THE QAMAR NEWSLETTER

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12 Outside the Box Energy Predictions For 2019 . Cover story by Robin Mills.

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Qamar Energy, headquartered in Dubai, is the leading regionally-based energy consultancy on the Middle East and North Africa (MENA).

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

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QAMAR ENERGY

THE QAMAR ENERGY 2019 MIDDLE EAST ENERGY OUTLOOK

MIDDLE EAST OIL

1. Saudi Arabia will continue to lead by example in the OPEC cuts and there the 2019 cuts could be extended to the end of the year
2. Iran's oil production to dwindle further and impact of sanctions to shrink economy and increase unemployment; could spark protests
3. Iraq oil production hitting 5 Mbpd with increases from Rumaila, Zubair, Majnoon, Halfaya, Bai Hassan, Gharraf and other state-operated fields
4. In the Kurdistan region, Gulf Keystone's Shaikan boosts production by 20 kbpd to reach 55 kbpd by end-2019; other likely production increases from Peshkabir (DNO) & Bina Bawi (Genel Energy)
5. ADNOC's exploration concession winners to be announced
6. Qatar to choose partners for LNG expansion; and NGL capacity expected to rise from Barzan project adding some 80 kbpd of condensate and NGLs by 2019
7. Oman new exploration bidding round
8. Rex International Holding (Singapore) aims to start oil production at 5 kbpd from block 50 offshore Oman in H2 2019
9. OMV's resumed operations in Yemen could increase to 20 kbpd in 2019 and Calvalley, operator of Malik Block 9 in Yemen, might restart in 2019 at around 1.2-1.5 kbpd
10. Startup of Saudi Arabia's 400 kbpd Jizan refinery providing boost to diesel output and exports as domestic demand for diesel slows with subsidy reform
11. FEED work on ADNOC's Ruwais plant to be completed in the first quarter of 2019

MIDDLE EAST GAS

1. Egypt's Zohr's output will reach 2.95 Bcf/d by the time the field's development is complete in July 2019
2. Results of ENI's two exploration wells to be drilled in the Nour concession offshore Egypt to come out; results will be closely watched as ENI denied having made a discovery of around 90 Tcf of gas reserves, or 3x as much gas as the supergiant Zohr field in 2018
3. Results of ExxonMobil's (and Qatar Petroleum's) Delphyne-1 exploration well offshore Cyprus (Block 10) and drilling of second well
4. Lebanon new bidding round; Israel second offshore bidding round submissions in June 2019 and results in July 2019

MIDDLE EAST CLEAN ENERGY

1. Saudi's 300 MW solar Sakaka tender to complete construction end-2019/early 2020; award of 400 MW Dumat Al Jandal wind project; 12 pre-developed projects with a capacity of ~3.1 GW to be tendered in 2019, including 2.2 GW solar PV and 850 MW wind
2. Start of the 1st nuclear reactor in Abu Dhabi's Baraka plant in early/mid 2020
3. Completion of Abu Dhabi's Sweihan 1,177 MW solar PV plant

MIDDLE EAST GEOPOLITICS

1. New fiscal regimes in Algeria to come out with no likely change in the 51%/49% foreign ownership rule
2. Negotiations could resume with Kuwait and Saudi Arabia to restart production from the Neutral Zone
3. US and Saudi Arabia to remain strategically aligned when it comes to countering Iran's reach in the Middle East, but some tensions rising between the two with pressure from US Congress to end the Yemen war
4. Libya's political elections
5. Risk of vulnerability to Lebanese Lira as government formation delays
6. Russia-Saudi relationship to strengthen, mostly in oil projects (possible announcement in collaborations in LNG & refinery)
7. Continued fighting in Idlib, Syria and proxy wars between Iran and Israel to continue. Possible withdrawal of US

TWELVE OUTSIDE THE BOX ENERGY PREDICTIONS FOR 2019

Robin Mills • *A version of this article appeared in The National, Dec. 30, '18* • **COVER STORY**

As a tumultuous year in energy closes, 2019 is set to be another as technology, markets, politics and macroeconomics collide. Here's what I predict.

The year opens with sunshine, as January's World Future Energy Summit in Abu Dhabi features numerous clean energy highlights. During the year, Dubai achieves another world record for the lowest concentrated solar power price and the largest plant, as bidders go far beyond the requested 300 megawatt scope. Meanwhile, Abu Dhabi, Oman and Saudi Arabia beat the once unthinkable level of 2 US cents per kilowatt-hour for solar photovoltaic projects.

In February, an Arabian Gulf national oil company (NOC) makes its boldest step yet internationally, taking advantage of depressed valuations and acquires a large western upstream player. The NOC wants technology and experience for shale, heavy oil and liquefied natural gas (LNG), and a portfolio of oil and gas to trade. Constrained by OPEC restrictions from growing at home, it can now expand abroad. And with growing pressure on pension funds and endowments to divest from fossil fuels, it helps to have a shareholder with no such qualms.

Brexit's chaotic deadline arrives in March. Long queues of lorries at British ports and grounded planes hit fuel demand. Along with Russian president Vladimir Putin, Donald Trump congratulates Britons on their democratic choice, but at home, the "Trump slump" deepens. A rudderless administration battles possible impeachment instead of its deepening trade war with China and a recession moving from Wall Street to Main Street.

In April, Asian refiners stop loading Iranian crude cargoes again, not sure whether they will receive US waivers when the six-month grace period expires in May. With Europe still struggling to set up payment channels even for humanitarian supplies, President Hassan Rouhani comes under intense domestic pressure to cease cooperation with the joint nuclear deal. Yet above its known exports, some 300 000 barrels per day of Iranian crude still avoids US detection, keeping its economy afloat.

That month's OPEC meeting is acrimonious, Tehran charging that Saudi Arabia and Russia run the organisation and are taking market share at its expense. Minister Zanganeh walks out, and even talks of withdrawing from OPEC, leaving Riyadh and its allies to go it alone. Iraq announces a further jump in production as ExxonMobil expands its export capacity, pushing prices down further.

The regional economic outlook is gloomy. In May, more refugees flee eastern Syria as the Kurdish-led Syrian Democratic Forces, pro-Turkish forces, and Assad, with his Iranian allies, try to seize their spheres of influence over the area's oil and water, and pockets of ISIL fighters re-emerge. Israeli air-strikes in Syria raise worries over a new conflict in Lebanon.

Beirut's precarious fiscal balancing act topples over with a run on its banks and currency. The panic spreads to two other weaker regional countries, as remittances fall, borrowing costs spike and low oil prices drive ballooning deficits. Saudi Arabia and the UAE bail them out to prevent contagion.

In June, electric cars take a step towards the mainstream. Outside China, twelve new models launch in a record year. The Audi e-tron challenges Tesla in sportscars; the Kia Soul, Volkswagen ID and Mini E fill the more affordable range; Mahindra's eKUV 100 electrifies the giant Indian market. Beijing affirms that from 2030, all new vehicles will have to be electric. China boasts five of the world's top ten electric carmakers, trying to leapfrog conventional manufacturers.

July brings no relief from the US oil glut, as new pipelines from the Permian Basin open. The country's production surges above 12 million barrels per day, an all-time record for any country. But lower prices are finally dampening drilling.

It's a hot Gulf August. A record heatwave here, Arctic ice-melt, drought in the western US and Australia, coincide with a massive hurricane that inundates Miami. The one bright spot for the climate is that the slowing world economy pumps out less carbon dioxide.

The region's energy industry is rattled in a torrid September. A cyberattack shuts down oil loadings at Saudi Arabia's Ras Tanura for several days, with confusing fingerprints of Russian, Iranian or perhaps other hackers. A remote-controlled boat bomb puts one of Iraq's offshore tanker loading points out of service for months; ISIL claims responsibility, but again suspicion falls on Iranian-backed groups retaliating over sanctions.

Russia reacts quickly, offering its aid to keep the Gulf safe for navigation, and, in October, sets up a small naval base in a Gulf country. The move stirs unease in regional capitals, Washington and Beijing.

November sees the International Maritime Organisation's rules on cleaner shipping fuels starting to bite. Vessels have to empty their tanks in preparation for the rules' adoption in January 2020. Prices for heavy, high-sulphur fuel oils plunge, but cleaner diesel rises as refiners cannot make enough to meet the new demand. The impact is blunted by low oil prices, but comes as another blow to struggling world trade.

A difficult year closes with Christmas presents for the new energy economy. Gulf countries push ahead with a series of privatisations, including 10 per cent of a national oil company. They pour the receipts into advanced technologies including an American carbon capture company, a joint venture with a Chinese electric carmaker, and a European breakthrough battery.

The outlook for oil remains negative and volatile, so the exporters have placed some big bets on its competitors. In 2020, those start paying off. As turbulent as 2019 was, the energy news the year after takes the world by storm.

A NEW ERA SET TO DAWN FOR HYDROCARBON DIVERSIFICATION

Robin Mills • *A version of this article appeared in The National, Jan. 07, '19*

When we hear of diversification in Middle East economies, we may think of ambitious, futuristic initiatives: cities inhabited by robots, self-driving cars, hyperloops, and space exploration. Or, it may be more prosaic businesses: financial services; construction; tourism; airports and airlines. But in the Arabian Gulf's latest drive, it is going back to basics, wringing more value out of the hydrocarbon industry.

What is the point of diversification? Economies that grew up on the export of oil and gas are exposed to various problems as they mature. Prices are highly volatile, making it hard to manage the government budget from year to year. The industry employs few people, leading to a reliance on the state to create jobs for the rest of the population. The enormous inflow of wealth leads to over-appreciation of the currency and crowds out other businesses, except those dependent on the government's favour.

For the Gulf states, with their enormous resource bases, there is also the concern for a time when oil may be progressively replaced by other energy sources, leaving them with untapped oil under the ground of little value.

These problems have been recognised since at least the 1970s. Some countries have escaped the trap, such as Malaysia, Norway and Chile (an exporter of copper), by investing in their people, and steadily moving up the technological ladder. Paradoxically, it helped Malaysia and Norway that their offshore fields were difficult and expensive to tap, and the reserves relatively limited, forcing them to use more advanced technologies and plan ahead.

Middle East countries have been through a series of ambitious economic schemes and visions for reducing dependence on hydrocarbon exports. Some of these have been quite successful, while others remain works in progress or have been quietly shelved. Yet oil and gas exports still provide 15 per cent of GDP in the UAE and 45 per cent in Kuwait, compared to 6 per cent in Norway, and account for a large majority of government budgets.

Much of the successful Gulf diversification from the 1980s onwards focused on energy-intensive heavy industry – aluminium, steel, petrochemicals – where the region had a natural competitive advantage. Now, after four years of relatively low oil prices, regional governments are again dusting off this blueprint.

The new plans for regional economic growth lean heavily on further expansion of the energy sector. the UAE's Adnoc intends to spend $45 billion to become a leading global player in downstream – the business of refining oil and making petrochemicals, intended to add 1 per cent annually to national GDP. Saudi Aramco will invest $100bn on chemicals over the next decade, and $160bn in gas development. Saudi Arabia's Ma'aden is mining for alumina, phosphates and gold, in the tradition of big, capital-intensive extractive projects.

Oman is developing a refining, petrochemical and oil storage hub at Duqm in its south-east, at a cost of $15bn. As gas production expands, Egypt wants to become a regional energy hub. Adnoc and Aramco also intend to boost their oil trading arms, as Oman has done successfully for several years, and they are expanding their fuel retail businesses.

Some would challenge whether such investments are really diversification, as they still depend on hydrocarbons. They meet some, but not all, the tests of diversification.

They provide a stream of export revenues that are less correlated to oil prices. Refining margins – the increased value of the mix of oil products coming out of a refinery over the crude oil input – are related only weakly to the price of that crude oil. The prices of petrochemicals follow oil, but are not as volatile; steel is partly correlated. On the other hand, aluminium prices closely follow those of oil.

These heavy industries involve advanced technologies and hence enable the host country to make its way up the ladder of technological sophistication. The basic materials industry does not employ many people, but Gulf producers are now moving into speciality chemicals such as synthetic rubbers, which also require more complex research and marketing.

Petrochemicals are forecast to be the only major sector of oil demand where long-term growth is assured. They are much less exposed to action against climate change than other uses that burn oil. Downstream investment thus appears as a necessary consolidation of the energy sector, and expansion into a closely-related industry where skills should be readily transferrable. Other such areas include solar power, inorganic chemicals, metal processing and oil services, such as drilling, production technologies and oil-field engineering, a major high-tech export industry for Norway but one where the Gulf is relatively weak.

However, these businesses are all competitive and have become even more so with the rise of cheap US shale gas. They do not offer the easy, long-term flow of rents that flow from large, easily produced oil and gas reserves. As they diversify, governments have to find a way to fund themselves, from a mix of dividends from state-owned firms and taxation of private companies.

Low taxation, along with cheap land, labour and energy inputs, have been the major draws for investment. As these advantages recede, they need to be replaced by world-class infrastructure, efficient regulations and a fair and transparent environment, especially for small and medium-sized enterprises. Every nation needs to shoot for Mars. But in tandem, the steady work of building on the energy industry offers more solid, although more limited, gains than seeking the far frontiers of new technologies.

THE US' SYRIA WITHDRAWAL AND THE WILD CARD OF THE EAST

Robin Mills • *A version of this article appeared in The National, Dec. 23, '18*

Just as Henry Kissinger, the former American secretary of state, callously advocated abandoning the Kurds in 1975 to the scant mercy of Saddam Hussein, US President Donald Trump's hastily planned withdrawal of US troops from eastern Syria again leaves its erstwhile allies to fend for themselves.

The concept of "useful Syria" became popular in 2015, when it seemed that Bashar Al Assad's regime would re-establish control over the western coastal axis with most of Syria's population, but perhaps not beyond. But eastern Syria is far from useless. It holds all the country's oil reserves, the Euphrates with its dams, and the Iraqi border.

It is thus a vital prize for all those contending to control it: the Kurdish-dominated Syrian Democratic Forces (SDF) and their Arab allies; the Assad regime, along with Iran, Hezbollah and Russia; Turkey; and the remnants of ISIS. The SDF has expanded from its base in the largely Kurdish Hasakah province to control a large swathe of north-eastern Syria, roughly following the Euphrates from ISIS's former capital of Raqqa down to the Iraqi border. But, militarily overstretched, it faces a challenge from the Arab populations in this area, also being solicited by the Iranians.

The various dams on the northern part of the Euphrates have several hundred megawatts of electric capacity. In July, the SDF handed over one, Tishreen, to the Syrian army in return for supplying water and power to SDF-held territory. Control of these dams either sustains or threatens not only Syria, but thirsty Iraq downstream, where water protests erupted this summer.

Along the southern reaches of the Euphrates in Syria are the oilfields of Deir Al Zor, and the Conoco gas-plant. In the north-eastern corner between Iraq and Turkey, the large heavy oil-fields of Suwaidiyah, Rumailan and others have been under Kurdish control almost since the beginning of the conflict. They produce about 50 000 barrels per day and send a third of it to the Assad-controlled refinery at Homs.

The SDF are not naive about US reliability. In August, they held talks with the Assad regime over the status of their autonomous territory. The question for them now is how to leverage their military prowess and resources, and the rivalry of their competitors. Even if the 2000 US troops appeared only a nominal force, they were a tripwire against incursions by ISIL, Assadist, Russian, Turkish or Iran-linked forces.

The US air campaign against ISIS had reduced its Syrian oil production around Deir Al Zor to about 16,000 barrels per day by late last year, and now the terrorist group it has lost control of the fields entirely. But it still retains a presence nearby and in parts of Iraq, with the potential for a resurgence which would again threaten oil infrastructure in northern Iraq.

The Assad regime is not likely to attract much international investment to rebuild the areas it has recovered. Natural resources and basic industries – oil and gas, water, phosphates around Palmyra, and the former Lafarge cement plant near Kurdish-held Kobane – are one of the few sources of money. Russian mercenaries had sought to recapture some of these sites in return for a share of the proceeds. Militias, smugglers and tribal networks will also contend over them.

Russia has far less to offer than the US. But it does have the apparent merit of consistent support for its allies, however unsavoury. Moscow is not about to control the Middle East, but by intervention in Syria, alliance with OPEC, investments from the UAE, Saudi Arabia and Qatar, and engagement with Turkey, Egypt and factions in Iraq and Libya, it has become an indispensable second power. Russia wants money from the EU and others to rebuild Syria, as long as there are no strings attached for the Assad regime.

Trump's decision to remove American forces from Syria apparently followed a call with Turkish president Recep Tayyip Erdogan. Turkey has succeeded in co-opting the autonomous Kurdistan region of Iraq, mainly through its relations with the Kurdistan Democratic Party of Masoud Barzani, building economic links through oil and construction. Dealing with the Syrian Kurds' political organisation, the PYD, closely linked to the PKK in Turkey, considered by Ankara a terrorist organisation which threatens its territorial integrity, would be a different thing altogether. A Turkish incursion into SDF-held areas is likely but not an attempt to control them.

The planned US withdrawal from eastern Syria is generally being seen as a win for Iran. This has been the general tenor of policy under both Barack Obama and Trump. Both have sought to use sanctions to confront Iran on the field of the oil market, where victory is slow and uncertain and collateral damage to allies high, instead of in the specific regional theatres where the US complains of Tehran's "meddling".

Some wannabe cold-blooded Kissingerian "realists" may expect that a quagmire of the contending factions in eastern Syria will keep them at each other's throats and distract them from challenging the US. That ignores the human cost and the potential for further waves of refugees and regional destabilisation. Assad has proved adept at manipulating jihadists against his enemies while pretending to be their essential opponent. Iran's expeditionary strategy, Russia's ambiguous hybrid war, and ISIS's nihilism, all flourish in chaotic, contested settings.

Eastern Syria is key for sustaining "useful" Syria. The US never defined a clear mission for its forces beyond defeating ISIS territorially, and Trump was not going to keep them there indefinitely. But the precipitate abandonment, without any concessions by the US's rivals, leaves eastern Syrian resources as fuel for further conflict.

SLIDE IN OIL PRICES IS UNLIKELY TO LAST

Robin Mills • *A version of this article appeared in The National, Nov. 26, '18*

As oil prices tumbled, OPEC countries met in Vienna on December 6. Before that, Russian President Vladimir Putin, Crown Prince Mohammed bin Salman of Saudi Arabia, and US President Donald Trump will meet at the G20 gathering in Argentina next week, along with Saudi energy supremo Khalid Al Falih and Russian oil czar Alexander Novak. The two key influencers will be elsewhere: supply and demand.

The current slump should not come as a shock. In the past two decades, something like this drop, down 30 per cent in less than 40 days, has happened six times before. As oil prices were ascending above $86 per barrel in early October, they were already beginning to look unsustainable. Brent crude fell below $60 on Friday.

The current drop is the market's sudden realisation of what was already apparent: that high prices were sowing the seeds of their own destruction. Chinese demand has been slowing, amid some general signs of economic weakness. Oil prices in local currency terms had already reached record levels in important consuming countries such as India and Turkey. Demand destruction is not yet with us, but it was clearly looming.

The supply side has been comparably strong. In the middle of the year, the market seemed headed for shortage. The OPEC-led production cuts had been more successful than expected, compounded by Venezuela's economic collapse and harsh words from Washington about aiming to drive Iranian oil exports to zero via sanctions.

Saudi Arabia ramped up production pre-emptively as US president pressed on with his twitter attacks on OPEC. Its November output is expected to be at an all-time record of 10.8 million to 10.9 million bpd. But the American decision to issue waivers to eight countries, two of which had already cut their oil imports from Iran almost to nothing, changed the narrative. Russia is playing coy on a return to production cuts; it may participate again, but the successful OPEC+ structure has been disrupted.

The US itself is again the biggest contributor to a supply glut. Despite infrastructure constraints, year-on-year production growth in August was the highest ever, bigger even than in the boom years of 2011-14. Four new pipelines will open from West Texas's Permian basin next year and three more in 2020, releasing a further flood and raising the prices realised by producers in the region, encouraging them to drill more. Net American oil imports next year could be edging close to zero for the first time since the 1940s.

Mr Trump is apparently making a cold political calculation in his calls for lower oil prices. The main producing states are almost all reliably Republican: Texas, Oklahoma, Alaska, North Dakota, Wyoming. Even though Texas these days is more of a battleground, the remarkably unlikeable Ted Cruz still beat rising Democrat star Beto O'Rourke in the latest senatorial elections.

As the US moves closer to self-sufficiency, the impact of lower oil prices on the economy overall is less clear than it used to be – it is probably close to neutral in the longer term. But most Americans benefit directly from lower oil prices, especially in the swing rust-belt states.

There are some important lessons for the major oil producers from this episode. Consumers do not have the tolerance for very high prices that they showed in the first decade of this century. India will be the key global source of future demand growth, but it is not the fuel-guzzling Chinese juggernaut of 2003-08. This will become ever more apparent as electric vehicles and liquefied natural gas-propelled ships gain momentum.

Conversely, despite the International Energy Agency's frequent warnings of under-investment, oil production outside OPEC remains extremely robust. This is mainly down to the United States. OPEC's targeting of unsustainable prices has built up a formidable competitor. Once the well-pads and pipelines and gas gathering systems are in place, American production will be able to grow even at lower prices and even as the "sweet spots" in the shales are tapped.

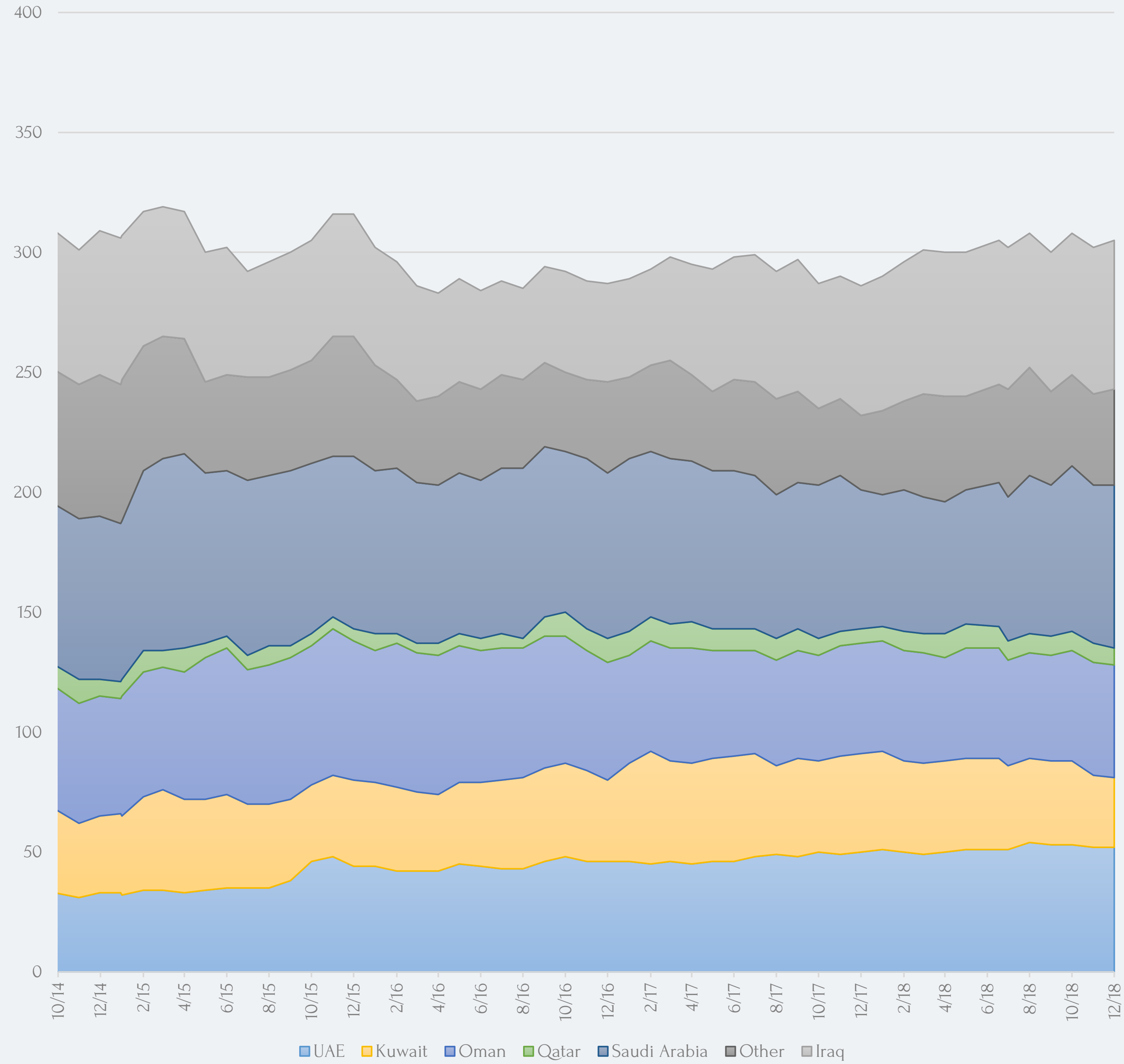
The major international oil companies have also trimmed costs during the 2014-17 slump, making deepwater developments viable again, with Guyana the most striking new area. The recent spike in prices did not live long enough to disturb their discipline.

While prices could well fall further from here in the near term, they will likely recover somewhat next year. The US will continue tightening the screws on Tehran, though Iran still has escape routes. If prices stay lower, it will encourage demand, though contending with headwinds of a trade war, Brexit and an economic expansion running out of puff.

The year 2020 will be interesting. A further flood of very light US oil will meet a market crying out for a heavier diet, of crudes suitable for making diesel and jet fuel, exacerbated by the regulations on shipping fuel that come into effect at the start of that year. The Middle East and Russia are the main suppliers of such grades of oil. Despite a market well supplied overall, refineries will have to work hard to spin straw into gold.

Abu Dhabi's decision to expand its production capacity significantly by 2020 and again by 2030 against the longer-term backdrop, is correct. The market will need its crude and it will gain some paces on its competitors. Since short-lived attempts to keep prices above $80 to $100 per barrel have proved self-defeating, major producers do better to gain market share at moderate prices – and tailor their budgets accordingly.

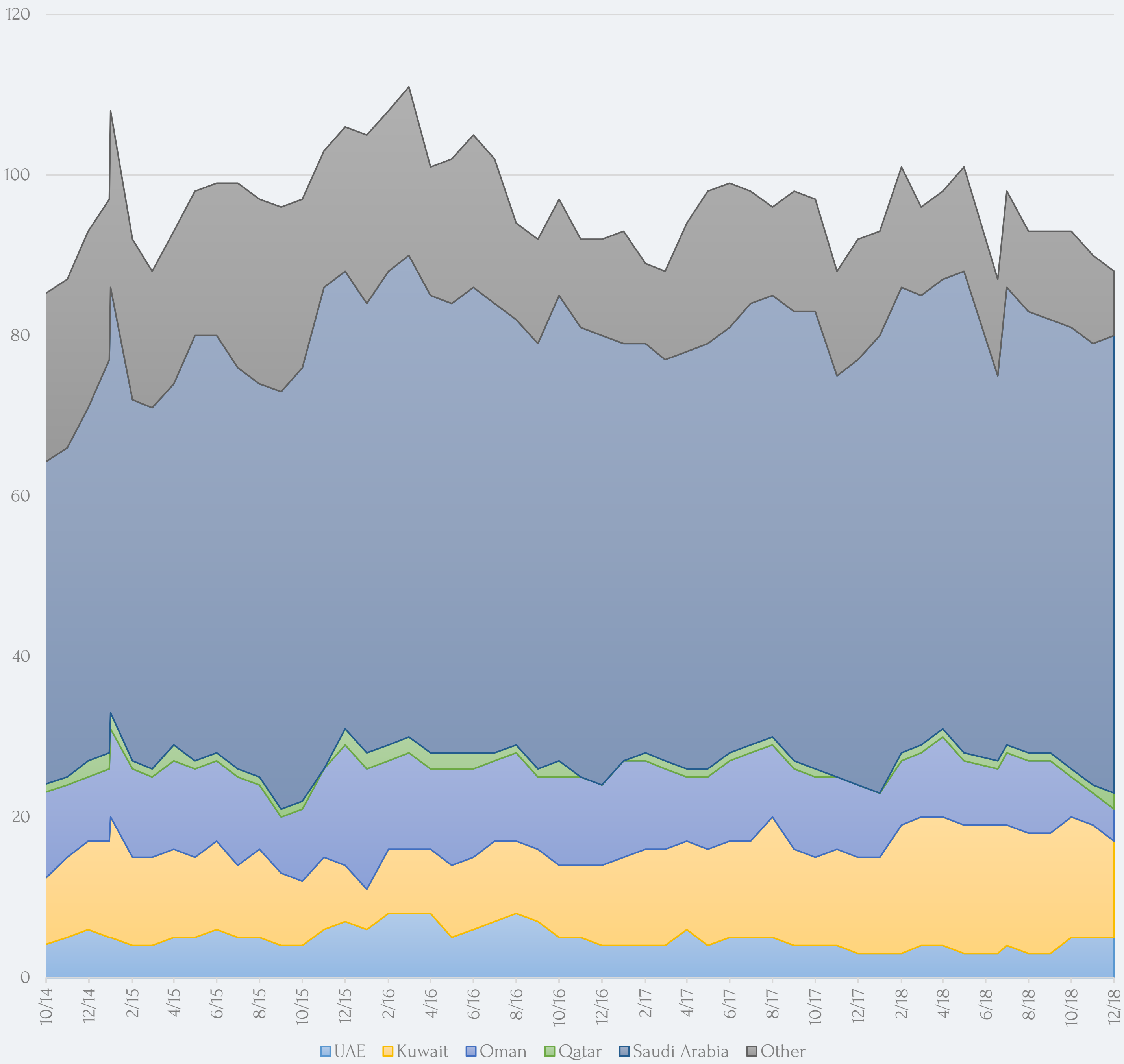
RIG COUNT SNAPSHOT: **OIL**



- The Middle East's rig count in December gained by +1, excluding Iran. Iran's rig count is not included in Baker Hughes; however, OPEC reports total (oil and gas) rig count in Iran has remained steady at 61 throughout 2017, till November 2018, which is questionable as oil production is decreasing with renewed US sanctions.
- Iraq's rig count increased by +1 in December, reaching a new high in 2018, as it ramps up production under the Phase-2 development plans of its southern fields.
- The UAE witnessed no change in its rig count for December, remaining two rigs below its August peak as ADNOC prepares for a 15% and 5% cut in the allocations for the Murban and Upper Zakum and Das grades respectively for January, in line with the recent OPEC decision.
- Kuwait's rig count fell by -1, after witnessing a sharp decrease of -5 in November from its H2 2018 average of 35 rigs. Plans to resume production from the shared Al-Khafji field are now on hold due to political and technical disagreements, despite a preliminary agreement being signed with Saudi Arabia in August.
- Saudi Arabia's rig count gained by +2 in December, even though exports were announced to be cut by 500 kbpd as the kingdom pushes for higher oil prices.

Source: Baker Hughes

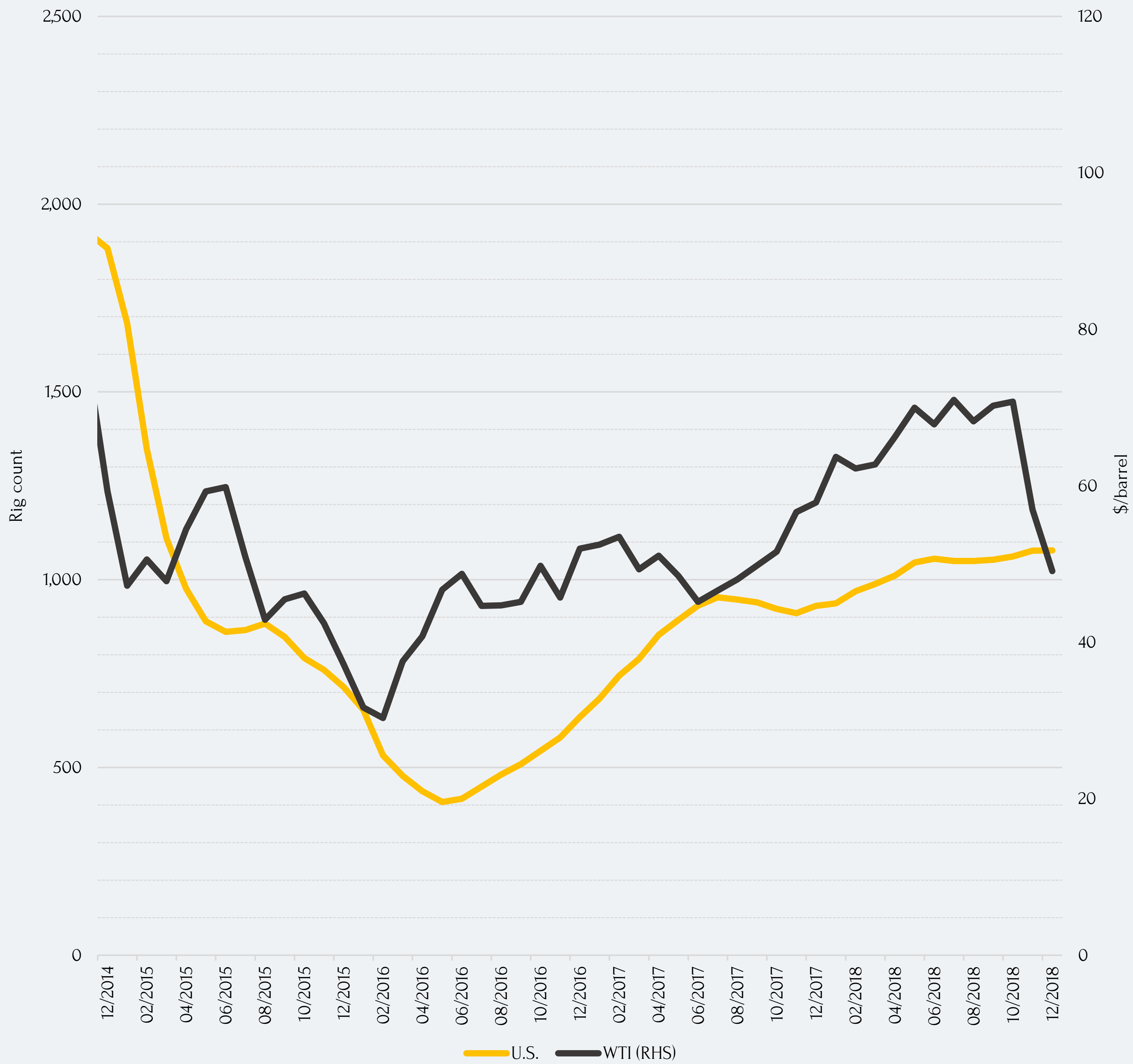
RIG COUNT SNAPSHOT: **GAS**



- The Middle East's overall rig count fell by -2 in December, a drop of -13 from its year high count of 101 in May. The region reached a high of 123 gas rigs in January 2014, but has since then declined, averaging 99 in the last four years. We could see this trend reverse as major gas expansion plans have been announced in the UAE, Saudi Arabia, Oman and Qatar.
- Oman's rig count remained steady at 4 in December, about -6 rigs below its April high of 10, even as the Ministry of Oil & Gas signed an EPSA with Occidental for gas exploration and development in Block 51 on December 16.
- Kuwait's rig count fell by -2 to 12 rigs, the lowest in 11 months, even as the country targets increased non-associated gas production to meet soaring gas demand. The Kuwait Oil Company has plans to increase Jurassic gas production from 170 MMcf/d to 520 MMcf/d, but a new timeframe has not been announced; the previous was end-2018.
- The UAE's rig count witnessed no change in December, remaining steady at 5. In November, ADNOC awarded a 10% stake to Wintershall in the Ghasha ultra sour gas field for the production of 1.5 Bcf/d of gas.
- Saudi Arabia witnessed a rise of +2 in December, maintaining its yearly average of 56, a gain of +3 from 2017's average as the country expands gas production. In September, Saudi Aramco awarded Baker Hughes a $175 M contract to supply 27 gas compression trains to boost production of the Haradh and Hawiyah gas fields.

Source: Baker Hughes

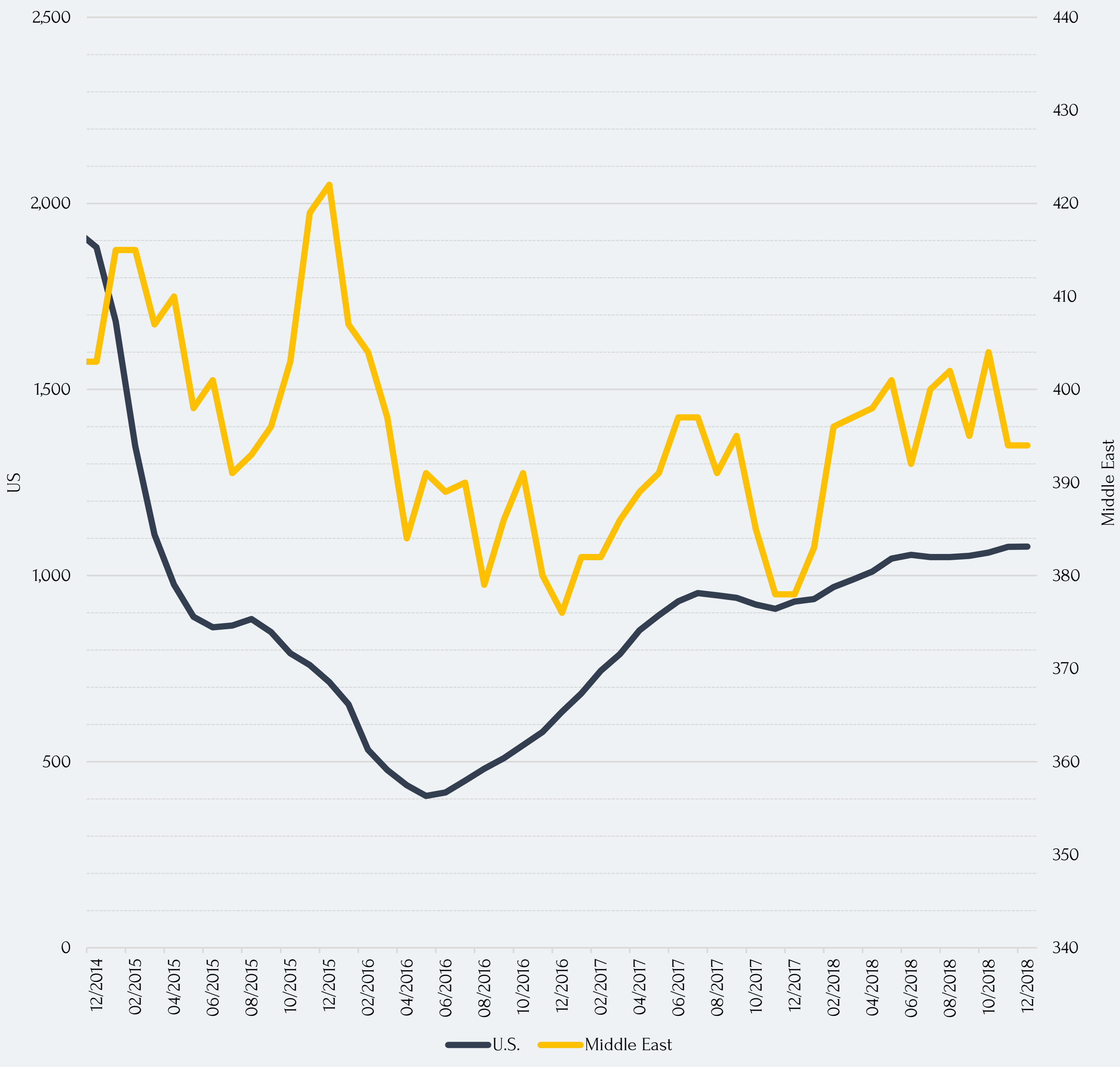
RIGS VERSUS OIL PRICES: US RIGS & WTI



- US rig count jumped by ~15.92% in December (y-o-y), an increase of +148 rigs.
- Total US rig count reached 1078 in December, its sixth consecutive increase (even though a modest overall gain of +1 from November), and the highest since March 2015, after producers trimmed spending plans citing softer prices. The country has maintained rapid recovery ever since it reached a low of 408 in 2016, averaging about 875 in 2017 and 1027 in 2018. The higher rig count is indicative of future output which EIA expects to average 12.1 Mbpd in 2019, up from an estimated 10.9 Mbpd in 2018.
- Strong domestic demand, supported by fiscal stimulus measures and an improving GDP, has led to the continuous rise in rig levels in 2018.

Source: Baker Hughes, EIA

RIG COUNT: US & MIDDLE EAST



- The US' offshore rig count gained by +5 y-o-y from December 2017 even though Hurricane Florence had raised concerns of a similar fall in rig count as was observed during Hurricane Harvey and other natural disasters.
- Total Middle East rig count fell below its 2018 average of 396 rigs to 394 rigs largely due to the OPEC cuts. Saudi Arabia is looking to compensate for lost Iranian volumes in the market and will bring 300 kbpd of output online from Khurais, even as it commits to new OPEC cuts, while Iraq is planning to double production from Halfaya in Q1 2019.

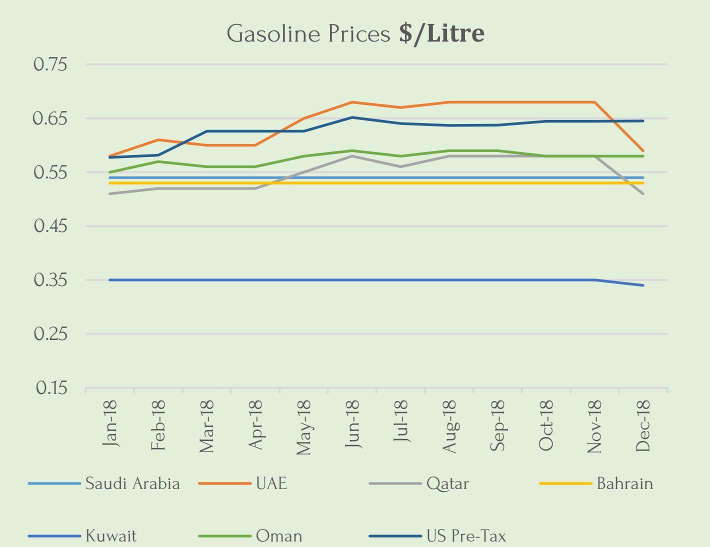
Source: Baker Hughes, EIA

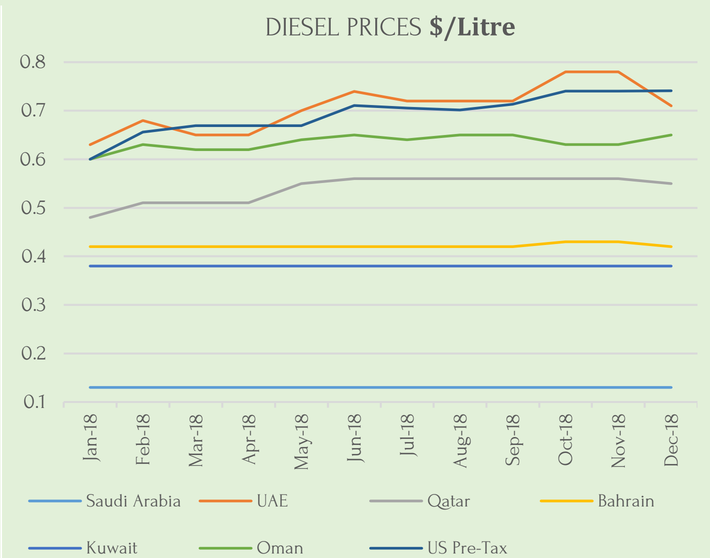
FUEL PRICES & SUBSIDY REFORMS

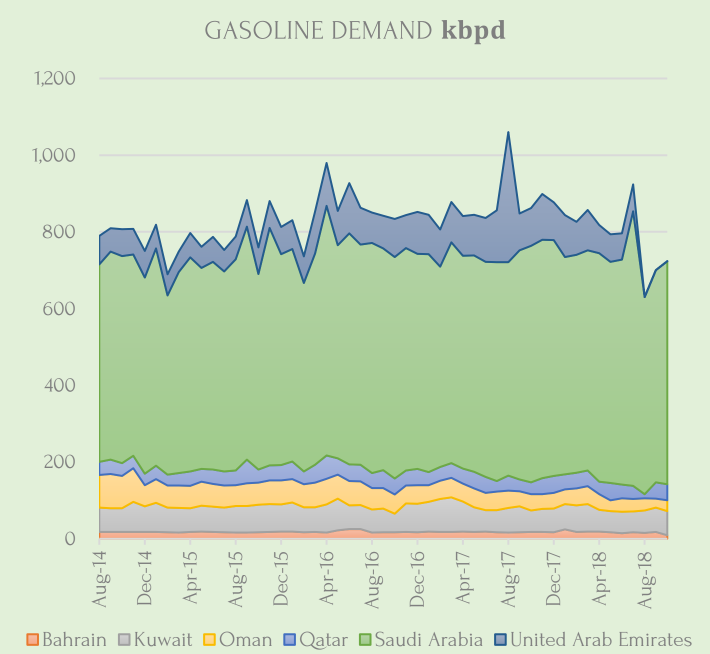
DECEMBER 2018

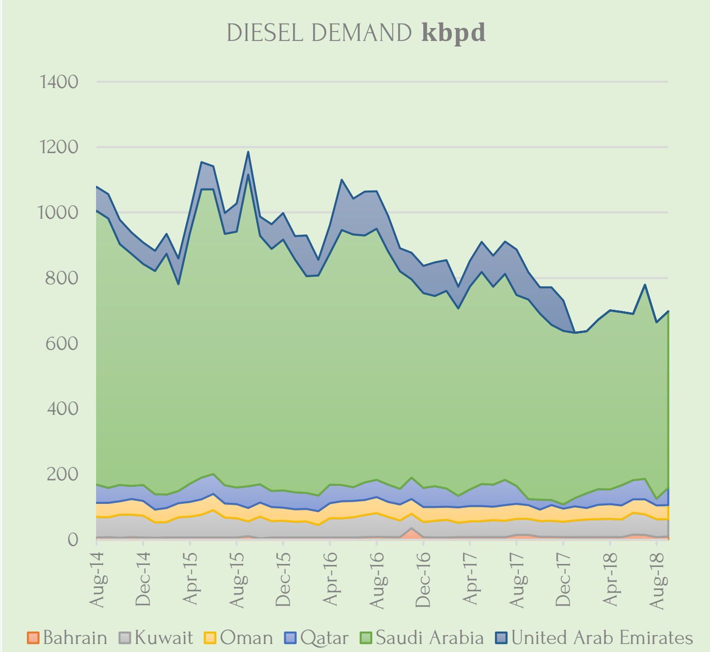
- In the UAE, gasoline and diesel prices fell for the second month straight in December, by 12.6% and 9% respectively, in line with continuing low global oil prices.
- In Qatar, prices for both gasoline and diesel fell steeply for the first time in 2018, having remained relatively steady the last four months. Gasoline prices fell by ~13.9%, the steepest decrease this year, whilst diesel prices witnessed a decline of ~1.2%.
- Meanwhile in Kuwait, the Parliament's Financial and Economic committee has approved the cancellation of the decision enforced in September 2016 to raise fuel prices to 'reduce financial burdens on citizens'. Similarly in Bahrain the Council of Representatives urged the government to rethink its fuel price hike just a day after it was approved, finding the change 'too sudden'. On May 27, the High Administrative Appeals Court dismissed the complaint, allowing the Ministry of Oil & Gas to raise fuel prices from September 2018 but this decision hasn't come into force yet.
- In Oman, the price M95 and diesel also decreased, by 4.3% and 3.8% respectively, in line with falling global oil prices.

The following charts represent the prices of gasoline 95 and diesel ($/litre) till December 2018 in the GCC countries.









***Note:** UAE figures for 2018 are not available.*

Source: EIA, JODI, Qamar Energy

EVOLUTION ENERGY FLUXES AND COOPERATION MODELS IN THE MIDDLE EAST

Robin Mills • *This is an exclusive excerpt from Robin Mills' article for the **Istituto Affari Internazionali**, published in December 2018*

Abstract: *Despite its dominance as the world's key exporting region of hydrocarbons, energy connectivity within the Middle East, in the form of cross-border oil and gas pipelines, electricity grids and related institutions, is lagging. There has been limited progress in the Eastern Mediterranean area and with Turkey. But so far unfavourable commercial conditions, persisting subsidies, and regional political suspicions and disputes, have hampered progress. Key changes in the world energy market – a period of lower oil prices, with the expansion of US shale production, the globalisation of natural gas trade, the rise of renewable energy, and growing action on climate change – should encourage more intra-regional links. To realise the prize of 25 billion to more than 100 billion US dollars of savings available from greater energy trade, regional states will have to liberalise energy markets, establish multilateral institutional frameworks, and make the most of support from international energy corporations and influential political players, notably the US, China, EU and Russia.*

The history and future of energy trade within the Middle East presents a curious paradox. The region remains the world's leader in oil resources and production, a strong player in gas, and an emerging one in solar power. It has a pivotal geography. And yet, in contrast to its massive hydrocarbon exports, energy trade and connectivity within the region remains very limited. This is historically understandable in view of small domestic markets, largely self-sufficient in energy. But rapid economic and population growth, and the turn to higher-cost hydrocarbon resources, has required several regional states to turn to energy imports to meet their needs. Nevertheless, cross-border projects have remained a rarity, and those that have gone ahead have taken a long time to reach fruition and been beset by many problems.

Part of this conundrum lies in commercial models, revolving around large state-owned enterprises, a lack of real markets, and subsidized energy provision, that have not supported trade. A yet more important reason lies in regional suspicions, political disputes and conflicts that have impeded cooperation.

The key question is: will this change, and if so, where?

The global energy market is undergoing enormous upheaval, including the rise of US shale oil and gas production; the globalization of the liquefied natural gas (LNG) business; the cooperation of the Organization of Petroleum Exporting Countries (OPEC) with Russia and other peers; the growing dominance of emerging Asia as the energy growth market; the rapidly rising competitiveness of renewable energy and electric vehicles; and increasingly stringent action on climate change. These interact with the Middle East's severe...

*This is a **preview** of **Robin Mills'** article for the **Istituto Affari Internazionali**, published in the IAI Papers, Issue 18|23, December 2018. To view the full version, click **here**.*

ARABIA MONITOR ENERGY:

A Collaboration Between Arabia Monitor & 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.

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 ANALYSIS

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

UPSTREAM FIRMS

- What are the chief economic, political and fiscal regime 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?

ALTERNATIVE / 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?

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

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 & NOPEC
- MENA Energy Investments
- MENA Energy Fiscal System
- MENA Energy Upstream Bidding map
- MENA Economic Outlook
- Probability Scorecard for Bearish & Bullish Oil Supply/Demand
- Investor Implication Scenarios (Under 3 Oil Price Dynamics)

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

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ConProc LEAPING FORWARD | QAMAR ENERGY قمر

40 YEARS EXPERIENCE | 15 COUNTRIES | CIPS CERTIFIED

With a new period of dynamism across the energy sector, cost control, insight into expenditure, and added value from procurement beyond lowest-cost are essential to allow regional companies to stay competitive.

Qamar Supply Chain Consultancy brings more than 40 years of procurement experience and leading-edge solutions across top multinationals to drive efficiencies and added value.

- OPERATIONAL COST REDUCTION
- IMPROVING OPERATIONS/PRODUCTIVITY
- MAXIMISING REVENUE
- INCREASING SUPPLY NETWORK AGILITY
- DEBOTTLENECKING SHORTCOMINGS

WE TARGET

ENERGY MAJORS
OIL & ENERGY TRADERS
INTERNATIONAL OIL COMPANIES
NATIONAL OIL COMPANIES
UPSTREAM FIRMS
DOWNSTREAM FIRMS

WHY US?

ECONOMICAL OVERHEADS
NO HIDDEN COSTS
INHOUSE PROCUREMENT
PAYMENTS LINKED TO RESULTS
SPECIALISED MODELS
EXECUTION ACROSS FULL STREAM

OUR SERVICES

Qamar Supply Chain Consultancy streamlines the management of procurement and sourcing in the Middle East's energy sector to drive efficiencies and added value. Our extensive regional and global network spans every sector of the energy spectrum: upstream, midstream, and downstream.

We complete our diagnostic and recovery services in one full week, followed by a detailed value and costs assessment to strategise procurement and categorise spend. The final execution and implementation of our changes is always personalised to different needs, and can span a period of 4 to 12 months.

OPEC WATCH

AVERAGE CRUDE PRODUCTION FOR NOVEMBER 2018

32.96 Mbpd

- 11 kbpd

From October 2018

Non-OPEC Oil Supply*

67.67 Mbpd

+ 1.35 Mbpd

from October '18

*including OPEC NGLs

Non-OPEC Crude Output

United States
Brazil
Canada

OPEC & Non-OPEC COMPLIANCE

- Overall OPEC compliance was above 100% for November, however slipped from 121% in October to 111%, as the UAE, Saudi Arabia, and Kuwait increased production.
- Russia began producing at near records (around 11.35 Mbpd in November, down from 11.41 Mbpd in October) while Kazakhstan hit an all-time high of roughly 1.9 Mbpd.
- Iran was not obliged to make any production cuts as the Nov 4 sanctions kicked in. Saudi initially fought to include Iran in the cuts, however to no avail. Despite being exempt from cuts, Iran will face an uphill battle trying to sustain production as it becomes isolated from financial markets. Libya and Venezuela were exempted from the new cuts, but Nigeria has now joined the OPEC cuts.
- Venezuela's compliance remained over 600% throughout 2018. Production is expected to decrease significantly in 2019 as well, going below 1 Mbpd.
- Oman had a 36% compliance rate, the third highest amongst the GCC states (after Qatar 110% and Bahrain 90%).

NEXT OPEC MEETING: April 2019

176th (Ordinary) OPEC Meeting in Vienna, Austria

LATEST ORGANISATIONAL CHANGES

- At the 175th Ordinary OPEC meeting on December 7th in Vienna, OPEC members decided to decrease overall production by 0.8 Mbpd from October 2018 levels effective as of January 1, 2019.
- Voluntary contributions from Non-OPEC members will be 0.4 Mbpd putting the total production cuts to 1.2 Mbpd.
- The agreement is slated to stay in force till the 176th Ordinary OPEC meeting in April 2019.
- Qatar has formally stated that it will leave OPEC after 57 years in the organization, a move that is widely regarded as a jab to popular Saudi policy regarding oil production.

OPEC PRODUCTION

- Libya's production has maintained above its yearly average of 1 Mbpd after reaching a 15-month low of 664 kbpd in July. It currently is producing 1.104 Mbpd. Nigeria's production fell by 30 kbpd in November, drifting further below its 1.8 Mbpd OPEC quota.
- Iraq's output witnessed a slight decline from the previous month as the country battles to reach its 2019 targets. Infrastructure issues continue to hinder their goals.
- Saudi production increased the most of all OPEC members (by 377 kbpd) to over 11 Mbpd, nearly 1 Mbpd above its production target. Output should now reduce by 0.4 Mbpd from its October level as the new OPEC cuts come into force.
- Iran saw a dramatic drop in production, by 380 kbpd, as it begins to feel strains from the recently imposed US sanctions.
- Amongst the GCC OPEC members, the UAE's production gains were second to Saudi Arabia in November, increasing by 71 kbpd, bringing its compliance further down to -168% from -106% last month.

KEY MENA ENERGY SCORECARD

DECEMBER 2018

QATAR DEVELOPMENTS

Qatar has formally exited OPEC in a move that is largely regarded as a pro-US, anti-Saudi strategy 3 days before Sheikh Tamim al-Thani turned down an invitation to attend the 39th GCC Summit in Riyadh; following the exit, Qatar Petroleum (QP) announced it will invest $20 B in energy projects in the US (both LNG and oil) which should strengthen political alliances; QP has signed a deal with Eni to acquire 35% in three fields in Area 1 of the Campeche Bay complex offshore Mexico, increasing its overall share in Area 1 to 50%; QP also signed a deal to enter three blocks with Exxon offshore Mozambique; QP will take over the Idd el-Shargi North Dome oilfield from Occidental once the PSA expires in October 2019; QatarGas will supply PetroChina with 3.4 Mtpa of LNG under a 20-year deal from QatarGas-2

MENA ENERGY PRICE REFORM

UAE will gradually scrap subsidies on electricity and gas sold to power generators to reflect 'real' prices by 2030; In May the Bahrain High Administrative Appeals Court dismissed the Council of Ministers' complaint to rethink a fuel prices hike, allowing the Ministry of Oil & Gas to raise fuel prices from September 2018, but this has yet to take effect; On June 16 Egypt announced increases in fuel as a part of its $12 B IMF loan: M92 and M95 gasoline saw a hike of ~36% and 16.2% and electricity and water prices rose by 26% and 5% respectively; Saudi Arabia introduced the Citizen's Account Program, a cash handout scheme for low-income Saudi citizens impacted by rising fuel prices, electricity tariffs, and VAT.

FEDERAL IRAQ DEVELOPMENTS

Iraq hit a historical landmark by exporting over 4.1 Mbpd of crude in December, beating the year's previous high of 4.02 Mbpd of exports in August, in line with Iraq's strategy to push out as much production as possible before the January OPEC cuts ease in; the Ministry of Oil has stated it will seek to limit production to 4.51 Mbpd for the next six months, but Iraqi compliance to cuts has typically been low; Baghdad is nearing a deal with Exxon and CNCP for a multi-billion dollar deal to expand the country's oil production, and export capacity from the south to 6.5 Mbpd, as well as build infrastructure under the Common Seawater Supply Project that has repeatedly been put on hold; meanwhile, the next court ruling for the establishment of the Iraq National Oil Company has now been set for January 23.

MENA NUCLEAR POWER

Saudi Arabia is assessing two potential sites – Umm Huwayd and Khor Duweihin – for its first nuclear power plant project near UAE and Qatari borders and has shortlisted Rosatom and KEPCO. Tendering will face delays likely due to technical plans, and commercially due to negotiating nuclear agreement with the US, even though MBS launched a programme for the Kingdom's first nuclear research reactor on November 05; the UAE's Barakah plant will begin loading fuel in 2019 (delayed from May 2018), and the plant will now generate electricity only by 2020 due to delayed operational readiness; overall completion is just under 90% (Unit 1: 100%, Unit 2: 94%, Unit 3: 86%, Unit 4: 77%); Egypt and Rosatom will begin construction on the $21B Dabaa nuclear plant in 2021 with financial support from the Russian National Wealth Fund.

No Change ⇔ Very Positive
Positive
Deterioration in the last month ⇩ Negative
Improvement in the last month ⇧ Very Negative

KEY MENA ENERGY SCORECARD

December 2018

ENERGY INFRASTRUCTURE SECURITY

Sharara oilfield, Libya's largest producing field, has faced further security issues as increased attacks on the field continue; On December 09 Libya declared force majeure at the oilfield after a local militia group took control of the field, however, attempts by the government to stop further attacks have failed; the field's production capacity is estimated to fall by 8.5-11 kbpd once it resumes operations due to looting and onsite damage; continuing attacks highlight the inability of Libya's Petroleum Facilities Guards to guarantee worker safety and bring the field back into production, and also the unresolved instability in Libya's energy sector.

ABU DHABI DEVELOPMENTS

ADNOC and its project partner Cepsa have progressed with plans to develop a world-scale chemical plant in Ruwais with the award of the front-end engineering design to Tecnicas Reunidas; ADNOC has awarded OMV a 5% stake in the Ghasha ultra-sour gas concession alongside Eni and Wintershall. The project is expected to produce over 1.5 Bcf/d by 2025 and once complete it will also produce over 120 kbpd; in line with Abu Dhabi's goal of boosting natural gas production ADNOC has also announced increasing output from its Shah sour gas field to 1.5 Bcf/d and developing sour gas fields at Bab and Bu Hasa; ADNOC will announce the winning bids of its first exploration licensing round in March, and is looking to hold a second bid round to discover new opportunities in conventional and unconventional plays in oil and gas, but has not announced a date yet; ADNOC is intending to boost capacity to 4 Mbpd by 2020 and 5 Mbpd by 2030.

IRAN DEVELOPMENTS

Iran's December exports fell to 776 kbpd in December with exports to Asia reaching a 5-year low of 665 kbpd; despite waivers being granted to 8 nations, logistics, shipping insurance, and payment channels remain the most significant deterrent for customers; on December 20, the U.S granted Iraq a 90-day extension to the initial 45-day waiver; Iraq remains heavily reliant on Iranian gas for energy feedstock; in late December India's government approved a mechanism that allows Indian refineries to pay for Iranian oil in rupees with deposits at the state-owned UCO Bank; Iran will be forced to spend the funds on Indian goods despite India's having a trade deficit with Iran; meanwhile, Iran's renewables capacity has increased to 670 MW, with a further 445 MW planned, the highest share coming from solar power.

KUWAIT DEVELOPMENTS

Indian firm Larsen & Toubro has submitted the lowest bid for the Mina Ahmadi gas pipeline for an estimated $479 M; Vietnam's 200 kbpd Nghi Son refinery, partly owned by Kuwait Petroleum (35.1%) has begun operations and sent its first gasoline export cargo in September; KPC is also set to announce $5.2 B worth of oil and gas related projects over the next five years, though details of the plans have not yet been released; Talks with Saudi Arabia to restart up to 500 kbpd of locked-in production from the Neutral Zone fields of Khafji and Wafra by end-2018 have once again been delayed due to political disagreements.

No Change ⇔ — Very Positive
Deterioration in the last month ⇩ — Positive
Improvement in the last month ⇧ — Negative
Very Negative

KEY MENA ENERGY SCORECARD

DECEMBER 2018

MENA RENEWABLE ENERGY

Dubai Electricity and Water Authority announced that construction on the 4th phase of the Mohammed Bin Rashid Al Maktoum Solar Park has progressed with the completion of 128 pillars for the solar tower; the park is set to reach 5 GW total capacity by 2030 while the fourth phase alone will produce 950 MW; Masdar has begun installing the first of 13 turbines in Dhofar, Oman; the project which is the GCC's first and largest wind farm will generate 50 MW to power 16,000 homes in Oman and is set to be completed in September 2019; the Jordanian energy ministry ended the year with its third renewable bid round that saw 150 MW of solar projects and 50 MW of wind projects being offered; US-based Rai Energy has been selected to head the 50 MW Solar Two project at Ma'am; Saudi Arabia has completed the first phase of the Layla solar power plant project; the 10 MW plant in Al Aflaj is capable of covering 10% of the province's electricity needs.

MEDITERRANEAN GAS COMMERCIALISATION

Cyprus is expected to receive the results of Exxon's drilling in Block 10 by early February 2019; more drilling is to take place offshore Cyprus in 2019 as majors Eni, Exxon and Total continue to hunt for Zohr-like discoveries; in Lebanon Total and Eni are planning their first exploration well in Block 4 by the end of 2019; more exploration rounds were scheduled to be offered, but the country's inability to form a government has postponed it indefinitely; results of Egypt's Nour field are said to be released in January 2019 as Eni hopes for another significant in-country find; Egypt has begun increasing its gas exports as the export terminals of Idku and Damietta in the north restart; BP is set to boost production from the West Nile Delta to 700 Mcf/d by March 2019 under its second phase (Giza and Fayoum fields) of development; Italy's Edison is preparing two wells for 2019 in its Thekah and Hapy blocks which lie between Nour and Zohr; Dana Gas is also set to drill a deep-water well at Egypt's North El Arish block to the east; Mubadala has acquired a 20% share in ENI's 45% stake in the Nour offshore concession in Egypt, marking its second acquisition in the country; BP has acquired the remining 25%; ENI has agreed to develop a gas pipeline in southern Algeria, to link its two producing oilfields in the Berkine basin, Lajmat Bir Roud and Menzel Lejmat, and enable a surplus of 7 Mcm/d of production.

No Change ⇔ Very Positive
Deterioration in the last month ⇩ Positive
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, and a non-resident fellow at the Columbia Center for Global Energy Policy. He holds a first-class degree in Geology from the University of Cambridge, and speaks five languages including Farsi and Arabic.

RECENT APPEARANCES & TALKS

S&P Global Platts — **Platts' Middle East Executive Petroleum Conference** • *Panel discussion on **Evolving Middle East Trade Flows Now & in the Future***

EU Delegation — **EU Delegation Trade Counsellor Seminar** • *Presentation on **MENA Energy Landscape***

INDOSUEZ WEALTH MANAGEMENT — **Indosuez Wealth Management, October 2018** • *Presentation on **Changing Trends in Global Energy***

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