017. Photo courtesy of REUTERS.

OPEC'S NEXT MOVES CLOSELY WATCHED

QAMAR ENERGY

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Issue 12: March 2017

Saudi Aramco IPO

Robin Mills: Saudi Aramco's $2 Trillion Valuation Has Too Many Assumptions published on Bloomberg Views.

Would you like more in-depth analysis on the valuation of the Aramco IPO?

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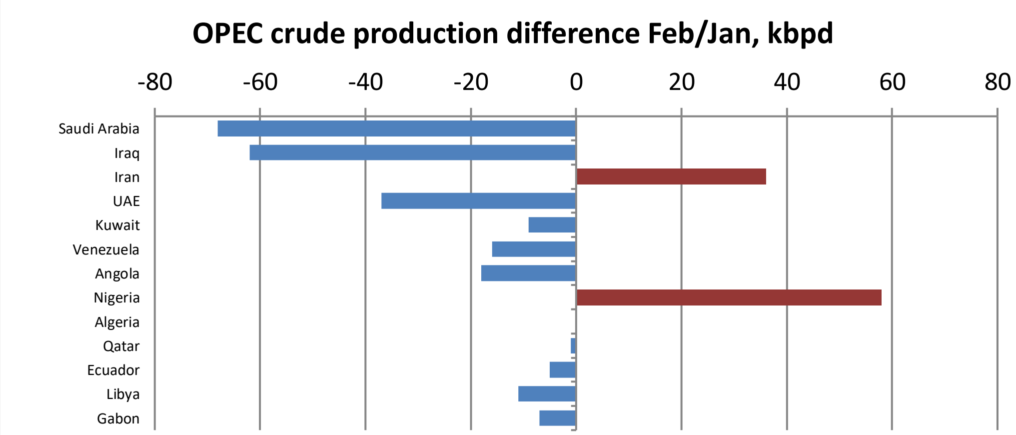


Source: OPEC Monthly reports

- OPEC compliance to deal reached 111% in February (based on OPEC secondary sources).
- Nigeria and Iran increased production and exports also on the rise.
- Output in Libya declines from escalating security threat. Further output declines in March.

I'll be back: oil's price slump is tough to kill

By Robin Mills

A *version of this article appeared in The National newspaper on March 12, 2017*

Like the Terminator returning after being blown apart, this oil market slump is proving hard to kill. At the end of last week, prices, which had been very stable all year suddenly plunged by 8 per cent. This shocked OPEC representatives at the industry's big CeraWeek pow-wow in Houston, but it may not be all bad news for the big oil countries.

Brent crude fell to US$51.37 per barrel from $55.90, its lowest closing price since November 29, while the US's West Texas Intermediate was even harder hit. The slump came on the back of news showing US crude stockpiles rising to a record high of 528 million barrels, capping nine consecutive weeks of gains. The market was also nervous about signals from OPEC ministers that the current deal on production cuts might not be extended after the organisation's May 25 scheduled meeting and continuing increases in US shale oil drilling and production.

The build in inventories was, in itself, not so surprising. US refineries are going through spring maintenance after running flat out for months, so their crude use is down. It does not necessarily signal that American oil output is stronger than shown in official figures. The International Energy Agency believes that OPEC cuts have helped developed-country stocks drop below 3 billion barrels for the first time since December 2015, although China and other emerging nations continue to add inventories.

The futures curve – the price for buying or selling oil at a specified month in the future – currently has an odd structure. Last week's slump has put the short-term curve into contango, where the future price exceeds the prompt price. From next February until December 2019, the curve is in backwardation, with longer-dated prices below near-term prices. And then the curve reverts to contango, rising to around $57 per barrel for Brent crude by 2024.

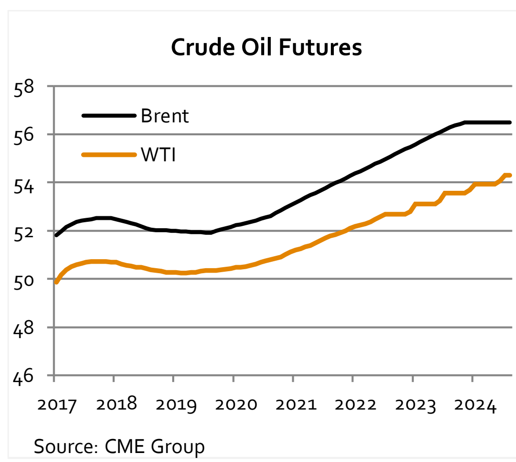
These might seem like arcane technicalities but they have an important impact on oil market players. Anyone with physical oil in storage can make a guaranteed profit by holding on to it until February, after allowing for the cost of storage, insurance and financing. But if the near-term curve enters backwardation, they would do better to dump their stocks, bringing down the prompt price but easing the worldwide glut of inventories.

Shale oil wells typically yield most of their output over their first year or two of operations, before production dwindles. Over the past couple of years, the entire forward curve was in contango, so allowing shale producers to lock in higher prices for the useful life of their wells. Whenever OPEC did raise the prospect of production cuts, without actually delivering, as in last April's failed meeting in Doha, futures prices would jump above the prompt price, making hedging easier.

But now the market dynamic is different. Part of OPEC's objective has been to move the near-term curve into backwardation, with its production cuts raising the prompt price while the prospect of a breakdown of the OPEC deal keeps prices weaker a few months out. This makes hedging less attractive.

This is entirely consistent with a Reuters report on Thursday that advisers to the Saudi energy minister, Khalid Al Falih, told US shale oil executives that OPEC would not necessarily extend its cuts and take all the burden of market rebalancing. This message, no doubt intended to be leaked, dampens prices a few months out. The latest plunge is also a useful reminder to shale companies and financiers that their investments are not a sure bet.

OPEC's concurrent efforts to dampen the shale boom, preserve its market share, draw down inventories and restore prices to a level it finds reasonable, have moved the market towards the elusive "balance", but very slowly. An extension of the production deal in May, likely but requiring further compromise, is essential to the current strategy. Otherwise we can expect yet another twitch from the stubbornly undead price slump.



Mena countries need to get more creative when exploring for oil

By Robin Mills

A *version of this article appeared in The National newspaper on March 5, 2017*

By August 2015, Eni seemed out of luck in the eastern Mediterranean. Two wells drilled off the shore of Cyprus had been failures. Several other companies looked at data on its deepwater block north of Egypt, where Shell had sunk 10 wells in previous years without any real success, but decided against taking a share. There was a promising deeper structure with untested geology, but the Italian company would have to go it alone.

Eni drilled in almost a kilometre-and-a-half of water, then through more than 4,000 metres of sand, shales and salt. During the Miocene period 6 million years ago, the entire Mediterranean dried up, leaving a thick layer of salt – ideal for trapping any oil or gas that formed below it.

And Eni's boldness was rewarded – the giant Zohr discovery, with 32 trillion cubic feet of gas. For a well costing US$100 million, Eni then sold 10 per cent of the find to BP for $375m and 30 per cent to Rosneft for $1.12 billion, repaying its initial investment many times over even before a molecule of gas is produced.

Zohr hit the headlines, but it is not the only notable find lately in the Middle East and North Africa.

Iraq has had very little exploration since the 1970s, other than in the autonomous Kurdish region, but in March 2014 Kuwait Energy and its partner Dragon Oil, owned by the Dubai Government, found a potentially giant oilfield, Faihaa, near the Iranian border. Last month, Lukoil and Inpex announced a find at Eridu in the country's south-west desert.

Also last month, Iran announced it had found 2 billion barrels of recoverable crude oil and about 30 trillion cubic feet of gas, without specifying the fields.

Further afield, in mid-2015, Kosmos Energy unearthed Ahmeyim, a giant gasfield, offshore Mauritania and Senegal.

Such finds stand out, since international oil companies' recent exploration record has been dismal. Worldwide discoveries are running at their lowest level since the 1950s, and mostly gas, rather than oil. The consultancy Wood Mackenzie estimates that global exploration spending fell to $40bn last year, from $100bn in 2014. But even before spending dropped, results were poor.

The Middle East and North Africa region does not explore enough, or in the right way. Yet as these finds show, it is still shaping up as one of the most successful areas. The remaining potential, particularly in underexplored regions such as Iran, Iraq and offshore Lebanon and North Africa, is vast.

Despite its huge reserves, the region still needs to find more. It needs more gas, where most countries are short of what they need to feed the domestic market and sustain exports. The smaller oil producers, such as Algeria, Oman, Bahrain, Qatar and Egypt, require new discoveries to keep production growing. Even the major reserves holders – Abu Dhabi, Iran, Iraq, Kuwait and Saudi Arabia – can benefit from replacements for maturing fields and new development options.

But in many countries, a dominant national oil company monopolises exploration. They are typically risk-averse, a weakness in a game where nine times out of a 10 a $100m well finds nothing. They lack exposure to a wide range of geological concepts and new exploration technologies. And unlike Eni, which explores in 43 countries, they are not able to balance their risk across many geographies.

Where international companies are allowed to explore, as in Iraq, terms are so stringent that only the largest, lowest-risk prospects have a chance of being economically viable.

The region's national oil companies can think more creatively and proactively about exploration, perhaps creating special divisions with some freedom and an international mandate. Underexplored areas can be opened to international players, including imaginative specialists such as Kosmos, on reasonable terms. Get this right and Middle East countries can realise their geological potential, and, as oil prices pick up, play their part in an exploration renaissance.

Abu Dhabi oil agreements with China continue shift towards new partners

By Robin Mills

A *version of this article appeared in The National newspaper on February 26, 2017*

The new Abu Dhabi oil industry is taking shape. Last week's signature by two Chinese companies for stakes in the emirate's largest producing asset creates a bond that will last for 40 years. Now Abu Dhabi's energy leaders have to navigate new relationships and show that their novel arrangements will keep up with the region's measured but titanic energy changes.

On February 19, the China National Petroleum Corporation (CNPC) signed for 8 per cent of the onshore ADCO concession; the next day its compatriot China Energy (CEFC) took up 4 per cent. With BP and Total holding 10 per cent each, Japan's Inpex 5 per cent and South Korea's GS Energy 3 per cent, this completes the planned 40 per cent foreign stake, ADNOC holding the remainder.

This represents a significant, although not complete, shift away from the emirate's traditional western international oil company stakeholders. Japan and South Korea are long-term familiar partners; China much newer; and the other big customer for the emirate's oil, India, is conspicuous by its absence.

2014 was the pivotal year, as Shell and ExxonMobil declined to renew their interest in ADCO after it expired in 2014. ExxonMobil had, though, earlier that year extended its involvement with the giant Upper Zakum field by another 25 years, holding 28 per cent in ZADCO along with Jodco, an Inpex subsidiary, with 12 per cent. Also in 2014, CNPC formed a joint venture covering a number of small offshore fields and a large part of Al Gharbia onshore. And it was in the same year that operations started for a venture established by the Korea National Oil Company and GS Energy to explore three areas.

In October, the operations of ZADCO and the other big marine subsidiary, ADMA Opco, were merged to increase efficiency. And in January Inpex upped its stake in the offshore Satah and Umm Al Dalkh oilfields.

The next obvious business on the agenda is the 2018 renewal of ADMA, which accounts for 655,000 barrels per day of production and currently features BP, Total and Jodco alongside ADNOC.

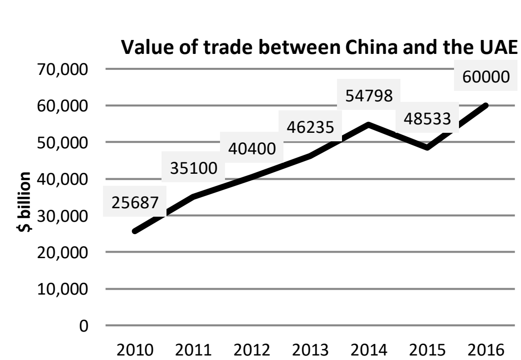
The new Chinese players, in particular, do not bring special technical expertise. CNPC's most notable skills are in areas of enhanced oil recovery, which are less applicable in Abu Dhabi. What they do bring is deepened access to the world's largest oil importer, one which over the next four decades will be the world's largest economy, one of the dominant political powers and an ever-growing user of Middle Eastern oil and gas.

A stronger foothold here will be welcome. Chinese crude imports grew by 893,000 bpd in 2016, yet the UAE's shipments there slipped slightly, while the share of key marketing rivals Iran, Iraq, Oman and Kuwait all grew strongly. CEFC, a private company, closely aligned with Beijing's One Belt, One Road strategy, has emerged from nowhere to amass a range of oil storage and refining assets, not only in China but also Europe.

As oil prices fell ADNOC, like other oil companies, slowed spending sharply and reviewed its projects. Now there are signs that things are getting back on the road. Expansion plans for ADCO and ADMA have fallen behind, although the target of reaching 3.5 million bpd capacity by next year, from today's level around 3 million bpd, officially remains in place.

Not just ADNOC and its subsidiaries are being shaken up. The merger of Mubadala and Ipic creates an energy giant spanning upstream petroleum, refining and petrochemicals. But a clear focus is required to generate value from these given the new entity's investments in other areas, from aerospace, defence and technology to health care, finance and real estate.

Western and Japanese oil demand is flat or falling while China grows. ADNOC's big competitor Saudi Aramco will sell shares to private investors. Iran and Iraq are haltingly developing their massive untapped oil and gas reserves. Amid these and other competitive challenges, Abu Dhabi cannot rest on the deals done so far – the pace and scope of change must only accelerate.

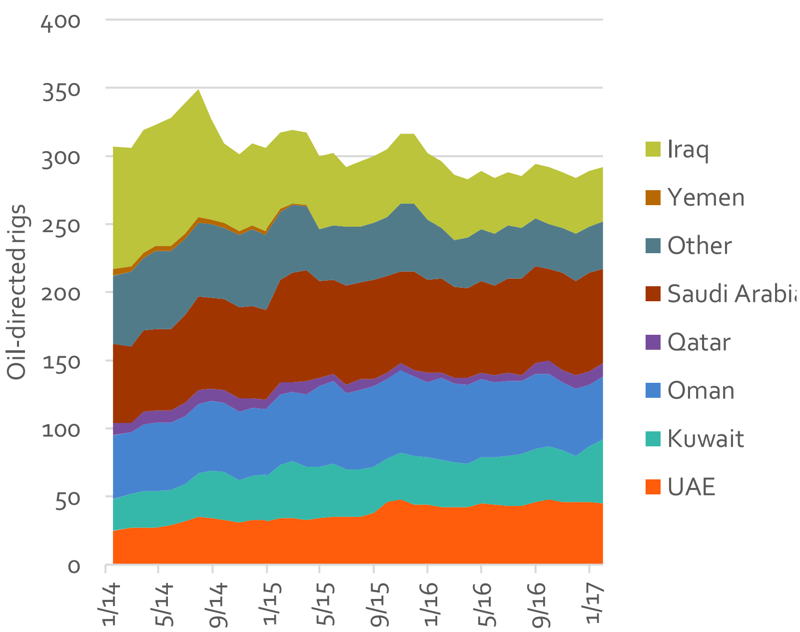


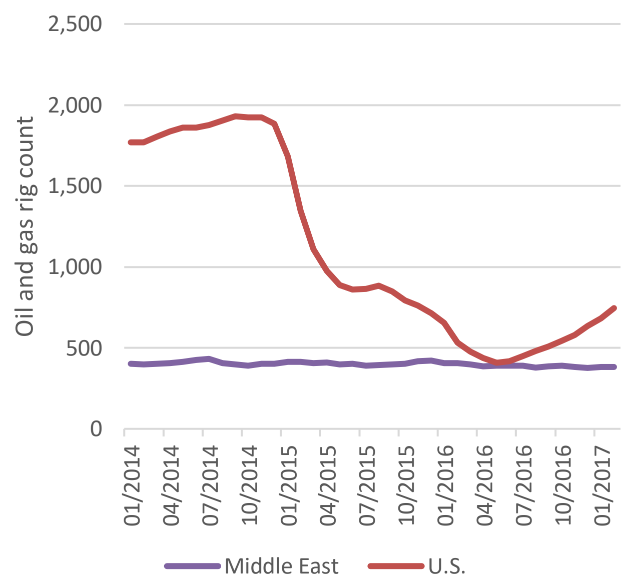
Sources: China Statistical Yearbook , Qamar

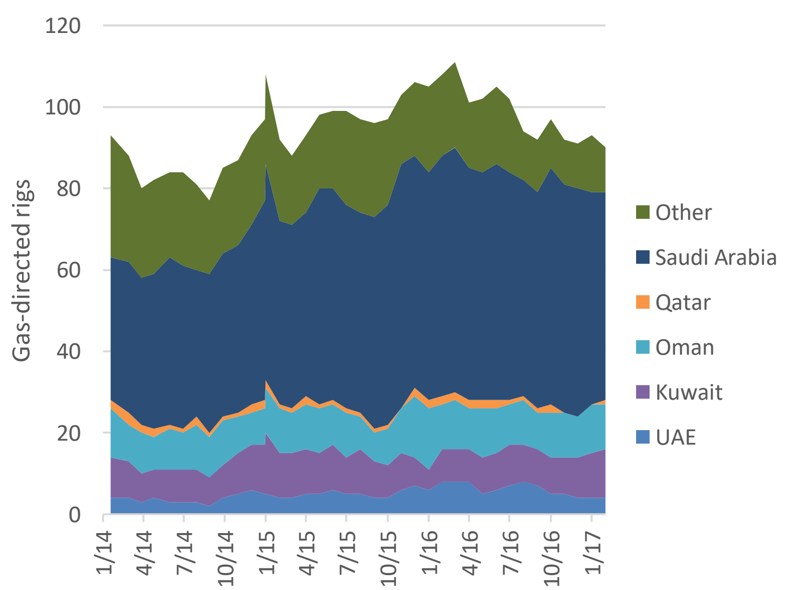
Rig count snapshot

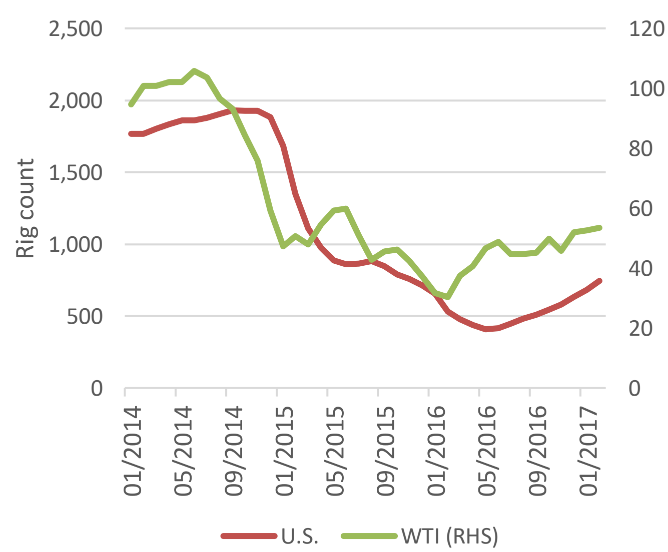
- In February Middle East overall had 293 oil (+4 rigs from previous month) and 89 gas (-4 rigs) rigs (total of 382 rigs).
- Kuwait oil rig count rose by 6 and Saudi oil rigs declined by 3 rigs.
- The Saudi and Oman gas rig count fell by 1 unit each to 51 and 11 rigs respectively.

- In February, the US oil rig count reached its highest level since November 2015 at 744 rigs (+61 rigs from January).
- In contrast, the number of rigs in the Middle East remained stable at 382.









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 following table represents March 2017 gasoline and diesel pump prices ($/litre) 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	0.45*	0.47*	**0.52**	**0.55**
Qatar	0.37*	0.37*	**0.46**	**0.42**
Bahrain	0.27	0.42	**0.42**	**0.37**
Kuwait	0.21	0.36	**0.34**	**0.36**
Oman	0.46	0.39	**0.51**	**0.54**
US (Pre-tax)	0.62	0.57	**0.61**	**0.53**

**Previous month prices; Source: 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 expressing interest in joining. The country produces on average 250 kbpd and has pledged to cut 12 kbpd with NOPEC
Production limit (Libya and Nigeria exempt from deal)	• Saudi Arabia, UAE and Kuwait bear main burden of the 1.2 Mb/d cuts • In February, Iraq cut production by 62 kbpd to 4.4 Mb/d from the previous month. Iraq met less than 50% of pledged cuts in February and announced it will increase output to 5 Mb/d in 2017 • Iran increased production to 3814 kbpd. It agreed an OPEC limit of 3975 kbpd. Iran's reference is based on 2005 production • OPEC is considering extending deal to 2H of 2017 if inventories remain high
Support from non-OPEC (NOPEC)	• NOPEC agreed to reduce output by 558 kbpd, but has only reduced output by 64% in February • Russia announced it will cut full pledged 300 kbpd by the end of April • Oman's crude & condensate production in February 2017 stood at 970 kbpd, 9% decrease compared to the previous year
Next OPEC meeting	• 17th of March 2017 Joint Technical Committee (JTC) meeting - Compliance to pledged cuts reviewed at meeting in Vienna attended by OPEC members Kuwait, Venezuela, Algeria plus NOPEC Russia and Oman. Saudi Arabia attended as OPEC president • 25th of May 2017 - 172nd (Ordinary) OPEC Meeting Vienna, Austria

Saudi Energy Minister Khalid al-Falih on oil exporters: "It's a learning process for some countries and we want them to accelerate that learning and get on board fully."

8 out of 10 OPEC countries taking part in the OPEC deal are not meeting 100% of pledged cuts in February 2017. The countries that met the pledged cuts that month are Angola and Saudi Arabia.

Photo: Reuters India

Key MENA Energy Scorecard

MENA energy price reform	●	⇔	Oman fixes fuel prices amid protests of high prices in front of the Ministry of Oil and Gas.
MENA unconventional oil & gas	●	⇔	Saudi Arabia's Jalamid field will be the first shale gas project, but only 197 MMcf/d will be sent to the Wa'ad Al-Shamal mining complex by 2018. Jalamid will provide only a fraction of Aramco's targeted 3990 MMcf/d unconventional gas output by 2026.
MENA alternative energy	●	↑	UAE to invest $164bn by 2050 in its Clean Energy Strategy to increase clean power generation to 30% by 2030; Dubai to generate 7% of total power by 2020 from clean energy, 25% by 2030 and 75% by 2050; total investment in Mohammad Bin Rashid Al Maktoum Solar Park, planned capacity of 5,000MW by 2030, up to $13bn; Saudi Arabia begins tender process for 300MW PV plant initiating Round 1 of National Renewable Energy Program which will also include 400MW wind power; Saudi Arabia building 2 x 1000 MW pumped hydro storage plants on Red Sea coast.
MENA nuclear power	●	⇔	Abu Dhabi's $24.4 bn Baraka nuclear power plant reaches financial close; Baraka 1 expected to be operational by May 2017; KEPCO takes 18% stake in Baraka; Jordan's $10bn 2 GW atomic power plant still in feasibility stage; Egypt plans to sign contract for construction of 4.8GW El-Dabaa nuclear facility with Rosatom; Saudi Arabia starting nuclear programme with design for two reactors with combined capacity 2.8GW.
Energy infrastructure security	●	⇔	Bombing at Bai Hassan field slows KRG exports; Demonstrations against Kurdistan Democratic Party (KDP) causing intra-Kurdish tensions; General Khalifa Haftar forces capture Ras Lanuf and Es Sider oil ports taking them back from Tripoli government-backed Benghazi Defence Brigades; rising piracy attacks on LNG carriers off Nigeria; Nigerian troops destroyed 80 illegal oil refineries in Niger Delta region, causing tensions with militants; oil tanker hijacked off Somalia by pirates, first since 2012, later released.
OPEC production	●	↓	OPEC crude oil production in February decreased by 139.5 kbpd from the previous month to average 1.96 Mb/d. Biggest increase in Nigeria, largest declines in Saudi Arabia (-68.1 kbpd), Iraq, UAE and Angola; demand for OPEC crude this year projected to increase by 0.7 Mb/d to average 32.4 Mb/d.
East Mediterranean gas commercialisation	●	↑	Israel begins gas exports to Jordan; Lebanon announces bid round for five offshore blocks, but delays likely from domestic politics, and external influences: three of the five offshore blocks on offer are disputed with Israel; Cyprus cabinet approves Eni, Total, Exxon and Qatar Petroleum offshore exploration blocks
Egypt energy reform	●	⇔	Plans further significant cuts to subsidies in 2017 and phase out by 2019; industrial users now pay $7/MMBtu for gas; struck deal with Eni to pay $4.00-5.88/MMBtu for Zohr field.
Kuwait developments	●	↑	Kuwait crude oil production cut 9.3 kbpd to 2.71 Mb/d in February compared to previous month; Kuwait steering downstream projects in the region with: Al-Zour North 2 IWPP, Olefins 3 petrochemicals plant, Clean Fuels Project.
Abu Dhabi developments	●	↑	CNPC and China Energy (CEFC) awarded 8% and 4% stakes in onshore ADCO concession. ADNOC Distribution set to build natural gas for vehicles (NGV) - Enabled Service Station (with capacity 2,850 m^3) in Mahawi on Abu Dhabi-Al-Ain road.
Iraqi Kurdistan (KRG) developments	●	↓	KRG independently exported 552 kbpd in February down from 581 kbpd in January; North Refinery Company (NRC) has successfully added 10 kbpd capacity to total capacity 40 kbpd at Kirkuk oil refinery.
Federal Iraq developments	●	⇔	Iraq's February crude oil production fell 62 kbpd to 4.414 Mb/d according to secondary sources; Iraq exported 3.27 Mb/d in February compared to 3.32 Mb/d in January; on Feb. 20, Iraqi Oil Ministry signed MoU with Iranian Oil Ministry to settle disputes over joint oil fields and examine possibility of building pipeline to export crude oil from Kirkuk fields; Lukoil plans to increase West Qurna-2 production from 400 kbpd to 1.2 Mb/d, with 2017 investment of $1.5 billion; Iraq's first petroleum products shipment to Egypt expected in March.
Iran developments	●	↑	Iran increased crude oil production by 36.1 kbpd in Feb to 3.81 Mb/d; on March 14, Iran began pumping 15 kbpd from Azar field which it shares with Iraq (Badra); started construction of first phase of gas pipeline from Iranshahr to Chabahar port; expected to be completed in 6 months.

●	Very positive	↑	Improvement in last month
●	Positive	⇔	No change
●	Negative	↓	Deterioration in last month
●	Very negative		

b/d = barrels per day
Bcf/d = billion cubic feet per day
Tcf = trillion cubic feet
MMcf/d = million cubic feet per day
Mb/d = 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

Energy market intelligence

Experience across the energy value chain

Our clients

Private investors

Oil traders

Investment banks

National Oil Companies and governments

Majors and International Oil Companies

Oil service companies

About Qamar Energy- who we are

Robin Mills will be speaking at the 2017 Iraq Energy Forum (IEF) in Baghdad, 2-3rd April.

IEF 2017: Iraq Post ISIS - Towards an Effective Energy Sector and Economic Diversity

Robin Mills will be speaking at the Platts Global Oil Summit in London, 10th May.

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 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 Under 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, Dutch and Norwegian.

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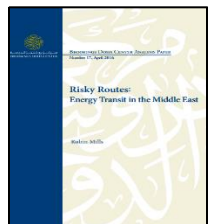

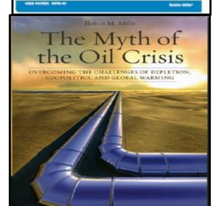

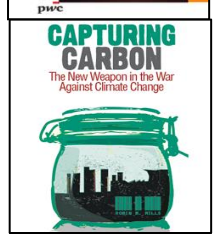

Robin Mills receives the 2016 'Energy of Words' at the Global Energy Prize in St. Petersburg, Russia.

For prize announcement click here