

# THE QAMAR NEWSLETTER

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Lebanon's population has become accustomed to power shortages across the board. 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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# LEBANON ON A KNIFE'S EDGE OVER POWERLESS ENERGY SECTOR

Robin Mills • A version of this article appeared in *The National*, Sep. 08, '19 • **COVER STORY**



The bad news from Lebanon continues to multiply: zero economic growth, a further possible downgrade in its credit rating, a sharp spike in bond yields, an escalating budget deficit, a weakening currency on the black market which threatens the dollar peg and a declared state of economic emergency. Now rumblings of war between Israel and Hezbollah is further undermining financiers' confidence. But Lebanon cannot recover from any of these woes unless it can remove the vampire sucking its economic lifeblood: the electricity sector.

Lebanon spends \$1-1.5 billion (Dh5.5bn) annually in propping up state-owned Electricité du Liban (EDL), mostly paying for fuel oil. This has accumulated \$35bn of losses since 1995, close to half of total public debt of \$86bn. Only about half the electricity supplied is paid for. As Lebanese energy expert Jessica Obeid observes, current average tariffs of 9.5 US cents per kilowatt-hour are expensive by regional standards, but still do not cover EDL's average costs of 16 cents per kilowatt hour.

Indeed, a gloomy pall of smoke hangs over the moorings of three temporary Turkish power ships. The country's generating capacity, even including these barges, totals only 1800 megawatts (MW). Peak power demand is 3400 MW, of which Syrian refugees are estimated to account for 400 MW.

Beirut suffers three hours of blackouts per day; other areas of the country, as much as twenty hours. The deficit is met with diesel generators that are noisy, dirty and expensive and cost private users a total \$1bn annually. The "generator mafia" has become another obstacle to reform. When one of the Turkish power ships arrived at Zahrani in southern Lebanon last August, the Amal party refused it, allegedly on environmental grounds and

because they objected to receiving only a temporary solution. Their opponents charged them with protecting the interests of the generator lobby. The ship sailed first to Jiyeh south of Beirut, where the grid connection was inadequate, then to Zouk Mikael in northern Lebanon, which now enjoys almost continuous power.

The unreliable electricity supply caused the Lebanese economy indirect losses of some \$10.4bn during 2009-14, according to a paper by Elie Bouri and Joseph El Assad, and around another \$7bn subsequently. This translates into lower tax revenues, lost exports, unemployment and stagnant growth – components of the wider crisis. Solving this problem should be among the easiest and most consequential fixes to Lebanon's intractable issues. It relies on three pillars: gas, subsidy reform and renewable energy.

Energy and water minister Nada Boustani, with ten years previous experience in the ministry, is an ally of her forerunner in the role, now Free Patriotic Movement party leader and foreign minister Gebran Bassil. Her success - or failure - could be important for his presidential ambitions in 2022. Ms Boustani has laid out a plan of installing temporary power plants, retiring old and inefficient facilities, while boosting permanent gas-fired generation by 3120 MW.

These plants will be fuelled by liquefied natural gas (LNG) imports, far cheaper and cleaner than fuel oil. Sectarian politics and lack of pipeline connections mean that, instead of having one floating import terminal for the country's small market, Lebanon will have three, at Selaata between Tripoli and Byblos,



Deir Ammar in the north, and Zahrani in the south, each linked to its own power station.

In the longer term, Lebanon could hope for its own offshore gas. A consortium of France's Total, Italy's Eni – which has recently enjoyed great success nearby off Egypt and Cyprus – and Russia's Novatek will drill one well this December and another next December. But production will take several years, even if commercial volumes are found. Cyprus's struggles to develop the Aphrodite field it found in 2011 show that it is hard to make deepwater gas projects for small end-markets economically viable. Meanwhile, if conditions in Syria improve, Lebanon could resume imports of Egyptian gas via the Arab Gas pipeline through Jordan.

The ministry has not yet announced new tariffs, but it is considering a hefty raise of about 5 cents per kilowatt-hour, while protecting low-income consumers. Still, actually collecting electricity bills is hard while the state's authority is so weak in some areas. Improved service will likely have to come first. Unlike nearby Jordan and Egypt, Lebanon has made little progress with renewable energy. A high population density, hilly terrain and the government's shaky ability to guarantee payment make it hard to replicate the ultra-low costs achieved for solar power in the Arabian Gulf.

But the ministry's plan includes several fairly small solar and wind plants scattered around the country, and last year it signed for three wind farms in Akkar, near Tripoli. Small-scale rooftop solar systems are gradually taking off, often coupled with batteries to avoid reliance on the grid or diesel generators overnight. For consumers who cannot evade the increased EDL bills, installing solar will become attractive.

The ministry's plan itself is reasonable. But it faces the usual barriers of corruption and patronage. Some fear that the tender process for the new plants will not face proper scrutiny by parliament or a (so far non-existent) independent regulator. This would leave room for political parties to rig the ministry's tenders in favour of their preferred candidates. As with the Zahrani power ship saga, local interests can block new generating plants, LNG terminals, pipelines and electricity lines. What remains to be seen is whether the electricity vampire draining Lebanon's finances can be slain, before the country runs out of money and time.

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## UNCERTAINTY OF CLIMATE CHANGE UNDERSCORES THE NEED TO ACT

Robin Mills • *A version of this article appeared in The National, Sep. 01, '19*

It is a measure of how long we've been aware of the issue of climate change, that the first experts in it are passing from the scene. Wally Broecker, an eminent American geophysicist and one of the earliest to point to the dangers, died in February aged 87. On Tuesday, Martin Weitzman, a pioneer of climate economics, passed away suddenly at the age of 77.

Professor Weitzman made at least four seminal contributions. Firstly, he demonstrated that the discount rate – effectively, the interest rate we use to value future benefits and costs in the present day – should be very low for the extremely long term (a hundred years or more).

This does not matter much for most practical matters – but for climate change, where effects such as the melting of the Antarctic will play out over centuries, it is essential. Usual practice, even now, adopts a discount rate of a few per cent per year. This means that we essentially assume our descendants of 2100 or 2200 will have benefited from our investments to devise some clever technological fix to cope with 60 metres of sea-level rise. Or, the luxuries developed in that period will sufficiently compensate them for the inconvenience.

Second, he addressed the choice of how to restrict pollution, such as carbon dioxide. Do we set an absolute limit on amounts of emissions, and allow companies to trade allowances, as the US did for sulphur dioxide to reduce acid rain in 1990? Or do we charge a tax per tonne of pollutant? Professor Weitzman showed that when we are highly uncertain about the damage caused, we should limit quantities. Third, he originated the concept of “green GDP” – that we should include the negative impact of pollution in the way we assess an economy.

His fourth contribution is the most urgent today, and events remind us of its reality. The Amazon and Congo are being ravaged by fires, raising fears that tropical forests could dry out and die back abruptly, releasing vast quantities of carbon dioxide and so worsening climate change. In June and July, extensive fires ravaged the Arctic areas of Siberia, Alaska and even Greenland. As black soot from those fires settles on snow and ice, it absorbs the sun's rays and speeds the already rapid warming and melting of the far north.

Professor Weitzman observed that standard economic analysis of climate change concentrated far too much on the “most likely” outcomes, an approach taken by William Nordhaus, who won last year's Nobel Memorial Prize for economics. Instead, Weitzman pointed out that we are vastly uncertain about the effects of climate change, and the more extreme outcomes are the ones we should worry about most.

We do not know precisely how much the planet will warm in response to a certain amount of emissions. The Paris Agreement of 2015 set a target of avoiding global warming of more than 1.5 degrees Celsius, and climate computer models then relate that to a given quantity of greenhouse gas emissions. But feedback loops, such as the release of carbon dioxide and methane from melting Arctic permafrost, mean that even if we achieve the very stringent greenhouse gas cuts required, there is a significant, even if small, chance that warming from that amount of emissions could be much higher than 1.5 degrees.

Then, we do not know how much economic damage will be caused by warming of a certain amount. Traditional analysis of the costs of climate change assumes the world economy (and by extension, its political system) will remain quite similar to today's. In reality, we might make plausible estimates of the effect of 1.5 or 2 degrees warming, based on past experience, but that level on a global scale is outside anything our species has seen. About 125,000 years ago, temperatures were 1 to 2 degrees higher than today – and the sea-level was 5 to 8 metres higher, which would drown most of the low-lying Gulf cities, the Nile Delta, Florida, New York, the Netherlands and Bangladesh.

And for calculating the costs of 4 degrees or more of warming, we would be flying entirely blind. What can we sensibly say about the loss of the Amazon or the South Asian monsoon, huge wildfires, the flooding of vast areas, disruption of oceanic

circulation, decimation of major food crops, a global pandemic, the collapse of world trade, waves of hundreds of millions of climate refugees, major countries going eco-authoritarian or neo-fascist, a world war over climate, a complete breakdown of ecosystems?

Weitzman compared the situation to buying insurance. Most houses do not burn down, and we install sprinklers and fire alarms, but still we take out fire insurance, to avoid the small chance of a catastrophic loss. Spending heavily on cutting emissions sharply now, holding politicians and corporations accountable for climate action, reimagining global frameworks of trade and migration, removing carbon dioxide from the atmosphere, and even geoengineering to cool the planet, appear sensible precautions in this light.

His argument is important because it undercuts the reasons for delay advanced by many who are opposed to strong climate action, for reasons of genuine intellectual conviction, ideology or self-interest. They maintain that, because the magnitude of climate change and its effects are uncertain, we should not invest heavily today to reduce emissions, but instead wait and learn. Weitzman showed that the uncertainties are precisely the reason to act decisively now.

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## WHY INDIA IS THE FRONTRUNNER AS THE GULF'S MAIN ENERGY PARTNER

Robin Mills • *A version of this article appeared in The National, Aug. 25, '19*

Arabian Gulf energy exporters are looking for their main energy partner in Asia. Like the protagonist in Vikram Seth's "A Suitable Boy", all of the candidates appeal but none are perfect. A flurry of activity in recent weeks has moved exciting India ahead of reliable Japan and lucrative China.

Indian Prime Minister Narendra Modi arrived in Abu Dhabi on Friday, his third trip in four years. Sheikh Mohammed bin Zayed visited India in February, when Adnoc chief executive Dr Sultan Al Jaber signed an agreement for oil storage in the country. ONGC Videsh, the main Indian government oil company, along with state firms Bharat Petroleum and Indian Oil Corporation (IOC), have taken stakes in Abu Dhabi's oil production and exploration licences.

Saudi Aramco and Adnoc are planning a \$60 billion (Dh220.4bn) refinery and petrochemicals complex in India, in partnership with Bharat, IOC and a third state company, Hindustan Petroleum. Initially to be at Ratnagiri in Maharashtra state on India's west coast, land acquisition problems seem to have pushed it to Raigad, 250 kilometres further north and closer to Mumbai. Last week, Aramco's inaugural earnings call covered preliminary plans to pay \$15bn for 20 per cent of Indian private conglomerate Reliance Industries' refining and petrochemicals business. The reported price for the stake in Reliance, significantly above multiples for comparable deals, shows the importance of Aramco's introduction to India. This urgency would be reinforced if the Maharashtra refinery is further delayed.

While China has been wooed for years, and Aramco already has joint-venture refineries there, India is increasingly the key future energy market. The US has largely disappeared as an oil and gas importer because of its shale boom, while environmental

pressures and mature economies and demographics see the appetites of Europe and Japan for hydrocarbons slipping. Other Asian markets such as Vietnam, Indonesia, Pakistan and the Philippines are fast growing, but none can compare in scale with the two continental giants.

India's population of 1.3 billion will likely outstrip China's as early as 2024. After lagging China for more than a decade, Indian economic growth has been a little higher than its Asian rival since 2014, and estimated expansion this year of 6.2 per cent would match the Middle Kingdom's. China's economy is maturing and growth is slowing, even before the current escalating trade war with the US. India remains much less wealthy, and uses barely a quarter of the energy per person, and less than a quarter of the petrochemicals that are used to make plastics in many consumer and construction products. Officially, there are only 22 motor vehicles (excluding motorcycles) per thousand Indians, compared to 179 in China.

Several of Mr Modi's aims are likely to boost energy demand. His government has not quite achieved its goal of tripling road building, but highway construction has doubled. Poorer and rural households have been offered loans and subsidies to switch to using bottled gas for cooking instead of polluting wood, dung and kerosene. In April last year, it was announced that all villages in the country had been connected to electricity, though around 200 million people remain without. All these statistics suggest that, while China remains the incumbent, India offers brighter long-term energy prospects. Yet there are several challenges in the way.

In the immediate future, the fears of global recession and trade barriers are affecting India too, with its growth prospects downgraded. Despite the "Make in India" aim of boosting manufacturing to a quarter of the economy, it remains stubbornly stuck around 15 per cent.

Its lively and fractious democracy and federal structure should be more sustainable than its northern neighbour's authoritarian capitalism, but can hinder big infrastructure and industrial projects, such as the Maharashtra refinery. Crowded cities and gridlock limit the practical number of private vehicles, and fuel prices are significantly higher than in the US and China.

While China has moved boldly in the past couple of years to replace coal with natural gas to clean up its notoriously filthy air, India's cities have become the most polluted in the world, occupying 22 out of the bottom 30 slots. Annual gas consumption has not grown since 2010, held back by insufficient domestic supply, high prices for imports and a preference for cheap domestic coal.

With rival Pakistan, insecure Afghanistan and US-sanctioned Iran to the north-west effectively barring land access to Middle Eastern and Central Asian gas, Delhi has to rely on liquefied natural gas (LNG) imports that are usually more expensive and perceived as less secure. The current glut of LNG might be gas's opportunity finally to make some inroads.

India's energy dowry will not be paid solely in fossil fuels. Since 2017, the country has added 11.1 gigawatts of coal power, but 30.4 gigawatts of solar and wind. Electric rickshaws and motorbikes are popular. Larger battery vehicles have struggled for traction, but policies to encourage local manufacturing of electric cars, offer subsidies and cut sales taxes may lead to progress towards

the impossibly ambitious target of phasing out oil-fuelled vehicle sales by 2030.

In the longer term, climate change threatens the reliability of the monsoon, and the Himalayan glaciers that supply the Ganges, the Brahmaputra and the rivers of Indian-administered Kashmir that join the Indus. Agriculture still employs more than two-fifths of Indians, making climate a direct issue of jobs, economics and votes. India's tremendous economic and energy future explains its assiduous courting by leading national oil companies. However, its political and regional complexities, environmental and infrastructure challenges mean its energy story will not repeat China's trajectory. Prospective partners can prosper, if they prepare.

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## T. BOONE PICKENS' PASSING IS THE END OF THE SELF-MADE OIL MAN

Robin Mills • *A version of this article appeared in The National, Sep. 15, '19*

The independent American oil man (indeed, almost always a man), immortalised in Dallas, seemed in the new millennium almost an extinct species. Thomas Boone Pickens – always known as T. Boone – died last Wednesday, aged 91. His life is a chronicle of twentieth-century petroleum, and a pointer to the future.

Pickens was borne in Holdenville in one of the quintessential oil states, Oklahoma, in 1928, the year after discovery of the Seminole field just 35 kilometres up the road had kicked off a boom there. Beginning as a geologist at \$75 (Dh275) per day, he started his own oil company, Mesa Petroleum, in 1954, as others would do, such as former US president George H.W. Bush.

Mesa became one of America's largest independent oil firms, but Pickens acquired his fame more through "drilling on Wall Street". Following the early 1980s oil bust, he realised companies had become worth less than the value of their reserves. He was an early champion of "shareholder value", making hostile runs at corporations with sleepy management, such as Phillips Petroleum and Unocal. Chief executives hated his "greenmail", and he rarely emerged owning the target, but usually profited handsomely from selling his initial stake when another acquirer stepped in.

His most notable raid was in 1984, on Gulf, the fifth biggest US oil firm, that had developed Kuwaiti oil from its earliest days. In a titanic takeover battle that drew in Arco and others, Gulf was eventually sold to Chevron, but Pickens and his partners made \$760 million. In an echo of that deal, Chevron last year approached Anadarko, one of the largest remaining independents, but was outbid by Occidental Petroleum, whose colourful founder, Armand Hammer, had kicked off the Libyan oil industry. Now Carl Icahn, another activist investor who emerged in the 1980s, has put pressure on Occidental for allegedly overpaying.

Mesa went overseas and discovered the large Beatrice field, named after Pickens' second wife, in the UK North Sea in 1975. But by the 1990s, after major US fields seemed played out, attention turned to deep-water drilling in the Gulf of Mexico, and to the Caspian and Middle East, where deep-pocketed majors such as Shell, Chevron and BP dominated. Pickens sold Mesa in

1996; it became Pioneer Natural Resources. But in the second decade of the twenty-first century, he was suddenly not such a dinosaur.

The US shale boom created another series of colourful entrepreneurs. George Mitchell, who died in 2013, was the pioneer of hydraulic fracturing to release gas and oil from shale reservoirs that had previously been ignored. Aubrey McClendon, founder of gas driller Chesapeake, connoisseur of wine, antique maps and boats, was killed in a car-crash in 2016, after a series of near-ruinous financial and legal episodes interspersed by dramatic recoveries.

The politically outspoken Harold Hamm, promoter of the Bakken formation in North Dakota, with a fortune of some \$14 billion, Scott Sheffield of Pioneer, the pipeline magnate Rich Kinder, and Cairo-born Lebanese Cherif Souki, initiator of US liquefied natural gas exports, are still with us. Ray Irani, whose strong relations in Abu Dhabi built Occidental into a major Middle Eastern player, stepped down as chief executive in 2010. The role is now held by Vicki Hollub, a rare woman in a top oil role, and also one of the US petroleum industry's few strong advocates of climate action.

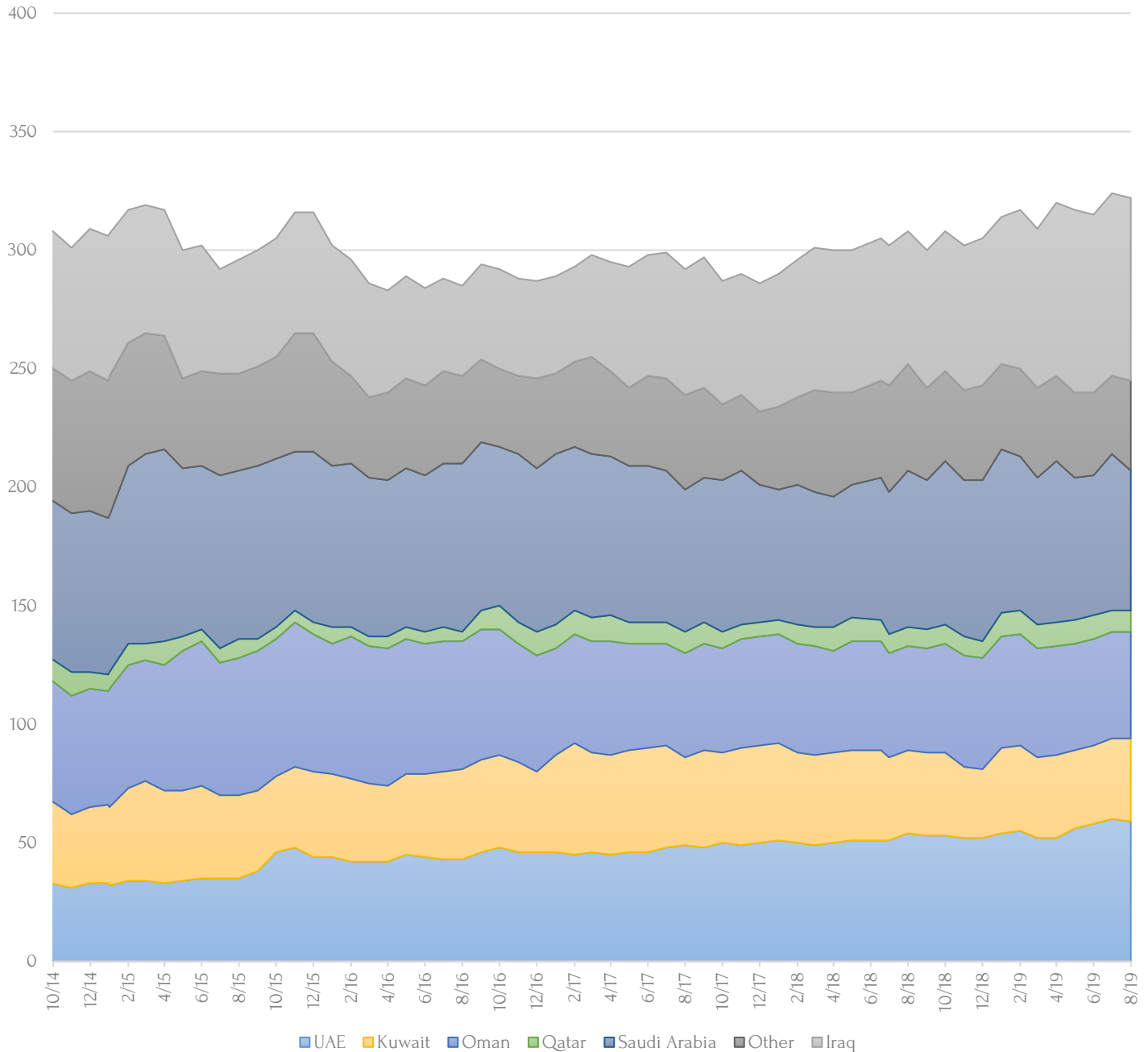
Pickens dabbled in the shale boom, picking up mineral rights on his own ranch near Amarillo in Texas. But his main activity after Mesa was running a hedge fund, BP Capital Management, which bet successfully on rising oil and gas prices, and again made him more money than drilling had done.

Then he poured cash into promoting US "energy independence", encouraging natural gas as a vehicle fuel, and trying to build the world's biggest wind farm in Texas. But the oil king was dethroned by the shale upstarts – the 2008 financial crisis, then the crash in commodity prices, caused his hedge fund to lose \$2bn, and undermined the economics of his wind plans. Now that wind power is booming, he liked to comment that he was not wrong, just early.

Pickens also gave away much of his fortune to political causes – like most other oilmen, a Republican who backed George W. Bush and later Donald Trump – and philanthropy. In 2016, he suffered a number of strokes, and closed BP Capital Management at the start of last year. Will there be more such self-made oil tycoons? It seems doubtful. The shale business is maturing and the hectic ways of the independent firms are giving way to the more cautious super-major firms. Exploration in far-flung regions is hard to finance. As climate change worsens, attention shifts from the scarcity of hydrocarbon resources to their over-abundance. Yet as mainstream investors fall out of love with the sector, drilling on Wall Street could still be profitable for those with an eye for a bargain.

Fortunes will be made in alternative energy, but not by capturing the resource – wind, waves and sun are abundant. Finding the minerals to power the energy transformation – such as lithium, cobalt, graphite and rare earths – still appeals to geologists hoping to strike it lucky. But most entrepreneurs of renewable power, batteries, carbon capture and other innovations will instead master new technologies, build dominant networks or "disrupt" incumbent business models as Pickens' corporate raiding did. He successfully reinvented himself at least three times in his long career; now the oil industry will have to do the same.

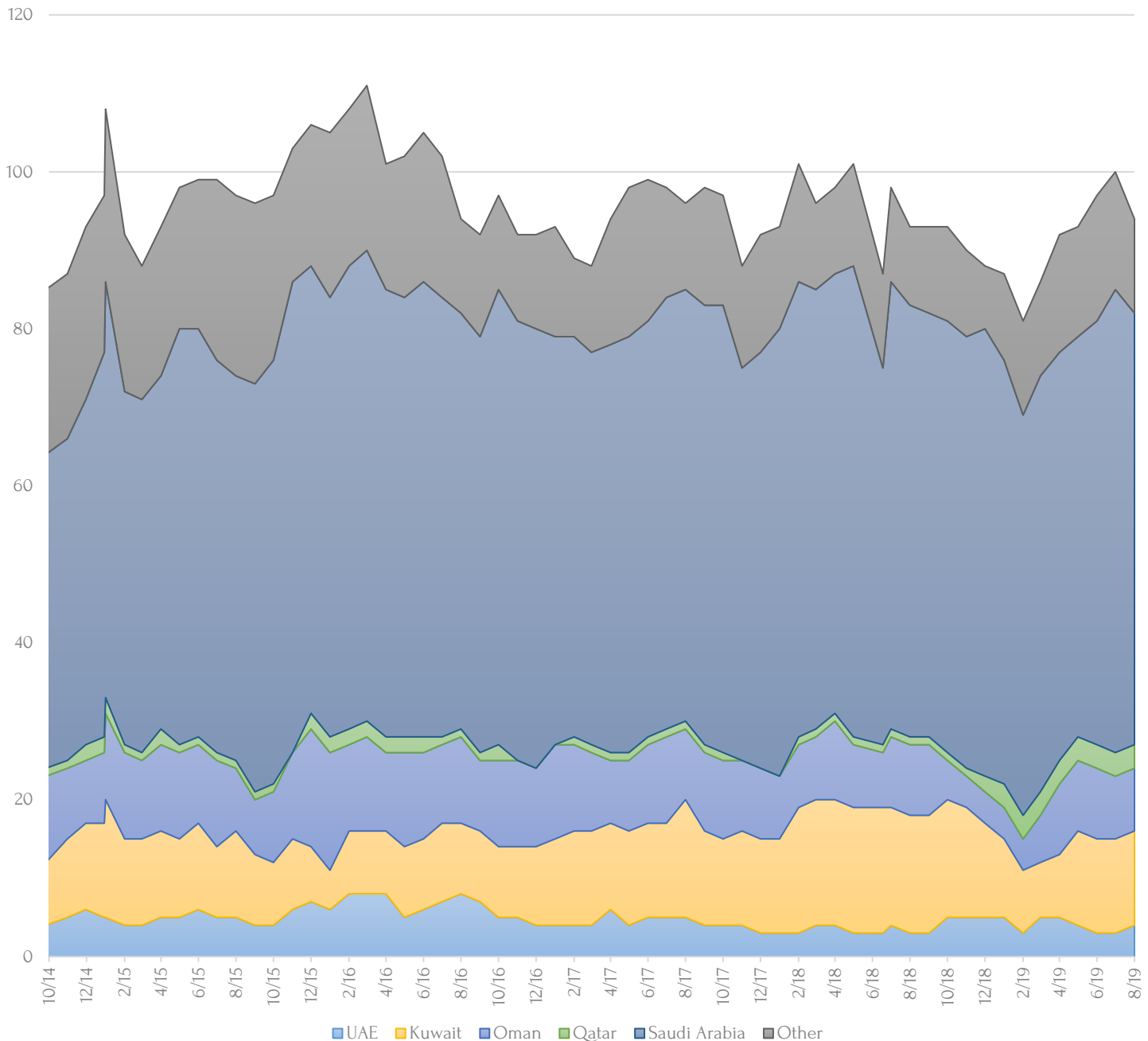
## RIG COUNT SNAPSHOT: OIL



- The Middle East's overall oil rig count in August fell by -8, excluding Iran.
- Iran's rig count is not included by Baker Hughes; OPEC estimates total (oil and gas) rig count in Iran at 157 in 2018, remaining the same till August 2019, which is doubtful, due to falling production and deteriorating exports in the face of sanctions.
- Iraq's oil rig count reached a 5-year high of 77 in July, remaining unchanged in August, which has cast doubt over its OPEC compliance. Production from state-operated fields Majnoon, Luhais, Tuba, Ratawi, and Nahr bin Omar has been cut back by >300 kbpd, but internationally-operated fields continue to make gains.
- The UAE's rig count reached an all-time high of 60 in July, exceeding August's record of 59, following the start of operations at the 40 kbpd, Al Dhafra Petroleum-operated Haliba oilfield on the southeast border of Abu Dhabi.
- Kuwait's rig count has stayed steady at 35 throughout H1 2019, ~11% lower than its H1 2018 average as it maintains strong compliance with the OPEC cuts (averaging 184% in August).
- Saudi Arabia's rig count fell by -7 in August even as the Kingdom increased production by 118 kbpd to meet summer demand. On September 14, drone/missile attacks at the Abqaiq and Khurais oil processing facilities wiped out 5.7 Mbpd of Saudi output, which puts a question mark over how much other OPEC+ and NOPEC members can supply to fill the gap<sup>1</sup>.

<sup>1</sup> See Qamar Energy's Special Saudi Arabia Abqaiq Update Newsletter for September 2019

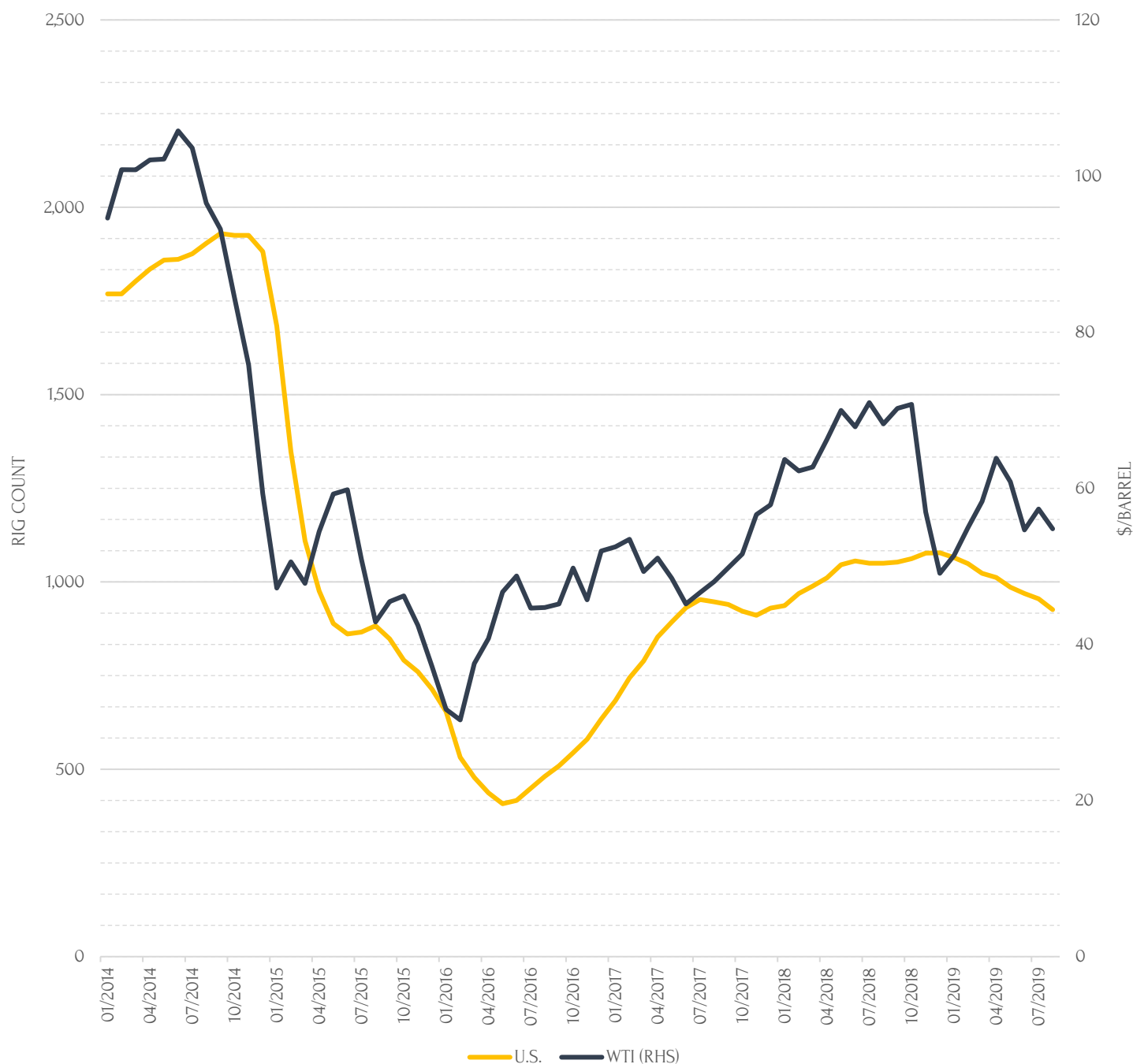
## RIG COUNT SNAPSHOT: GAS



- The Middle East's overall gas rig count fell by -6 in August, after reaching a year-high of 100 in July. The region reached an overall-high of 123 gas rigs in January 2014, but has since declined, averaging 99 in the last four years. We could see this trend reverse as major gas expansion plans get underway in the UAE, Saudi Arabia, Oman and Qatar.
- Oman's rig count gained by +3 in Q2 2019 (from Q1 2019), -1 rig below its April 2018 high of 10, even as Oman Oil Company Exploration and Production (OOCEP) signed an EPSA with Eni for tight gas development onshore Block 47 early in January.
- Kuwait's rig count increased by 38% in Q2 2019 (from Q1 2019), still -3 less than its 2018 average, as it targets increased non-associated gas production to meet soaring gas demand. Jurassic gas production is expected to grow from 170 MMscf/d to 520 MMscf/d from 2023-24 onwards, and will contribute to increasing Kuwait's output to 3.5 Bcf/d by 2031-32.
- The UAE's rig count witnessed no change from its Q1 2019 average, remaining steady at 4. We expect rig count to increase as large sour gas projects pick up momentum, exploration begins on Bid Round-1 blocks, and ADNOC awards exploration licenses from Bid Round-2 launched in May. First awards are expected in Q1 2020.
- Saudi Arabia's rig count fell by -4, -1 lower than its 2018 average of 56, as it seeks to expand gas production. September 14's drone attacks have also wiped out 2 Bcf/d of gas, which will require diversion of more oil to power plants<sup>2</sup>.

<sup>2</sup> See Qamar Energy's Special Saudi Arabia Abqaiq Update Newsletter for September 2019

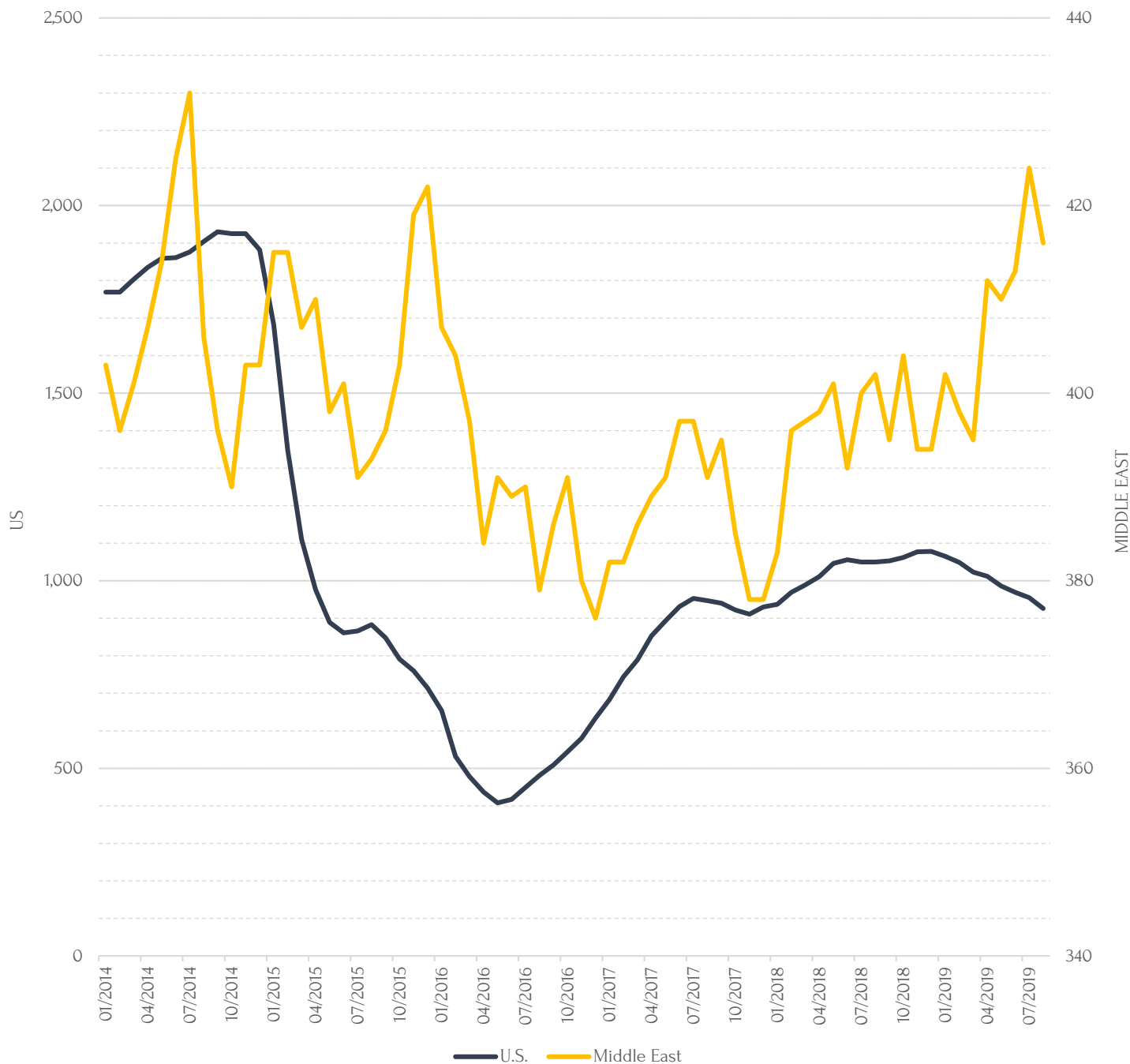
## RIGS VERSUS OIL PRICES: US RIGS & WTI



- US rig count fell by -29 in August, a y-o-y drop of 11.8% from August 2018 (-124 rigs).
- The major fall in rig count is at the Permian Basin, where rigs have fallen by -10 over the last 3 months. This is indicative of producers trimming spending plans due to rising debts and pressure for shareholder returns, even though oil prices have remained stable recently. Operating costs in the Permian Basin have not reduced, even though it has better economics than other basins. The fall in number of rigs reveals higher productivity per rig and fracking crew, but also the need for higher prices to encourage more capital investment. Onlookers have also blamed the current US-China trade tensions as a deterrent for upstream investment in the US.
- The EIA expects US crude production to average 12.2 Mbpd in 2019, up from an estimated 10.96 Mbpd in 2018.



## RIG COUNT: US & MIDDLE EAST



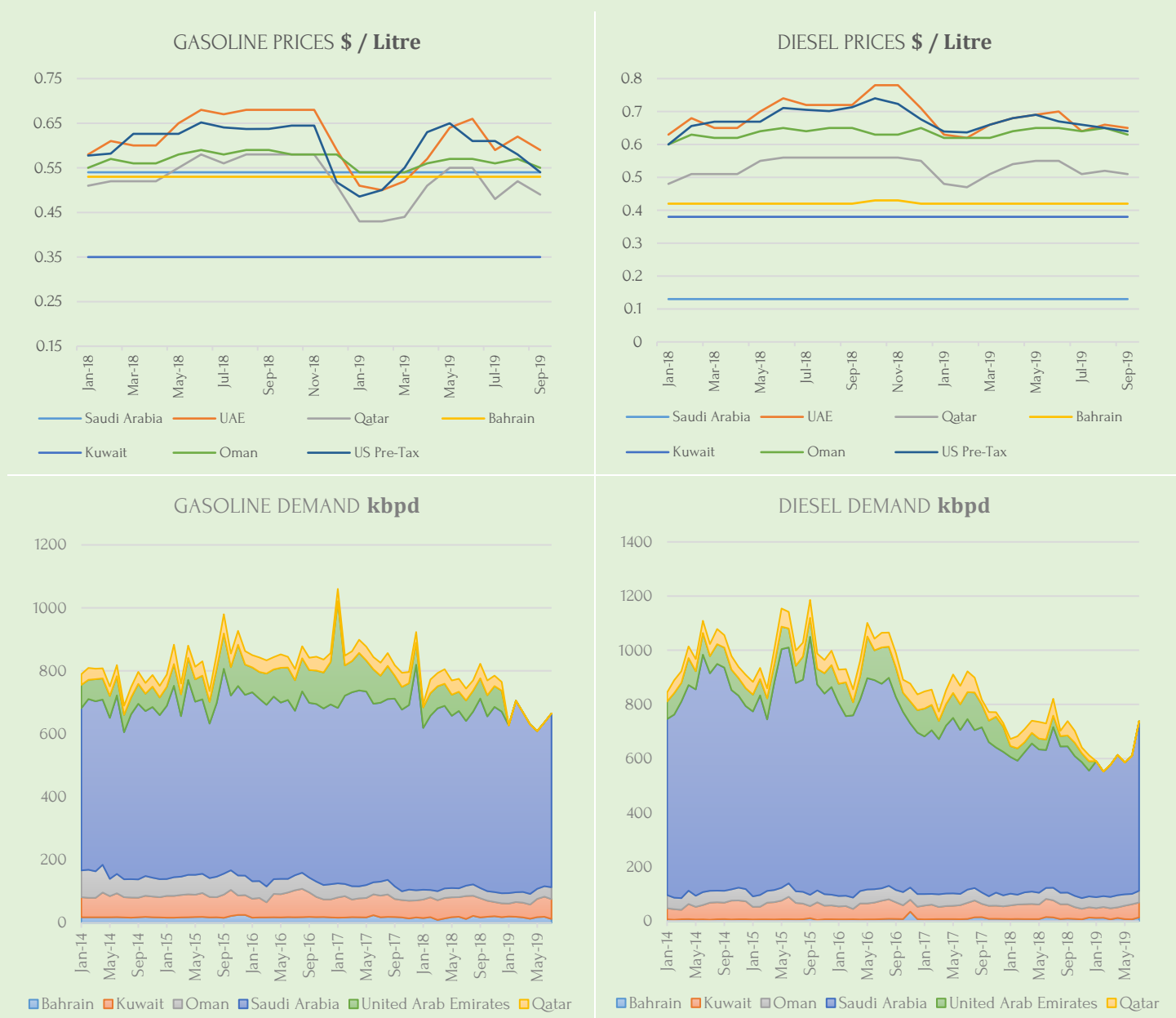
- The US' offshore rig count fell by -2 in early September, gaining +6 y-o-y from September 2018, even though Tropical Storm Jerry has raised concerns (as did Hurricane Florence) of a similar fall in rig count as was observed during Hurricane Harvey and other natural disasters. Onshore drilling declines are expected to continue into Q3 2019, as E&P companies focus on disciplined capital spending and prioritisation of cash flows with less focus on growth. The drone attacks against Saudi Arabia's Abqaiq and Khurais oil processing facilities are not expected to result in a major surge of output from the US. The IEA maintains that markets are "well supplied".
- Total Middle East rig count gained +20 from its 2018 average of 396 rigs to 416 rigs in August, as Saudi Arabia increased production (9.68 Mbpd to 9.8 Mbpd) to meet rising domestic power demand in the summer months.

# FUEL PRICES & SUBSIDY REFORMS

AUGUST 2019

- Gasoline and diesel prices for September in the UAE have been revised downwards by 4.4% and 1.6% respectively, after witnessing a rise of 3.67% and 2.9% respectively in August 2019, the first hike of Q3 2019 after oil prices were eased in July.
- In Qatar, prices for gasoline and diesel, which rose by 8.6% and 2.9% respectively in August from July's levels, witnessed a decline of 5.2% and 2.6% respectively in September. Prices remain below November 2018's levels, the highest recorded in 2018.
- Similarly in Oman, the price of M95 and diesel, which increased by 2.3% and 2% in August, fell by 4% and 3.6% in September.
- 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'. Its gasoline prices remain the lowest in the GCC.
- 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'. In May 2018, 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.

The following charts represent the prices of gasoline 95 and diesel (\$/litre) till September 2019 in the GCC countries.



*Note: JODI UAE and Qatar gasoline and diesel figures are unavailable for 2019.*

# 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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Arabia Monitor  
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# QAMAR SUPPLY CHAIN CONSULTANCY



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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

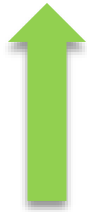
DEBOTTLENECKING SHORTCOMINGS

# OPEC WATCH

AVERAGE CRUDE PRODUCTION FOR AUGUST 2019

29.74 Mbpd  
+ 136 kbpd

From July 2019



## Non-OPEC Oil Supply\*

69.50 Mbpd

700 kbpd

from July '19

\*including OPEC NGLs



## **Non-OPEC Crude Output**

United States

Brazil

Kazakhstan



## OPEC+ COMPLIANCE

- Overall OPEC compliance was at 129% for August, with the largest cuts coming from Saudi Arabia (257%) and Kuwait (184%) among key producing countries.
- Russian compliance staggered to 53% in August, having remained above 100% since May. Production increased by 108 kbpd over its pledged output, reaching 11.63 Mbpd. Russia's high compliance between May-July 2019 was in fact precipitated by the contaminated crude crisis that also crippled exports in May.
- Nigeria's undercompliance continued in August, with production increasing by 86 kbpd from July's levels of 1.78 Mbpd. Despite on and off protests in Abuja, rising output from the 200 kbpd Egina oilfield resulted in a -242% compliance for June.
- Oman maintained perfect compliance in June, the fourth highest after Saudi Arabia, Kuwait, and Bahrain (120%) amongst the GCC, producing 978 kbpd as per its allotted OPEC quota based on October 2018's production.
- The UAE had the lowest compliance among the big Gulf-3 producers at 86%, raising output by 13 kbpd from its allotted OPEC quota (3.072 Mbpd).

## NEXT OPEC MEETING: December 2019

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

## LATEST ORGANISATIONAL CHANGES

- At the 176<sup>th</sup> Ordinary OPEC meeting in July, OPEC+ members pledged to extend December 2018's production cut of 1.2 Mbpd for another 9 months.
- The agreement is slated to stay in force till March 2020, and a decision on its extension will be discussed at the 177<sup>th</sup> Ordinary OPEC meeting in December 2019.
- On July 02, OPEC agreed to formally recognise its relationship with its OPEC+ allies through a "Charter of Cooperation". Moscow shows no interest in formally joining OPEC, but will remain in talks for a formal agreement with the cartel to keep oil prices balanced.

## OPEC PRODUCTION

- Libyan production fell by 21 kbpd in August, owing to force majeure being enforced and lifted by rival armies at the 340 kbpd Sharara oilfield. However, overall output for 2019 has remained above 1 Mbpd, signalling a return to stability, even though political tensions continue.
- Iraq's output witnessed a rise of 43 kbpd from the previous month as the country battles to reach its 2019 targets while maintaining compliance with the OPEC cuts.
- Saudi production increased the most of all GCC OPEC members (by 118 kbpd) in August, but still remained 506 kbpd less than its pledged output. Saudi has been making up for lower compliance from Iraq (-89% in August).
- Iran's output has stabilised somewhat at an average of 2.26 Mbpd over Q2-Q3 2019. Overall, the country has lost 1.55 Mbpd in production from its 2018 high of 3.818 Mbpd.
- Political instability, power cuts, US sanctions and the threat of civil disturbances have all but eliminated chances of a revival in Venezuela's production, which is struggling to remain above 700 kbpd. August's production was recorded at 712 kbpd.

# KEY MENA ENERGY SCORECARD

AUGUST 2019

## QATAR DEVELOPMENTS

On September 18, Qatar Petroleum signed an agreement with Shell to establish a global LNG bunkering company to meet LNG bunkering demand, which QP expects to reach 35 Mtpa by 2035; On September 15, QP issued an EPC tender for additional liquid products storage and loading facilities and Mono-Ethylene Glycol (MEG) storage and distribution facilities as part of its North Field Expansion (NFE) project; On June 24, it signed an agreement with Chevron to build the Middle East's largest ethylene cracker (1.9 Mtpa) which will increase Qatar's polyethylene output capacity by 82%; On July 02, QP signed another agreement with Chevron to build the \$8 B US Gulf Coast II Petrochemical Project along the US Gulf Coast which will include a 2 Mtpa ethylene cracker and two 1 Mtpa polyethylene units.



## MENA ENERGY PRICE REFORM

Abu Dhabi will offer industrial companies a reduction of 40% on electricity tariffs under its Ghadan-21 Programme to support the private sector in exchange for significant contributions to the economy; the scheme is dependent on companies improving energy efficient practices; the reduction follows the Federal Electricity & Water Authority's decision to slash tariffs by 40% for residents in Northern Emirates in January; On July 05, Egypt announced increases in fuel prices as a part of its \$12 B IMF loan: M92 and M95 gasoline saw a hike of ~18.5% and 16.1% and diesel and kerosene prices rose by 22.7%; Saudi Arabia has continued 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's exports inched upwards by 1.75% in August, reaching 4.077 Mbpd buoyed mostly by some infrastructure upgrades at the Basrah Terminal and trucking of crude to Jordan; Production from state-run fields however remains muted due to the OPEC pact; Iraq signed a framework agreement with the GCC for the supply of 500 MW of power via Kuwait by the summer of 2020 to meet soaring peak demand, which could increase to 2 GW; Iraq's Ministry of Oil has signed an MoU with US-sanctioned Russian company Sroytransgaz for oil and gas exploration in Anbar; Baghdad signed an MoU with Honeywell for processing 300 Mscf/d of associated gas from Ratawi, Majnoon, Luhais, Subba, and West Qurna-2 as part of the Ratawi Gas Hub Project that is expected to reduce Iraq's flaring by 20%.



## MENA NUCLEAR POWER

Saudi Arabia is assessing Umm Huwayd and Khor Duweihin for its first nuclear power plant near the UAE and Qatari borders and has shortlisted Rosatom and KEPCO, among others; Tendering is set for 2020, but will face delays due to technical plans, and ongoing negotiations with the US, who insists that it shall provide Saudi Arabia with nuclear technology only if the latter agrees to "intrusive snap inspections" by the IAEA; The UAE's Barakah plant is now closer to completion, with Unit 3 having been connected to the country's electricity grid on August 05; Overall completion of the plant's 4 units is now over 93% (Unit 1: 100%, Unit 2: 95%, Unit 3: 91%, Unit 4: 82%); 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  
Deterioration in the last month ↘ Positive  
Improvement in the last month ↗ Negative  
Very Negative

# KEY MENA ENERGY SCORECARD

AUGUST 2019

## ENERGY INFRASTRUCTURE SECURITY

On September 14, Aramco's Abqaiq and Khurais oil processing facilities were attacked by drones at 17 target points, immediately suspending 5.7 Mbpd of Saudi crude output (5-6% of global supply), as well as affecting 2 Bcf/d of natural gas output; the US and Saudi have squarely placed blame on Iran, while Iran has denied any involvement; Houthis in Yemen have claimed responsibility but this is yet to be corroborated; On July 31, Libya's 340 kbpd Sharara oilfield was subject to a 3rd force majeure in the month, due to tensions between the LNA and PFG over Eastern Libya. Production has resumed for now, but the situation remains fragile.



## ABU DHABI DEVELOPMENTS

ADNOC has awarded a managed maintenance services contract to Petrofac for its KNOC-JV Haliba oilfield which celebrated first oil on July 02; the field is expected to reach 40 kbpd by end-2019; ADNOC also awarded Canada-based SNC Lavalin a project management contract for Yasat Petroleum's (ADNOC-CNPC JV) onshore and offshore concessions; Eni's Ghasha sour gas field is expected to produce over 1.5 Bcf/d by 2025 in line with UAE'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 is considering a regional oil price benchmark to increase competitiveness over global benchmarks; NPCC completed giant Umm Lulu process platform; ADNOC, OCI form fertilizer JV; ADNOC & Exxon are looking to invest up to \$8 B to raise production capacity in Upper Zakum to 1 Mbpd by 2024.



## IRAN DEVELOPMENTS

Iran's August exports averaged 670 kbpd, with China and Syria its only customers, taking in total 195 kbpd of crude; However, unidentified deliveries averaged 475 kbpd, most of which are likely making their way to Chinese shores; On September 16, Iran seized a vessel delivering 250,000 liters of allegedly smuggled diesel to the UAE, with likely no connection to the Saudi attacks, and is unlikely to keep the tanker in holding; CNPC is allegedly holding talks with Iran over resuming its activity at the South Pars Phase-11 project, but is not confirmed by Chinese officials; Iran has signed a deal with local company Petropars for the development of 500 Mscf/d of gas from the Belal gas field in the Persian Gulf by 2022, but this is unlikely to transpire any time soon; Iran has offered increased nuclear inspections if the US lifts sanctions under a UNSC dispute resolution process.



## KUWAIT DEVELOPMENTS

Indian firm Larsen & Toubro has submitted the lowest bid for the Mina Ahmadi gas pipeline, which will link gas fields in the north to the Mina Ahmadi refinery, for an estimated \$479 M; Kuwait Petroleum will soon commission the refinery's first diesel production unit as part of the refinery's overall 454 kbpd capacity; Kuwait Petroleum 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 are still unclear, and Chevron has indicated that it would take several months to bring the fields fully back online to make up for supply losses from Saudi Arabia.



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



# KEY MENA ENERGY SCORECARD

AUGUST 2019

## MENA RENEWABLE ENERGY

In May Iraq launched a 755 MW solar tender; Eni inaugurated the construction site for a 10 MW solar PV plant in Tunisia which was awarded following a public tender; Eni is also working on the construction of the 5 MW Adam photovoltaic field in Tataouine, expected to be completed this year; Saudi's REPDO is planning to tender 12 solar PV projects with a combined capacity of 3.1 GW in 2019 (of which 7 solar PV projects, with a capacity of 1.515 GW have pre-qualified 60 bidders under Phase-2 of the National Renewable Energy Programme) after revising the country's solar targets from 5.9 GW to 20 GW for 2023; The 1.18 GW Noor Solar Plant in Abu Dhabi has begun operations; Masdar has begun installing the first of 13 turbines in Dhofar, Oman, for the GCC's first and so far largest wind farm generating 50 MW to power 16,000 homes in Oman; Libya's Misurata Free Zone (MFZ) has signed an MoU with consultancy iQ Power to develop integrated CSP and PV projects with up to 300 MW total capacity, but highly subsidised prices and insecurity will keep investment subdued; Iran has reportedly operationalised 14 renewable plants in the country (13 solar PV + 1 wind) with a total capacity of 160 MW; Kuwait has expanded its 2030 renewables target at the Shagaya Renewable Energy Complex to 4 GW (including 400 MW of CSP), after starting commercial operations at its 50 MW Shagaya CSP plant in February; Oman Power and Water Procurement Co. (OPWP) has invited proposals for developing the Manah Solar I IPP and Manah Solar II IPP (1.1 GW capacity combined) following the procurement of the 500 MW Ibri II solar PV plant in March.

## MEDITERRANEAN GAS COMMERCIALISATION

Total and ENI will now explore for gas in a new area off Cyprus' southern coast in a 50-50 partnership; the area reportedly holds the extension of Eni's Calypso discovery (Block-6), raising confidence for new finds; Total has also gained shares in four of Eni's Cyprus EEZ; Meanwhile ExxonMobil made the world's third largest gas discovery in 2 years offshore Cyprus at the Glaucus-1 well, estimated to hold between 5-8 TCF; In Lebanon Total and Eni are planning to drill their first exploration well in Block 4 by end-2019, and first well in Block 9 by 2020; Lebanon's first LNG imports through its new FSRU contracts will begin in 2021, as any successful discoveries would not enter production before then; Lebanon has agreed to enter US-brokered talks with Israel over a disputed maritime border; Eni has encountered gas under evaluation in the Nour exploration prospect and will begin feasibility studies, though reserves appear less than forecast; Dana Gas's highly-anticipated Merak deepwater well at North El Arish off Egypt came up dry; Egypt has begun increasing its gas exports as the Idku export terminal restarts, backed by an average natural gas surplus of 1.56 Bcf/d; Ongoing security threats in North Sinai have once again delayed plans to repair the Egypt-Israel gas pipeline; BP is set to boost production from the West Nile Delta to 700 Mcf/d under its second phase (Giza and Fayoum fields) of development; Petrofac won a \$1 B EPC contract to develop Algeria's Ain Tsila gas field and will produce gas at a rate of 364 Mscf/d by 2023; Only 2 consortia have bid in Israel's latest Bid Round-2 to explore 12 of the 19 offshore blocks on offer.



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

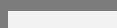
Robin is an expert on Middle East energy strategy and economics, described by Foreign Policy as "one of the energy world's great minds". He is the author of two books, *The Myth of the Oil Crisis* and *Capturing Carbon*, columnist on energy and environmental issues for Bloomberg and The National, and 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 Centre 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.



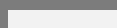
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