

# THE QAMAR NEWSLETTER

Issue 18, December '17



The Yemeni protests have contributed to the country's unstable energy infrastructure security. Cover story by Robin Mills.

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Qamar Energy is a leading consultancy based in Dubai, which expedites understanding the energy dynamics of the Middle East and North Africa.

The QAMAR NEWSLETTER is a monthly publication that provides critical appraisal and focussed assessments of the month's energy developments across the MENA region.

# YEMEN'S ENERGY PRODUCTION WOES ARE UNLIKELY TO END ANYTIME SOON

Robin Mills • *A version of this article appeared in The National, Dec. 10, '17* • **COVER STORY**



Political developments in Yemen have long had an impact on its oil, gas and water production, three essential commodities that have seesawed with the country's ups and downs.

The recent killing of former president Ali Abdullah Saleh has brought back the problems facing these industries to the fore.

Saleh emerged as leader of the Yemen Arab Republic (North Yemen) in 1978. The Marxist People's Democratic Republic (South Yemen) was then a separate country. For many years, episodic oil exploration had led to no discoveries, in sharp contrast to Yemen's Arabian Peninsula neighbours. But in 1984, Hunt Oil, a privately-owned US company, found oil in the Marib Basin.

The CIA's initial assessment that Yemen could produce 200,000 barrels per day by the end of the 1980s proved quite accurate. Hunt partnered with Exxon and a consortium of South Korean companies, and built a pipeline running west to Ras Isa north of Hodeidah on the Red Sea.

The discovery was welcome for the US, bolstering a pro-western attitude in Sanaa against the Soviet-backed south, and providing a modest extra source of non-OPEC oil.

In May 1990, with Soviet support for the south fading as the USSR collapsed, the two parts of Yemen unified under Saleh's leadership. In September of that year, Nexen, formerly Canadian

Occidental, found oil in the Masila Basin located in the Shabwa province, in the neutral zone between the former North and South Yemen, establishing Yemen's second producing area. A brief civil war in 1994 saw Saleh reassert control over the south after it had attempted to secede under his former deputy Ali Salim Al Beidh.

Yemen's oil experience was not the same as its neighbours'. With very different geology, and much smaller fields even than Oman's, it found oil later. Most of its production came during the 1990s when prices were low, and its relatively large population meant that oil earnings per person were small.

Nevertheless, production rose sharply on the back of the Hunt, Nexen and other companies' discoveries, reaching a peak of 457,000 barrels per day in 2002, about half of Oman's level. From there on, despite some ingenious new exploration campaigns, it declined to 306,000 barrels per day in 2010, the last year before the revolution that initially toppled Saleh. High oil prices actually kept export revenues rising for a while after 2002, but they fell from roughly US\$6.6 billion in 2008 to \$4.6bn in 2010.

Aware that oil resources would dry up, the Yemeni government had begun engaging Hunt, Total and partners in 1995 to build a liquefied natural gas export plant. Yemen LNG finally came into operation in 2009, a remarkable landmark investment of \$4bn for a poor and unstable country. But although the plant at Balhaf on



the southern coast initially operated well, it ran into trouble with repeated bombings of the pipeline bringing its gas from the inland fields.

Earnings from LNG were, in any case, not enough to make up for the decline in oil. Even after Saleh's ousting in 2011 and the 2013 plan for a federal system, there was uncertainty regarding the distribution of natural resources, particularly oil and gas.

And even without revolution and civil war, Yemen was heading for a near-insoluble water crisis because of qat. Until the early 1970s, qat chewing was largely a pastime of a wealthy urban elite, but the development of roads following the influx of oil remittances from Yemeni migrant workers allowed it to be brought fresh, in quantity, from previously remote villages.

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## SMALL ISSUES LEAD TO BIG LESSONS FOR EUROPEAN GAS SUPPLIES

Robin Mills • *A version of this article appeared in The National, Dec. 17, '17*

A crack in a pipeline, a loose cap seal and a power cut, unrelated faults in three tiny components in Europe's energy web, struck near-simultaneously last week.

A cold snap had already brought snow to London and Birmingham. As gas supplies were cut sharply, European countries are reminded of their energy vulnerability in a changing market.

The points of failure struck at three of Europe's most critical pieces of gas infrastructure. The Forties pipeline, now 42 years old, suffered a crack last week which will take weeks to repair. This cost the United Kingdom about 10 per cent of its usual winter gas and sent prices up 55 per cent at one point.

The Baumgarten hub in Austria receives gas from Russia for transport to Germany, Italy and central Europe, equivalent to a tenth of European demand. Last week, an explosion that killed one person stopped operations and Italian gas prices briefly tripled to record levels. However, the oil company OMV, part-owned by Abu Dhabi's Mubadala, which controls the hub, managed to reroute flows around it.

Finally, the same day, a power failure and leak halted production at Norway's largest gas field, Troll, although it was up and running again shortly. These are not huge issues in themselves, but they are symptomatic of Europe's exposure to problems with ageing energy facilities.

The shortfall in British supplies has been compounded by closure of the Rough gas storage facility, which could meet the UK's winter gas needs for three months, but the owner Centrica decided in August it had reached the end of its operational life. UK's North Sea production has dropped sharply since 2000.

Ineos itself has been moving ahead with drilling for shale gas in the UK, though facing public and political opposition.

Shortages can be met by rerouting liquefied natural gas (LNG) tankers. Europe has been busily building new LNG import terminals in recent years, including in Poland, France, Malta and

Qat is a lucrative crop, but a water-hungry one – more than coffee, an alternative for farmers. Even before the conflict, irrigation was wasteful and dams were not maintained properly. Wells in Sanaa now go down as much as 1000 metres, with the water table drying up. Diesel has long been subsidised, making it cheap to run pumps, but the conflict has now interrupted supplies. Black-market diesel prices have now reached \$5 per litre (compared to the official UAE price of \$0.60 per litre).

Oil production continues at reduced levels in relatively peaceful Marib, and may even have recovered a bit this year to around 40,000 barrels per day. After repairs to its pipeline, there are sporadic rumours of restarting the LNG plant. But the industry is still a shadow of its past self. The Houthis may have eliminated Saleh, but the areas they control lack both the oil and water which have been critical to the country's economy.

Turkey, with others planned in the UK, Spain, Germany, the Mediterranean and the Baltic.

Utilisation of these LNG terminals last year was only 27 per cent of total capacity, giving plenty of room for increased imports. The start-up of new United States and Australian export plants mean there is plenty of LNG on the market, even though Europe will have to compete with strong winter demand from northern China.

New pipelines have greatly improved connectivity within Europe, allowing LNG or Russian gas to be moved to inland locations, and the UK has sucked in more gas from the Netherlands to meet the current upset.

But a tanker could take up to a month to arrive in an emergency, requiring other storage to bridge the gap. The closure of Rough has left the UK with just five to six days of winter storage capacity. Two other longer-term problems have eroded the safety margin. Algerian exports have been in decline since 2006, as insufficient investment has not replaced ageing fields.

And Groningen in the north of the Netherlands, Europe's largest gas field, has had to reduce production because of earthquakes induced by gas withdrawals. The field used to provide up to 6 billion cubic metres (cm) a month in winter, equivalent to more than half the UK's demand; now that is down to barely 2 billion cm.

The decline of the Netherlands and Algeria have caused more concern about Europe's reliance on Russian gas. The EU is locked in a dispute with Moscow over the regulation of the Nord Stream 2 pipeline, being built to bypass Ukraine and bring gas directly from near St Petersburg to Germany.

Similarly Russia is constructing the Turkish Stream pipeline to outflank Ukraine on the south. The current outages were not suspicious, but the shadow of sabotage, a cyberattack or a politically-motivated shutdown still hovers.

Improved efficiency and the growth of wind power reduced the UK's overall gas demand since 2011. Wind was fairly strong over the past week, helping to make up for the lost gas. But apart from a little solar, wood and electric heating, gas is overwhelmingly the dominant fuel for warming homes and water. Some 40 per cent of UK demand goes to these uses. Winter high-pressure zones can bring extended periods of cold, still weather to north-

west Europe, while the short days curtail solar. Renewables will not be able to replace the winter surge in gas demand for a long time to come.

The UK government has tended to be laissez-faire in its attitude to gas supply security. This may work in the longer term but is vulnerable to short-term disruptions. At the same time, environmentalists cannot blithely point to the success of wind and solar electricity while forgetting about heat. Strategists should not obsess over the Russian supply threat, but they should not ignore it either.

Last week's upset is a valuable reminder to the UK and the rest of Europe not to forget gas, still an irreplaceable fuel.

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## CAN THE GULF STATES LEAD THE WAY IN GLOBAL CARBON CAPTURE?

Robin Mills • *A version of this article appeared in The National, Dec. 03, '17*

As OPEC's latest meeting in Vienna concludes, another event opens in Abu Dhabi on Monday, one that will perhaps prove to be more important for the energy industry's long-term future. Ministers and experts are gathering under the auspices of the Carbon Sequestration Leadership Forum (CSLF). With progress in carbon capture moving too slowly to prevent dangerous climate change, can such a forum kick-start it?

Arabian Gulf states and other major oil-exporters have a key role to play in the global governance of carbon capture and storage (CCS). Organisations such as the CSLF could be crucial, if the big petroleum states can build the right alliances.

CCS is the process of removing carbon dioxide (CO<sub>2</sub>), the main pollutant responsible for climate change, from the smokestacks of industry and power stations burning coal, natural gas and oil, and disposing of it safely underground or converting it into useful materials.

The world's first commercial-scale industrial CCS project operates in Abu Dhabi, taking carbon dioxide from the Emirates Steel plant in Musaffah, and using it to enhance oil recovery from the Bab and Rumaitha oil-fields south-east of the capital. The project is operated Al Reyadah, a joint venture of Abu Dhabi oil firm ADNOC and Masdar, the capital's renewable energy firm.

Successful deployment of CCS is vital for the world's leading oil and gas producers. Their massive resources will be useless if they cannot be burnt without adding to the atmosphere's excess CO<sub>2</sub> levels. And using CCS elsewhere creates space for the use of oil in essential sectors where there is currently no easy replacement, particularly aviation and shipping.

The International Energy Agency has estimated that, as part of essential reductions in greenhouse gas emissions, the world will need to capture 6 billion tonnes of CO<sub>2</sub> per year by 2050, equal to 7,500 projects the size of the Emirates Steel facility. At the moment, 22 plants worldwide are capturing 40 million tonnes annually.

There have been a number of successful projects in Norway, Canada, Texas, Saudi Arabia and the UAE. But others have misfired; the Kemper County plant in Mississippi has run badly

over-budget, and other facilities in the US, UK and Netherlands have suffered repeated cancellations and government indecision.

The basic CCS technology is well-understood and safe, but needs to become much cheaper to run commercially. That requires large-scale deployment, as has been the case with low-cost solar and wind power. Currently, unless there is a nearby oil-field that requires a CO<sub>2</sub> injection, there is no financial incentive to capture carbon in most areas.

So the CCS industry needs, firstly, some large-scale, focussed government funds, and secondly, a consistent price for emitting CO<sub>2</sub>, that would compel coal- and gas-fired power stations and industries to begin installing it.

Given how important it is for their hydrocarbon future, most of the world's major oil producers have been oddly lackadaisical on CCS. The CSLF may be the right instrument to advance their legitimate climate interests.

Founded in 2003, it brings together nearly all the world's leading energy producers and consumers: the UAE and Saudi Arabia, the EU, Norway, US, China, India, Japan, South Korea, Russia, Brazil, Mexico, Canada, Australia, New Zealand and South Africa. These countries account for 80 per cent of global CO<sub>2</sub> emissions from fuel combustion – more than twice as dominant as OPEC is in oil.

Three energy ministers, all heavyweights, will address Monday's meeting: the UAE's Suhail Al Mazrouei, US's Rick Perry, and Saudi Arabia's Khalid Al Falih. Along with them will be the chief executive of the Australia-based Global CCS Institute (GCCSI).

OPEC has been in the headlines repeatedly since 2014 for its attempts at short-term market management, while largely losing sight of the impact of carbon emissions, the greatest threat to its members' long-term prosperity. The producers' organisation has written little on carbon capture, and has not been a clear advocate for it.

Yet in coalition with other key CSLF energy producers - the US, Australia, China, India, Russia, Norway and Canada - the collective would represent countries that control 93 per cent of the world's oil reserves, 80 per cent of its gas, and 79 per cent of its coal, making them determinants of the climate future. The addition of the GCCSI, meanwhile, brings policy and implementation expertise to the table.

Such a coalition could be the basis for a club that would instil binding commitments on its members to implement CCS. A vanguard of environmentally-minded hydrocarbon exporters with a strong interest in carbon capture – the UAE, Saudi Arabia, Canada, Australia and Norway are the obvious leaders – could be the catalyst for such a wider club.

This leading group would have to find the right diplomatic trade-offs to bring in other countries: for instance, supporting reforestation, renewable energy, binding limits on carbon-intensive industries, and joint funding of some CCS projects.

OPEC's African members may assist in avoiding this being seen simply as a club of wealthy polluters. The US's climate policy is currently in a fog, though attempts to save the coal industry give an opening to gain its cooperation. The difficulty of organising

collective action has always been the bane of climate policy. The major fossil-fuel producers have a strong interest in such cooperation to boost CCS to the level they and the environment require.

With some smart diplomacy and bold coalition-building, they may finally be able to make some real progress.

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## THE ADNOC IPO IS A TRAILBLAZER FOR THE REGION'S ENERGY PRIVATISATION

Robin Mills • *A version of this article appeared in The National, Nov. 26, '17*

We have all contributed a little to the profits of ADNOC distribution and now, with the company's initial public offering on the Abu Dhabi stock exchange, there is the chance to share in its success. As a trailblazer for the emirates' and the region's energy privatisation, it has to do well.

The IPO of neighbouring state juggernaut, Saudi Aramco, is also in the pipeline. Saudi Arabia's crown jewel, it has access to huge oil reserves, and complex business spanning vertically integrated refineries and petrochemical plants, international ventures and numerous subsidiaries in non-core ventures.

ADNOC Distribution is a far more straightforward proposition, however. Comprising UAE petrol stations and fuel distribution, it is a fairly straightforward business and not critically strategic. It is listing on the local market where it is a familiar face and can count on a supportive approach from the exchange.

All this makes ADNOC Distribution a sensible choice for the parent company's first IPO, and a way to gain experience and commercial exposure in advance of possible offerings of other ADNOC units.

This is a sensible, if not radical, way to pick up the gauntlet that Aramco laid down last year. Other UAE state companies, such as Emirates Global Aluminium, which is due to list next year, can benefit from the trailblazing and increased interest from international investors.

The National reported that ADNOC Distribution has set the IPO pricing at between Dh2.35 and Dh2.95 per share. At this price range and on a 12.5 billion share count, this equates to approximately \$8 to \$10 billion in equity value but that represents a sizeable multiple to earnings before interest, tax and depreciation of about 16 to 20 times. The company has indicated a dividend of at least \$400 million in the calendar year 2018, a yield of 4 to 5 per cent.

With such a pretty full indicative price, and a generous dividend policy, the company will need ways to grow which are not dependent on too much capital spending. Fuel retail businesses worldwide contend with cut-throat competition, low margins and - in developed countries - slow growth or even shrinkage. ADNOC Distribution's position is rather happier.

Its part-privatisation became possible from August 2015, when subsidies were removed from UAE retail prices for petrol and diesel. Before then, the subsidy on petrol meant fuel companies incurred a loss on every litre sold.

ADNOC could absorb this within its profitable oil-producing business, but Emarat and ENOC suffered deficits and ultimately sold most of their stations in the northern emirates to ADNOC. This left the Abu Dhabi major with about 67 per cent of the national market.

Since then, fuel prices have been regulated, set at international levels plus a retail margin, making petrol stations a safe, profitable business. ADNOC Distribution has a practical monopoly in Abu Dhabi and Sharjah, and a dominant position everywhere else except Dubai.

However, these regulated prices do not allow the company to vary rates in response to demand or timing - for instance charging higher prices for the only station open late at night.

Queues at petrol stations throughout the country at peak times are a familiar experience to motorists. In emerging districts, and along the freshly-opened Sheikh Mohammed bin Rashid road between the capital and Dubai, new ADNOC stations are ready to open.

The company plans expansion into Dubai and also into Saudi Arabia, though it could face more competition at home too, especially if ENOC responds to its move onto its home turf.

With 360 stations today, opening another 10-12 annually represents steady growth around 3 per cent, although volumes per station are likely to drop. ENOC too plans to open some 16 stations per year in Dubai.

Yet despite these strong prospects, annualised fuel volumes sold at ADNOC's stations in 2017 so far are down almost 4 per cent on last year. It is unclear whether this is due to the economic slowdown, higher fuel prices discouraging consumption, seasonal changes or other factors. In the longer term, it may have to contend with more electric vehicles, more public transport or other changes in mobility.

It also sees most potential to expand its business by growing its non-fuel retail - the Mars Bars, lattes and groceries that earn a much higher margin. So the IPO has already had the effect of making the company look hard at its business and see where it can offer more services to customers, and where to generate more profit.

One of the stated goals of the IPO is to support the expansion of the UAE's private sector, though ADNOC will retain 80 to 90 per cent of the shares, at least for now.

Given its incumbency, scale, distribution network and access to the output from ADNOC's refineries, ADNOC Distribution is in a strong position to beat off competition.

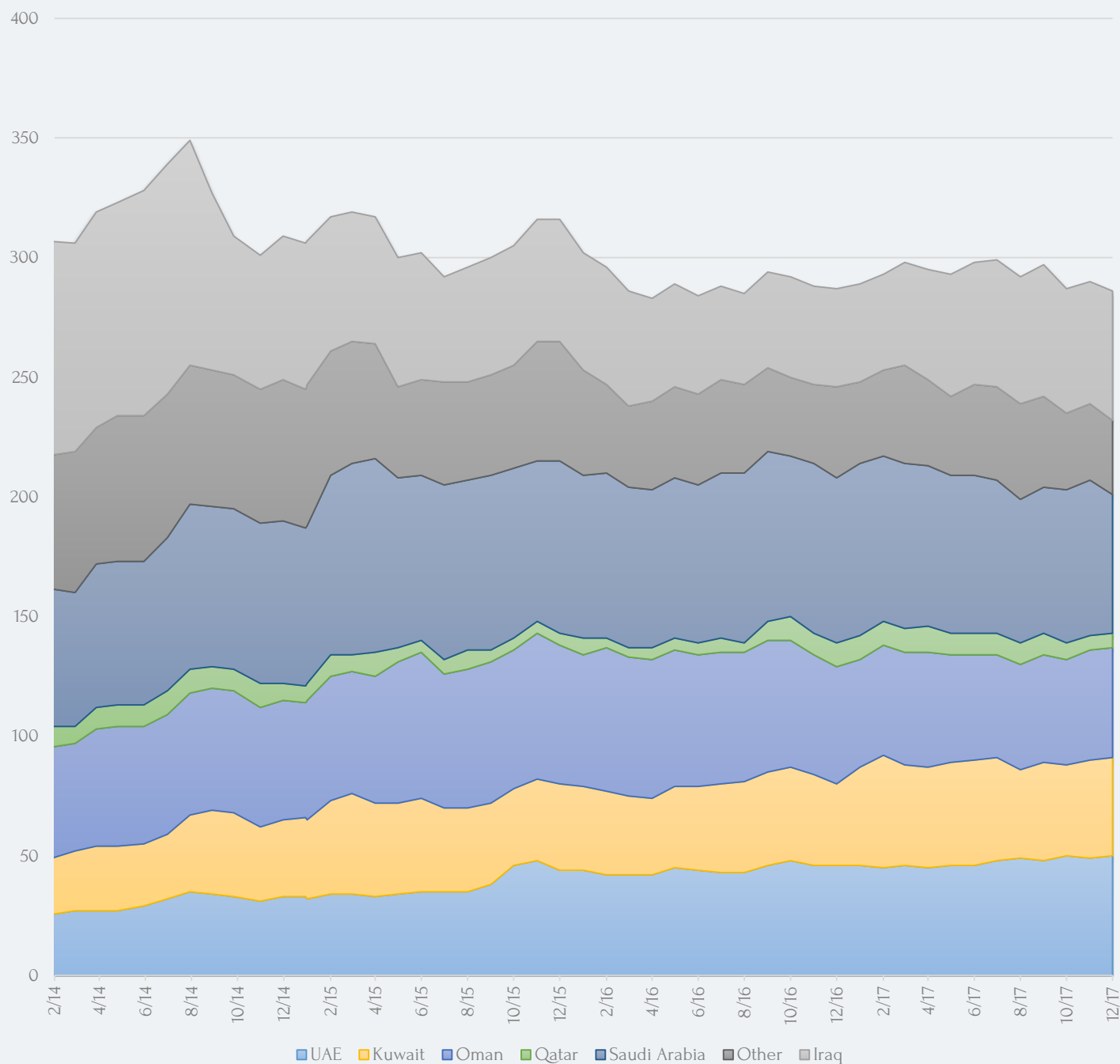
This presents something of a tension. As part-privatisation of this and other entities progresses, the government needs to maximise value from firms where it still owns the majority, while giving a chance to small and medium enterprises, the main motors of innovation and job creation.

The ADNOC Distribution IPO needs to succeed on its own terms, but also to set the agenda for the whole reform programme.

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# RIG COUNT SNAPSHOT: OIL

DECEMBER 2017

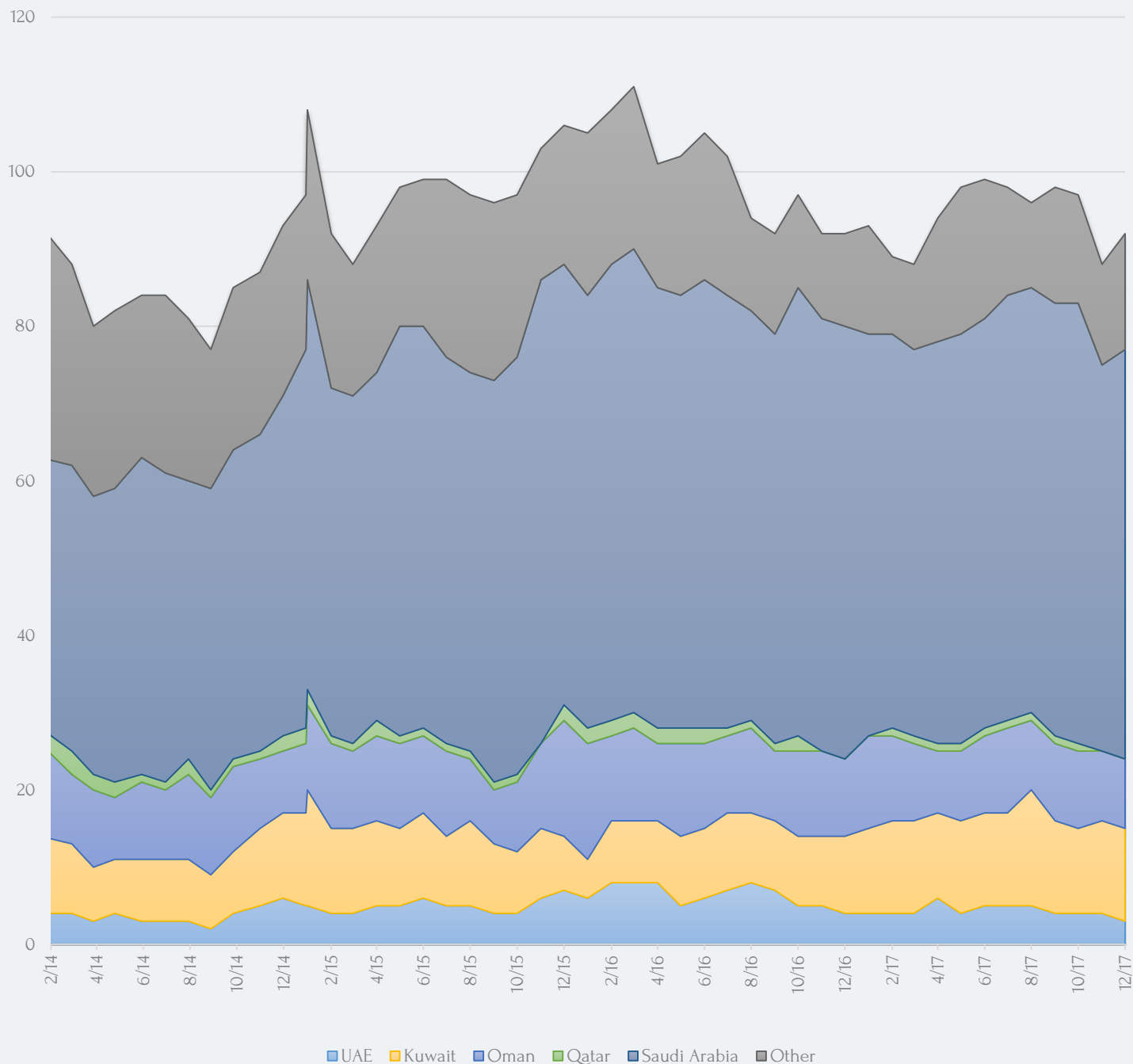


## Oil Rig Outlook for Nov/Dec, '17

- December witnessed an overall decrease of -4 in oil rigs in the Middle East, excluding Iran.
- The UAE gained by +1 in December, maintaining a steady average throughout the year.
- Iraq gained by +3 in December, after having lost -3 in October.
- Kuwait witnessed no change in its rig count, averaging the same in November and December.
- Oman witnessed no change either and remained steady, averaging 45 rigs in 2017.
- Qatar witnessed a fall in oil rigs by -1, its lowest level since August 2016.
- Saudi Arabia fell by -7 rigs in December, after having marked its highest count in November since July of this year.

# RIG COUNT SNAPSHOT: GAS

DECEMBER 2017

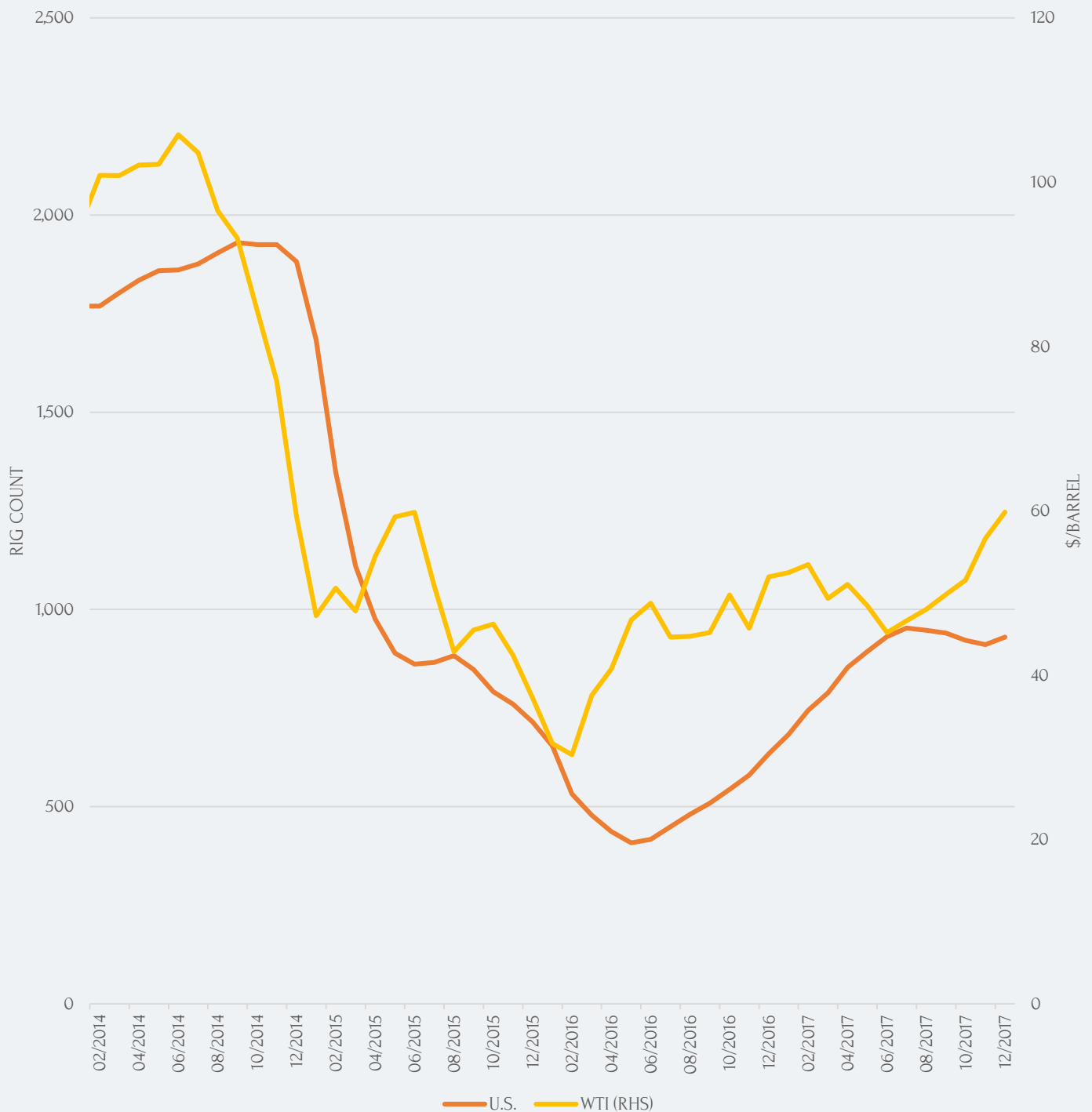


## Gas Rig Outlook for Nov/Dec, '17

- December witnessed a gain of +4 in gas rigs in the Middle East, excluding Iran.
- The UAE fell by -1 from November, but remained relatively steady throughout the year.
- Kuwait gained 1 rigs in November, making up for the -1 decrease in October.
- Oman stayed relatively steady, witnessing a decrease of -1 in its rig count from October.
- Qatar witnessed a loss of -1 rig in November, continuing into December.
- Saudi Arabia gained by +3, after falling by -7 rigs in November.

# RIGS VERSUS OIL PRICES: US RIGS & WTI

DECEMBER 2017

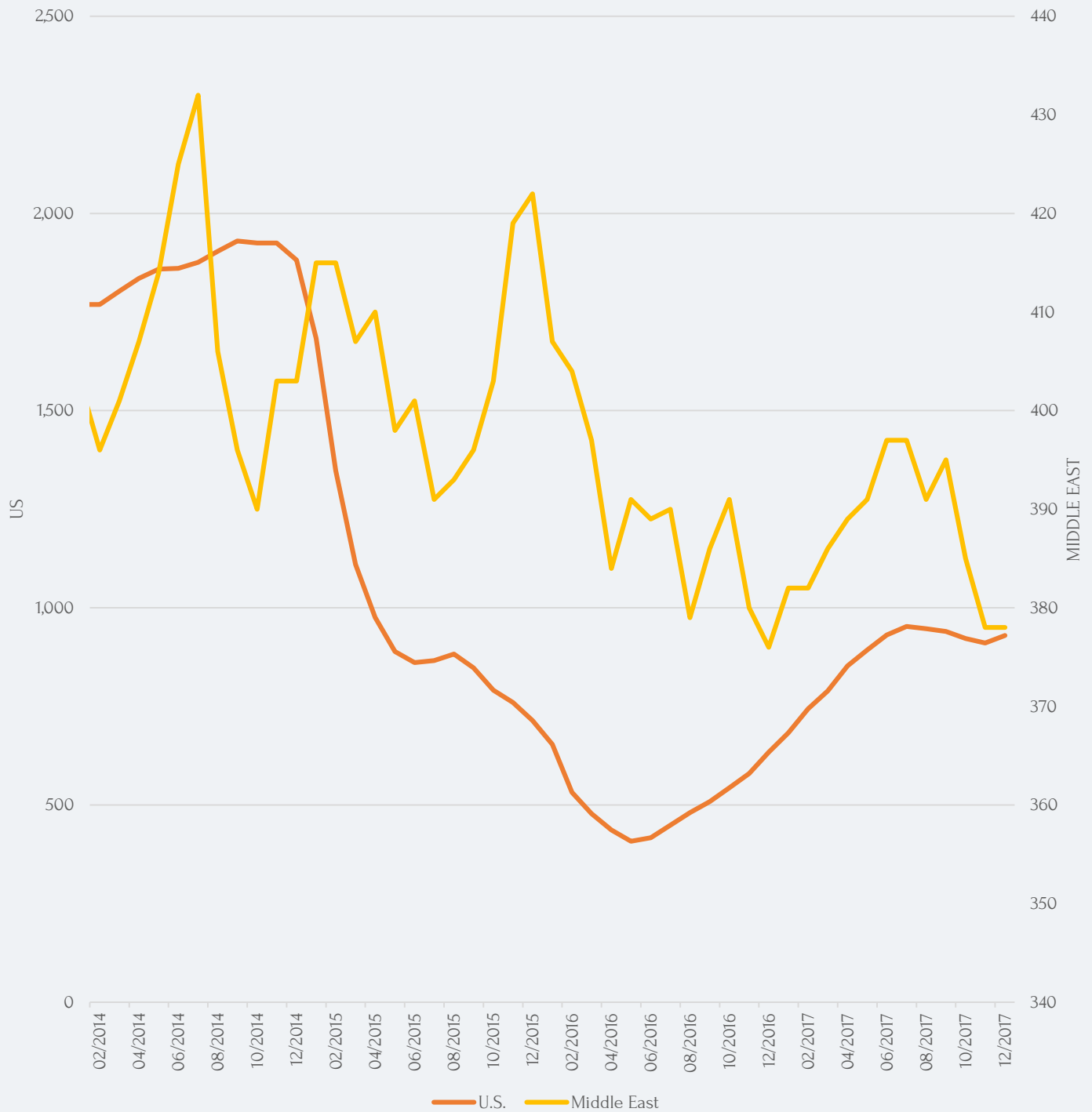


- US rig count gained by +19 in December, after falling by -11 in November.
- US rig count has been in decline since August due to producers trimming spending plans citing softer oil prices; however at 930, it's still much higher than 634 rigs in December last year.



# RIG COUNT: US & MIDDLE EAST

DECEMBER 2017



- The Middle East's rig count dropped by -10 in October and by an additional -7 in November following the extension of OPEC cuts.
- The region's rig count has averaged 392 for the last two years.

# FUEL PRICES & SUBSIDY REFORMS

DECEMBER 2017

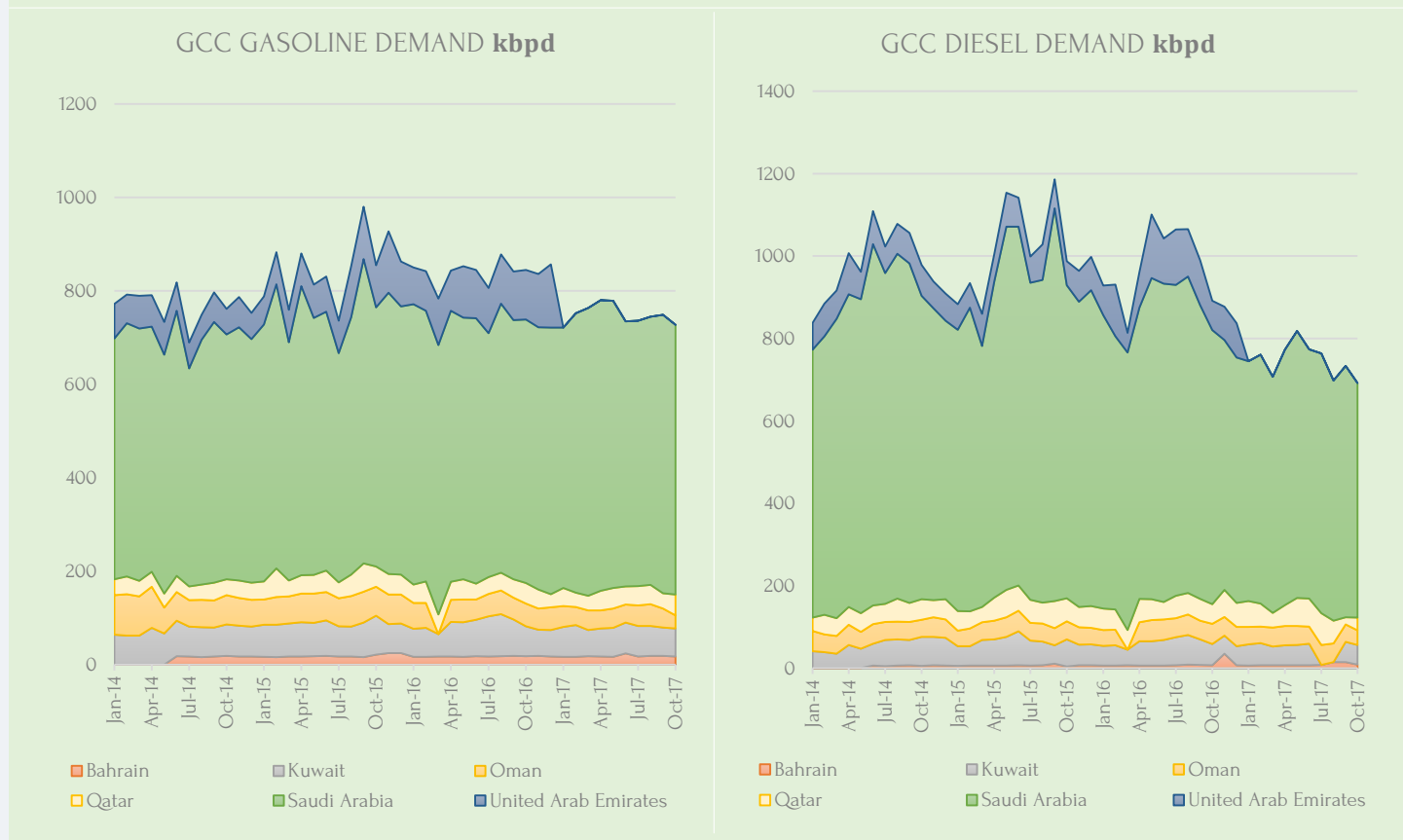
- The UAE was the first GCC country to remove fuel subsidies, in August 2015. The other GCC countries – Saudi Arabia, Oman, Bahrain, Qatar and Kuwait – have reduced subsidies. The UAE and Oman set prices monthly based on market levels, while Qatar adjusts them monthly based on a discount to the market. Kuwait adjusts prices on a quarterly basis.

The following table represents the prices of gasoline 95 and diesel (\$/litre) for December 2017 in the GCC countries.

GCC Country	PAST US \$ PER LITRE		CURRENT US \$ PER LITRE	
	Gasoline 95	Diesel	Gasoline 95	Diesel
Saudi Arabia	0.16	0.07	0.24	0.12
UAE	0.46	0.63	0.56	0.60
Qatar	0.27	0.27	0.49	0.46
Bahrain	0.27	0.42	0.43	0.37
Kuwait	0.21	0.36	0.35	0.36
Oman	0.46	0.39	0.54	0.57
US - PRE TAX	0.52	0.57	0.57*	0.55

Source: EIA, Qamar Energy

\*US Gasoline 95 values are calculated for Premium Grade.



**Note:** UAE figures for 2017 are not available. Prior to 2017, UAE figures cover ADNOC sales only.

# EGYPT LOOKS TO AID ITS SUFFERING ECONOMY AND THE ENVIRONMENT

Maryam Salman • Research Analyst at Qamar Energy

***The country has announced itself as a signatory to the Zero Routine Flaring by 2030 initiative to end routine flaring of associated gas.***

Egypt houses about 54 Tcf of natural gas reserves, and is the second largest gas producer in Africa after Algeria. However production has not kept up with the country's growing need for energy, especially during the post-revolutionary period's budget restrictions. The country remains a net importer of energy – even as Eni's supergiant Zohr field, in the offshore Shorouk block, begins production, expecting to reach 1 Bcf by mid-2018 – and flares approximately 70.6 Bcf of natural gas each year. Equivalent to a loss of USD 250M annually according to the World Bank, Egypt now sees itself ranked at number 11 in the world's top gas flaring countries. For a country struggling to balance a deficit of over USD 18.5B (FY 2017/2018), investing in the reduction of gas flaring technologies might not just be about protecting the environment after all.

The European Bank for Reconstruction and Development (EBRD) ascertains that to meet its gas flaring reduction agenda, the country needs an additional USD 4-5B of investments to eliminate all flaring by 2030. Tarek al-Molla, Egypt's oil minister, might as well hedge his bets on new development projects coming into the country over the next decade to meet the costs for investing into the reduction of gas flaring. Egypt's current oil production stands at 700 kbpd, and with ExxonMobil considering a foray into

the country's offshore oil and gas reserves, speculations about crude production declining may remain just that – speculations – for the time being.

Egypt's trade balance could improve by USD 600M if the country replaced energy imports with better utilisation of its existing natural gas reserves through the reduction of flaring, leaving no doubt that the practice has severely damaged the country's economy.

Now signed up for the World Bank's Zero Routine Flaring by 2030 initiative, the country can only hope that foreign investment in capturing and reusing flared gas can supply the additional 5% of energy it desperately needs. More so after also having inked the Paris COP21 Agreement exactly two years ago.

Market conditions and local politics, however, remain the Achilles Heel for IOCs looking to invest in the country. Payment delays, low local gas prices (though rising), and the difficulty of capturing gas from many small and dispersed fields relatively remote from demand, explain the continuing high level of flaring..

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## GLOBAL GOVERNANCE OF CARBON CAPTURE & STORAGE: ROLE FOR THE GCC?

*This is a **preview** of the report by **Robin Mills** for the **Emirates Diplomatic Academy**, December '17. To view the full version, follow the link below the excerpt.*



Despite recent strong progress in reducing the cost of renewable energy and improving its integration into the electricity grid, variable renewables (wind and solar) still require some kind of back-up, energy storage or dispatchable power to meet demand reliably. The lowest-cost and most politically-achievable solution is likely to be a mix of renewables with other technologies, potentially including a large share of CCS. The UAE, and GCC countries generally, have a unique relationship to CCS, because of: the growing commitment by these governments to climate solutions alongside their economies' status as leading oil and gas producers and consumers; their ability to access the right technology and financing; as well as general public acceptance and technical conditions for large-scale CCS deployment.

Full report can be accessed [here](#).

# ARABIA MONITOR ENERGY, WITH QAMAR ENERGY

## ARABIA MONITOR ENERGY

Oil and gas tensions in the Middle East continue to influence the volatility of the world's energy markets. The Arabia Monitor Energy, a novel collaborative effort by Qamar Energy and Arabia Monitor, combines macroeconomics, geopolitics and energy intelligence to explain what the region's energy geo-economics mean for business.

## WHAT SETS IT APART?

1. **Inside OPEC**  
Focussed assessment of the month's OPEC developments, policy advancements and strategies.
2. **NOC & IOC Analyses**  
Examination of factors affecting NOC and IOC policies, and their impact on regional diversification schemes.
3. **Spotlight this Month**  
Targeted reading of the geopolitical, macroeconomic and energy landscape of a MENA country utilising our specialised energy intel.
4. **Scenarios to Watch**  
Detailed forecast of global oil developments and their impact on the risks and opportunities for MENA's oil production.
5. **Strategic Implications**  
Concise summary of major oil trends and their effect on investment strategies under bearish, bullish, and wobble scenarios.
6. **Outlook for the year**  
Cohesive outlook of the oil production, gas production, renewable energy projects, and geopolitics of key MENA countries.

## THE DELIVERABLES

### **8 Monthlies**

Oil Price Scorecard  
Headline Developments  
Spotlight this Month  
Scenarios to Watch  
Projects in the News  
Macro Dashboard for Oil Exporters/Importers  
Outlook for the year

FOR FURTHER INFORMATION CONTACT US  
ON [INFO@QAMARENERGY.COM](mailto:INFO@QAMARENERGY.COM)  
OR +971 43641232 • DUBAI, UAE

## WHO BENEFITS?

### **Energy Traders:**

- What factors will contribute to oil and gas price fluctuations?
- What is the outlook for oil and gas pricing?
- What is the outlook for OPEC's production and export strategy?
- How are NOCs adapting their oil marketing strategies?

### **Investment and Risk Analysts:**

- What are the operational risks and investment opportunities in MENA? How do economics, politics, government policy changes, production and export bottlenecks, new oil and gas production, project economics and infrastructure challenges contribute to risk mitigation?

### **Upstream Firms:**

- What are the chief economic, political and energy policy factors driving/limiting upstream investment decisions and progress?
- What are the oil supply outlooks for the countries by project?

### **Downstream Firms:**

- What are the demand challenges, patterns, and trends for oil and oil products?

### **National Oil Companies:**

- What are future oil and gas pricing trends?
- What developments will intensify or weaken demand?
- What are IOCs' incentives and drawbacks in operating in the country?

### **Alternate/Renewable Energy Organisations:**

- What are the challenges to renewable energy targets?
- What is the progress of major renewable energy projects?
- Are there opportunities for more entrants?

### **4 Quarterlies**

MENA Map as per Political Grouping  
Map of New Licensing Rounds  
Political & Regional Security Issues  
Oil & Gas Prices Outlook  
Global Barriers to Oil & Gas Production  
Deep Dive into OPEC  
Deep Dive into NOPEC  
MENA Energy Investments  
MENA Energy Fiscal Systems  
MENA Energy Upstream Bidding map  
MENA Economic Outlook  
Probability Scorecard for Bearish & Bullish Oil Supply/Demand  
Investor Implication Scenarios  
(Under 3 Oil Price Dynamics)



## Example 1 – Scenarios to Watch

Renewed Oil CrisisTiming: 2021

**Event:** Rising demand and global production hampered by years of underinvestment, collide with a sudden crisis in a major oil-exporting country. Oil prices soar to over \$120 per barrel, threatening Asian economies. China calls on its GCC partners to support it preferentially, while India, Japan and South Korea also claim their special relationships.

**Impact:** Higher oil prices would mean higher revenues enjoyed by the MENA exporting countries at the expense of its importers. In the event of a supply cut occurring from a major exporting country, especially one that exported significantly to Asia, Asian countries would look to replace their lost imports by convening with other major exporters in the region with a promise of increased investment. Simultaneously, exporting countries would feel it only advantageous to reduce Asian crude grade prices and gain market share. Asia would also try to lessen its dependence on the Middle East by sourcing higher imports from most possibly Russia or the US.

**Mitigation:** Realising that this is a time of a restive Middle East, Asian countries, particularly China, are already keeping their guards up at a time of low prices. Chinese state companies are boosting strategic reserves and discussing with Aramco the potential of becoming a large investor in the IPO if they would be the number one priority for the Kingdom in case of an emergency. The GCC countries are investing in new and existing storage tank capacity in Asia for use in emergency. New pipeline export routes bypass the Gulf if required.

Scenario Probability: 30%Alternative Futures

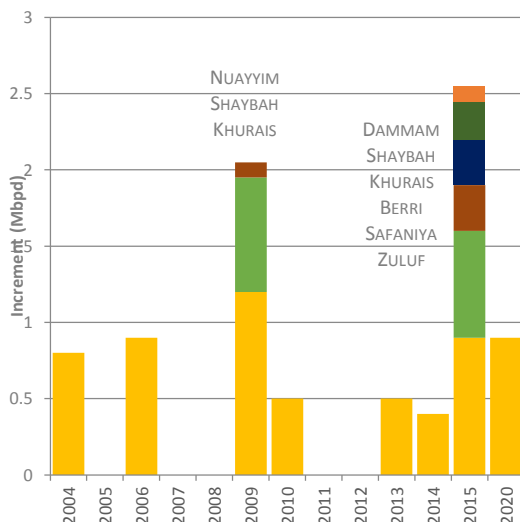
1) 40%: No sudden crisis in a major oil-exporting country occurs

2) 20%: The loss of supply from one major oil exporting country is made up with new supplies from other countries (revival of Libya, Nigeria, Venezuela, and higher exports from Iran and Iraq).

3) 10%: The Asian countries would not be significantly affected as they would have already lessened dependence on Middle East with higher imports from US shale or Russia.

## Example 2 – Headline Developments

WHEN DOES SAUDI ARABIA EXPAND ITS PRODUCTION CAPACITY AGAIN?



## Summary of the key Issues in Oil Operations in Kuwait

Technical:

- New challenging resources (deep sour Jurassic gas, heavy oil)
- Maturing oil fields (Raudhatain, Sabriya fields, Greater Burgan) and KOC's lack of experience in Enhanced Oil Recovery
- Pollution from heavy oil burning
- Relying on technology from IOCs
- Water demand soon to outpace supply - need for expansion of water supply capacity

Economic:Commercial:Organisational:Political:

**Sample**

# OPEC WATCH

AVERAGE CRUDE PRODUCTION FOR DECEMBER 2017

## 32.45 mb/d

### -133 kbpd

From October 2017



#### Non-OPEC Oil Supply

## 57.82 mb/d



+ 0.15 mb/d  
from Oct. '17

#### **Non-OPEC Crude Output**

Brazil  
United States  
Canada



#### Non-OPEC (NOPEC) SUPPORT

- OPEC compliance was at **120%** up from 101% in October from higher compliance in the UAE and large cuts in production from Venezuela due to the political crisis.
- Mexico's compliance has fallen due to weather related disruptions. However, Mexico still leads in non-OPEC compliance at 221% for October (down from 401% for September).
- Russia's production is expected to decline by 0.01 mb/d to average 11.03 mb/d in 2018; the country's compliance for 2017 averages 80% after crossing 100% in September.
- In Kazakhstan, NCOC has stated that Kashagan's oil output is expected to reach 370 kbpd capacity sometime in 2018 unlike end-2017 as reported earlier.
- OPEC and non-OPEC agreed on 30<sup>th</sup> November to go forward with the OPEC cuts and collectively curb production by 1.8 mb/d through 2018.

#### **NEXT OPEC MEETING: 22.06.2018**

174<sup>th</sup> (Ordinary) OPEC Meeting in Vienna, Austria

#### **LATEST ORGANISATIONAL CHANGES**

- UAE Minister of Energy Suhail Al Mazrouei has been elected as president of the OPEC Conference for one year, with effect from January 1 2018.
- Major General Manuel Quevedo, the Minister of Petroleum and Energy of Venezuela, has been elected as alternate president for the same period.
- Equatorial Guinea joined OPEC as the 14th member. The country produced 129 kbpd in November.

#### **PRODUCTION LIMITS**

- While Nigeria and Libya are exempt from the original OPEC deal, both have agreed to cap output from their 2017 high of 2.8 mb/d combined.
- Both countries' output has increased for November by 102 kbpd combined; Nigeria: + 95.8 kbpd alone.
- Output from OPEC countries fell from 32.59 in October to average at 32.45 mb/d in November.
- Angola's production dropped by 109 kbpd, after witnessing its year high output of 1.69 mb/d in October.
- Saudi Arabia's production levels fell by 45.4 kbpd in November, maintaining its +100% compliance through Q4 2017.
- November witnessed both OPEC-NOPEC collectively honouring OPEC cuts.
- Iraq's production levels remained steady since October, with a minor jump of 1 kbpd. The country's compliance remained at 79% in November.

# KEY MENA ENERGY SCORECARD

DECEMBER 2017

## QATAR CRISIS

Qatar says it is ready for a compromise; US Department of Treasury imposed sanctions on eight individuals and one business in Qatar suspected of financing, facilitating and arming al-Qaeda; Qatar crude oil output increased to its highest levels in Q4 2017 at 604 kbpd despite embargo; Algeria has demonstrated its value to Doha as a potential partner to weather the economic embargo through new economic lifelines; Qatar and Algeria have been pushing OPEC to reduce production cuts; UK orders of LNG from Qatar continue as scheduled despite GCC blockade; Qatar set to continue supplying the UAE with 1.8 Bcfd of natural gas through the Dolphin gas pipeline; plans to increase the flow to 3 Bcfd are on hold.



## MENA ALTERNATIVE ENERGY

Saudi Arabia's Prince Salman says Saudi's Neom Economic Zone to contribute \$100bn to GDP by 2030 and will be fully powered by solar and wind; IFC (World Bank Group) has provided USD 653M for the development of Egypt's 752MW Nubian Suns solar project; Oman is mulling unique solar panel scheme with subsidised installations of 3kW panels to achieve 10% of total power consumption through renewables by 2025; the Oman Power and Water Procurement Company SAOC has launched an RFQ for a proposed 500MW Solar Project.



## MENA ENERGY PRICE REFORM

Saudi Arabia has slowed down plans to eliminate energy subsidies by 2023 instead of 2020 (gasoline prices to rise 80% in January); 5% UAE VAT on petrol prices from January; crude oil and natural gas shall not be taxed under the UAE's Federal Decree-Law No. (8); Oman's 5% 'sin-tax' implementation on unhealthy products postponed to 2019; tensions rising in Kuwait over VAT implementation by end-2018 to meet Vision 2035.



## MENA NUCLEAR POWER

KSA and Russia sign roadmap deal to implement Civil Nuclear Cooperation Programme for cooperation on small and medium-sized reactors; South Korea refutes allegations of having to pay USD 2T for delay in the construction of UAE's Barakah Nuclear Plant; Egypt and Rosatom signed contract to develop USD 21B Dabba nuclear plant; Jordan's nuclear power plant (Amra, Rosatom) to be completed by 2022, though this seems overambitious and unlikely.



No Change ↔ Very Positive  
Deterioration in the last month ↘ Positive  
Improvement in the last month ↗ Negative  
Very Negative

# KEY MENA ENERGY SCORECARD

DECEMBER 2017

## ENERGY INFRASTRUCTURE SECURITY

One missile in December was fired by Houthi rebels at Riyadh and intercepted, increasing tensions between Iran and KSA, but both countries on same page in OPEC meetings favouring cuts; armed seizures of militias blocking oil production infrastructure are derailing Libya's oil recovery plans; explosion of major oil pipeline, operated by Waha Oil Company, from Marada to Es Sider oil port in Libya, disrupted supply by 70-100 kbpd; Nigerian protests by union oil workers threatened oil production, but were quickly called off.



## ABU DHABI DEVELOPMENTS

ADNOC Distribution's 10% confident of raising USD 2B; Abu Dhabi approved ADNOC's USD 109B five-year investment plan to raise oil production capacity to 3.5 mb/d by 2018; ADNOC will utilise 40% of funds to expand refining capacity by 60% and triple petrochemicals production by 2025; Al Reyadah to expand CO<sub>2</sub> capture beyond the Emirates Global Aluminium facilities to the Taweelah power facilities from 2030.



## IRAN DEVELOPMENTS

President Rouhani's conservative budget for 2018 states Iran's oil and oil product revenues will fall by 16% in 2018 (from \$36.1 B to \$30.3 B); Russian companies likely to continue to invest even if UNSC imposes sanctions; Gazprom signed MoU for 10.5mn t/y Iran LNG export project. Quercus to invest USD 594M for a 600 MW solar plant in central 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); Iran estimates exports of piped gas to Iraq will reach 490 mcf/d by March 2018.



## KUWAIT DEVELOPMENTS

Kuwait reshuffled government and appointed Bakhit al-Rashidi as new oil minister; KPC and Oman Oil will finance USD 5B for a 230 kbpd refinery at Duqm; Kuwait signs 15-year contract with Shell to import LNG from 2020 after KPC cancelled plans to tender USD 3.6B field development work on Jurassic field that was to process 590 Mcfd of gas.



No Change ⇄ ● Very Positive  
Deterioration in the last month ↓ ● Positive  
Improvement in the last month ↑ ● Negative  
● Very Negative



# KEY MENA ENERGY SCORECARD

DECEMBER 2017

## MENA RENEWABLE ENERGY

Vestas, Siemens, Enercon and Ray Power prequalified for 250MW Gulf of Suez Wind Farm; Egypt to install 2.8 GW of PV and 700 MW of CSP, as well as 7.2 GW of wind by 2022; Saudi Arabia to award contract for 300MW Sakaka Power Plant in Q1 2018; Morocco closes bidding RFPs for MASEN's Noor Midelt Solar Hybrid Complex; Bahrain planning to tender a 100 MW solar power plant in Q1 2018 on IPP model to be assessed by Italy's CESI.



## FEDERAL IRAQ DEVELOPMENTS

Petrofac awarded with USD 160M contract by Basra Oil Company for the Iraq Crude Oil Export Expansion Project (ICOEEP); Shell and Petronas exit Majnoon field after handing it over to Basra Oil Company following failure to reach production target of 1.8 Mbpd; BOC to ramp up Majnoon's production from 235,000 bpd to 400,000 bpd and cut production cost productions by 30% per bbl; Iraq and China's Zhenhua Oil agree to build oil residential complex in the East Baghdad field to increase production to 40,000 bpd within 5 years.



## MEDITERRANEAN GAS COMMERCIALISATION

Algeria's Sonatrach and Total sign joint cooperation deal to produce 5 Mcf by April 2018 at Algeria's Timimoun gas field; ENI's Zohr starts production from Shorouk block offshore Egypt at 350 Mcfd, slated to produce 1Bcfd by mid-2018; MoU on 12-16 Bcm/y EastMed pipeline signed by Greece, Cyprus, Italy and Israel to transport Cypriot and Israeli gas reserves to mainland Europe; ENI and Total in the process of beginning drilling on Block 6 offshore Cyprus; ExxonMobil is planning at least two wells in H2 2018 on Block 10 offshore Southwest Cyprus with Qatar Petroleum; ENI, Total and Novatek awarded E&P licenses for Blocks 4 & 9 offshore Lebanon to determine existence of oil and gas; Egypt confirms that plans to import Israeli gas are contingent on USD 2B fine from previous deal.



No Change ↔ ● Very Positive  
Deterioration in the last month ⇩ ● Positive  
Improvement in the last month ⇩ ● Negative  
Improvement in the last month ⇩ ● Very Negative



## ABOUT US

Qamar Energy provides leading-edge strategy, commercial and economic consulting across the energy spectrum to governments, international oil companies (IOCs), national oil companies (NOCs), investors, and oil traders.

### ROBIN MILLS • CEO

Robin is an expert on Middle East energy strategy and economics, described by Foreign Policy as "one of the energy world's great minds". He is the author of two books, *The Myth of the Oil Crisis* and *Capturing Carbon*, columnist on energy and environmental issues for Bloomberg and The National, and comments widely on energy issues in the media, including the Financial Times, Foreign Policy, Atlantic, CNN, BBC, Sky News and others. He is a Senior Fellow with the Iraq Energy Institute. He holds a first-class degree in Geology from the University of Cambridge, and speaks five languages including Farsi and Arabic.

### RECENT APPEARANCES & TALKS



**Euro Money MENA Asset Management & Trading Summit, Dubai •**  
*Presentation on MENA Energy Landscape*



**Platts 5<sup>th</sup> Annual Middle East Crude Oil Summit, Dubai •**  
*Presentation on Special Session: Iraq – Production, Compliance, & Political Status*

### QAMAR NEWSLETTER ARCHIVES

[May 2017](#) • [June 2017](#) • [July 2017](#) • [August 2017](#) • [October 2017](#)



### Qamar Energy

HDS Business Centre, Cluster M  
Jumeirah Lakes Towers  
Dubai, United Arab Emirates  
+971 43641232

[info@qamarenergy.com](mailto:info@qamarenergy.com)

[www.qamarenergy.com](http://www.qamarenergy.com)

[@qamarenergy](#)

