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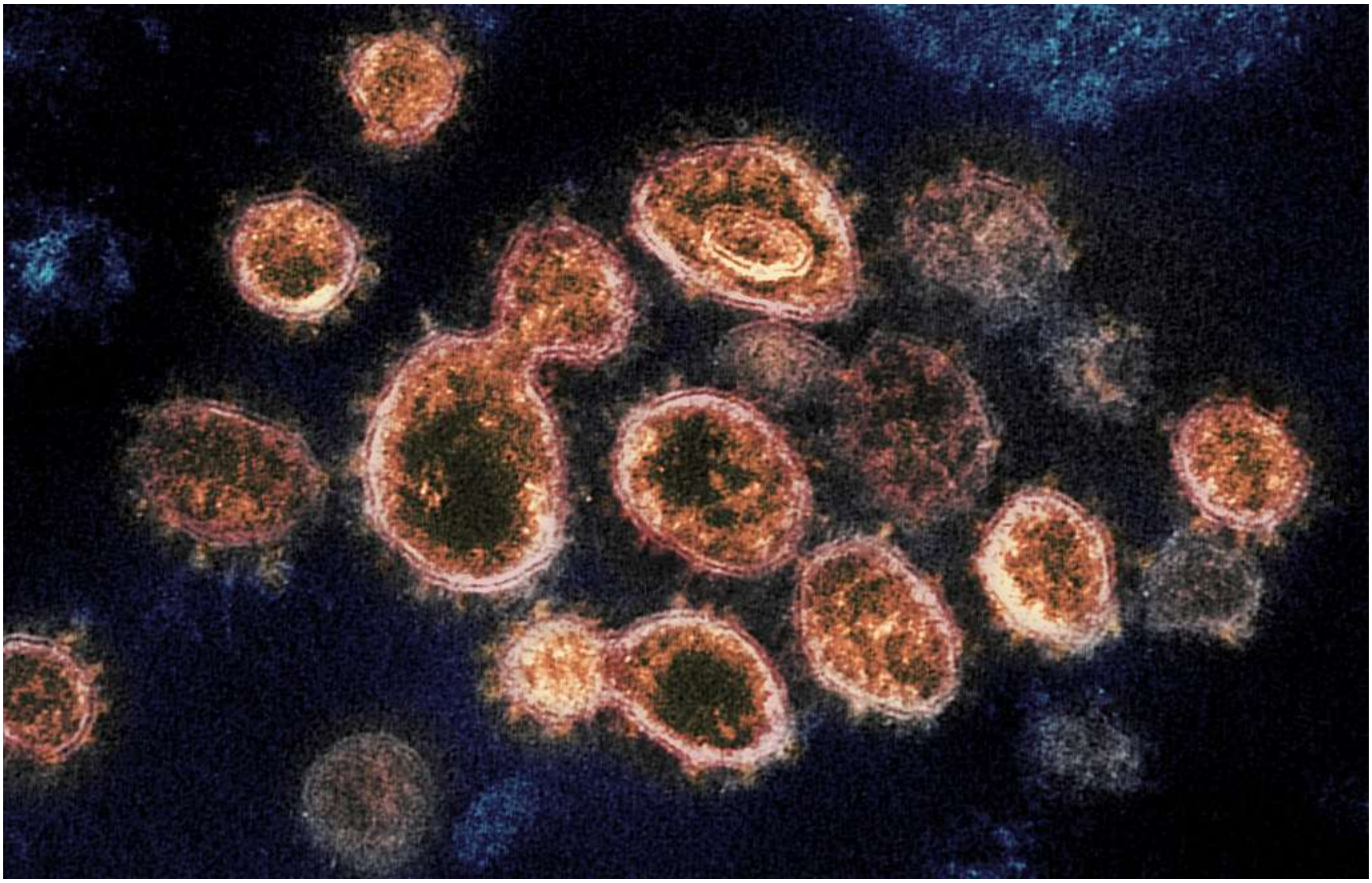

How the coronavirus is impacting the oil market? Cover story by Robin Mills.

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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

HOW THE CORONAVIRUS IS IMPACTING THE OIL MARKET

Robin Mills • *A version of this article appeared in The National, Feb. 16, '20* • **COVER STORY**

An epidemic is an unexpected blight on an already rocky energy landscape. But as coronavirus hits oil demand, OPEC has to decide whether its pursuit of oil market balance is coming closer within reach or receding like fairy-tale gold. The shutdown of Chinese industry, travel and business just after the country's New Year left people stranded in the wrong place and hit demand for jet and road fuels first. The number of trips has fallen 70 per cent. Now an unwanted armada of ships is piling up outside Chinese ports, reducing the need for marine fuels just as the industry was expecting a bonanza from new anti-pollution rules.

Petrochemical companies have had to shut down operations, while Chinese firms have attempted to declare force majeure on liquefied natural gas (LNG) imports, in the face of refusal by suppliers, to avoid taking delivery of cargoes they cannot use. Brent crude prices have fallen from $67 at the end of last year to around $56 per barrel now. Analysts continue to vary on whether the coronavirus outbreak is being contained. Shanghai-based financial service company Horizon Insights has drawn comparisons with the 2003 SARS epidemic. That had its biggest effect on tertiary industry and retail consumption – both of which have since grown as a share of China's gross domestic product. It occurred after the New Year, when workers had already returned to their cities of employment. The Chinese economy had already slowed substantially compared to its rapid growth in 2003. Corporate and household leverage is far higher today, rendering the country more vulnerable to a bad debt crisis. This will be exacerbated by a likely fiscal and monetary stimulus once the disease is under control.

The OPEC+ alliance, led by Saudi Arabia and Russia, instituted output cuts in 2017 with the intention that they would be short-term until excess stocks were drained. After a series of extensions, the group's December meeting had already committed to reduce production further, by 1.7 million barrels per day (bpd) in all, to deal with an expected first-quarter slump in demand for its crude.

The epidemic now reveals how dangerously dependent the exporters' group has become on Chinese growth, which made up three quarters of last year's global gain. India, whose own economy has also been sluggish, is the only other country with the same magnitude of demand expansion. US shale output has not collapsed, and OPEC's market share has consequently steadily shrunk. Geopolitical tensions in the Middle East last year did not scare the market nor materially harm output. This year was expected finally to show weaker American production, as investors lose patience, but this was offset by stronger output in other non-OPEC producers such as Norway, Brazil and Guyana.

The repeated extensions and then deepening of cuts have just about defended prices during a period of solid, if unspectacular, world growth. How would the pact cope with a major slowdown or recession? We may be about to find out. As news of the virus emerged, its monitoring committee met two weeks ago in Vienna and recommended a further 600,000 bpd cut for consideration at the organisation's March meeting.

On Wednesday, OPEC's monthly report cut its forecast for global oil demand growth by 230,000 bpd to 990,000 bpd. It estimated the requirement for its crude at 29.3 million bpd, above its actual January level of 28.86 million bpd, as Saudi Arabia lowered output and Libyan production was slashed by the shutdown of its loading terminals. This was OPEC's lowest production rate since 2009 – an entire decade of economic recovery has been lost. The International Energy Agency (IEA)'s assessment was even gloomier, cutting world demand projections by 480,000 bpd over the whole year, and 1.32 million bpd in the first quarter. This would be the first fall in growth in the first quarter since the 2009 financial crisis. If the IEA's assessment plays out, OPEC+ would have to maintain the additional production cuts from April to September just to make up for the first quarter hit to demand. But things could get worse. The world dodged recession last year, but the virus has dampened the expected pick-up at the start of this year.

And Donald Trump's mercantilist trade deal with China rested heavily on oil, LNG and agricultural products. The $50 billion (Dh183.6bn) of additional fuel China was supposed to buy over this year and next already looked unrealistic – if American oil met all of its pre-virus expected demand growth this year, it would add only $12bn. But now the aspirations are completely out of reach. Coronavirus could be a fig-leaf for both sides to cover an embarrassingly failed deal, but it could also lead to a collapse of the trade truce.

With this difficult demand outlook, if OPEC makes yet another cut, will it be temporary? Again, Saudi Arabia and its Gulf allies, the UAE and Kuwait, will have to bear the brunt. Iran's exports could dry up entirely during the virus episode, if its sole remaining paying customer China does not want its crude, but this takes out only 300 000 bpd. The Libyan outage could be important, whether resolved quickly or prolonged. But the limits of cooperation with Iraq, Nigeria and Russia may be near, and even Venezuela seems to have bottomed out.

A decade of world demand expansion has essentially been lost to OPEC. The 2020s may be less favourable as non-oil technologies gain, and a production deal that has coped with the good times now needs to struggle through a morass. As economic stormclouds gather, the alliance needs to judge whether to recalibrate its aspirations of price and volumes.

HOW THE MIDDLE EAST CAN HELP INDIA BALANCE ENERGY DEMAND WITH SUSTAINABILITY

Robin Mills • *A version of this article appeared in The National, Feb. 9, '20*

On the new motorway south from Delhi to Agra, innumerable brickworks exhale smoke and a whitish haze blankets the fields. Of all major countries, perhaps India best exemplifies the energy trilemma of balancing secure availability, affordability, and environmental acceptability. This opens the way for a fruitful partnership with the Middle East.

India's energy demand is estimated to grow 50 per cent by 2030. The Narendra Modi administration now claims that 99.9 per cent of households have access to electricity, even if in small quantities and often patchy. Road-building slowed last year but still averaged 27 kilometres every day.

Already the world's third-biggest oil consumer, India is expected soon to overtake China consistently as the largest contributor to world oil demand growth. The country intends to boost the share of gas in its energy mix to 15 per cent from 6.2 per cent today by 2030, still well below the world average. It is the second-largest global user of coal, though far smaller than China. Wind farms tower over the desert around Jaisalmer, and solar panels adorn roadside petrol stations, contributing to an ambition of 175 gigawatts of renewables, a doubling of current capacity, by 2022.

India has made great strides in assuring availability of energy to its fast-growing economy. For its large low-income population, affordability remains essential. But despite its progress in renewables, it struggles to balance this with environmental sustainability. Pollution across north India is now worse than in China. India remains heavily dependent on cheap coal for power generation, with air quality also harmed by vehicle tailpipes, road dust, burning agricultural waste, as well as from the use of coal and fuel oil in industries such as cement and brickmaking. China has converted large parts of its heating to gas from coal to clean up its air by government fiat, but such moves are not so easily implemented by New Delhi.

As the chairman of the National Thermal Power Company observes, domestic coal is available at 80 US cents (Dh2.9) per million British thermal units. By contrast, in the middle of a price crash caused by oversupply and exacerbated by the Chinese coronavirus crisis, Reliance Industries recently bought spot liquefied natural gas at $2.80. This was the lowest for many years, but still more than three times the price of coal. Most Indian imports are on long-term contracts linked to oil prices at much higher levels, around $6 or more. Even with some premium for clean power, it will be hard for gas to make much headway against coal for electricity generation unless its price stays low.

India needs this continuous ready supply of energy to sustain its rapid economic growth. While shale oil seems to have led Washington to discount energy security, and Brussels is consumed by decarbonisation, New Delhi is acutely aware of its dependence on the Middle East. In January, it sent warships to accompany its tankers following a spate of attacks on vessels in the Gulf last year.

Purchases of overseas LNG meet a little more than half of gas demand, while much of India's own output comes from expensive deepwater fields. Problematic north-eastern neighbours – Pakistan, Afghanistan and Iran – hamper land access to the Middle East and Central Asia. Unlike China with access to pipelines from the former Soviet Union, all of India's oil and gas imports have to come by sea. Its levels of domestic petroleum self-sufficiency, strategic oil storage and overseas energy assets are much lower than that of its giant northern neighbour.

Energy companies in the Middle East are, of course, aware of India's importance. Both the UAE and Saudi Arabia have strategic partnerships with India. Aramco and ADNOC are working with Indian state companies on a massive refinery and chemical complex in Maharashtra, and ADNOC is working with Adani Group on a renewable-powered "green" petrochemicals plant in Gujarat. The Abu Dhabi state company also has an agreement for strategic oil storage at Mangalore. Conversely, a group of Indian national oil companies led by the largest, ONGC, entered Abu Dhabi's Lower Zakum concession in February 2018. On the renewables front, Masdar bought about 20 per cent in Hero Future Energies, a Delhi developer of solar and wind projects, in November.

Working in the Indian energy market is not easy. State and local interests, bureaucracy, land acquisition and inadequate infrastructure remain major issues. Privatisation, deregulation and pricing reform have proceeded only haltingly. But the logic of markets and proximity will surely see Indo-Gulf energy trading and investment deepen substantially. These commercial deals, though strategic and crucial for accessing future energy consumers, still do not really integrate the strategic element. Various Western concepts have sought to recruit India as a counterweight to China, or as part of an "Indo-Pacific" security framework including other states such as Japan, Australia and Singapore. This involves much wider considerations than energy.

But from the GCC perspective, India offers geographic proximity, a capable military, long historic and cultural links, and a giant and fast-growing market. It is geopolitically less polarising than closer co-operation with Beijing and Moscow. And it might be more reliable than complete dependence on the US, given Washington's professions of "energy dominance" contrasted with India's strong self-interest in interrupted passage of the Gulf.

There is a natural partnership here, with an interchange of skills, technology and capital, a flow of natural resources towards India, and a security guarantee – likely remaining implicit – the other way. That would help solve the trilemma of affordability, availability and sustainability.

WHAT THE UAE'S ENERGY MIX WILL LOOK LIKE IN THE DECADES TO COME

Robin Mills • *A version of this article appeared in The National, Feb. 6, '20*

Only a month into the 2020s, we have already entered a pivotal period for the UAE's energy scene. The imminent activation of the Arab world's first nuclear power reactor and a massive new gas discovery have made headlines. The energy mix is transforming to greater diversity, self-sufficiency and environmental performance – setting the industry new challenges for the decade ahead.

The past decade saw the UAE wrestling with three linked energy issues. The country was running short of gas because of rapid growth in demand during an economic boom that collided with declining gas reserves outside Abu Dhabi. Major purchases through the Dolphin pipeline and of liquefied natural gas made the country a net importer, even though it had the world's seventh-largest reserves, creating concerns over supply security. The energy system was almost entirely dependent on oil and gas, emitting significant greenhouse gas emissions at a time of growing concern over climate change.

Energy projects take a long time to build, so actions initiated a decade ago are only now bearing fruit. In 2008, the federal government issued a policy paper committing to civil nuclear power and founded the Emirates Nuclear Energy Corporation in 2009. The first reactor, of four totalling 5.6 gigawatts capacity, is intended to come online imminently. This will represent a massive source of low-carbon electricity, equivalent to about a quarter of Abu Dhabi's installed generating capacity. It has required not just heavy financial investment, but the development of an entire regulatory system, training of hundreds of UAE national operators and forging a working relationship with the partner, Korea Electric Power Corporation. The UAE is endeavouring to establish a gold standard for safety and non-proliferation to allay concerns about nuclear programmes in this region.

Dubai put together its 2011 Integrated Energy Strategy and 2015 Clean Energy Strategy, which by 2030 intend to save 30 per cent of energy consumption below "business as usual". It will also move power generation from total reliance on gas to a more balanced mix – 61 per cent gas, seven per cent "clean coal", seven per cent nuclear (from ENEC) and 25 per cent solar, mostly at the Mohammed bin Rashid Al Maktoum Solar Park, set to become the world's largest single-site solar facility with five gigawatts of capacity. The UAE's 2050 Energy Strategy, put forward in 2017, targets 50 per cent clean energy by 2050, and a 40 per cent improvement in energy efficiency. Energy subsidies have been cut and fuel prices raised to international levels.

Dubai Electricity and Water Authority has set a string of world records for the cheapest solar power and has been followed by the newly-reorganised Emirates Water and Electricity Company, which is currently tendering a giant two-gigawatt solar farm in Al Dhafra. A move towards reverse osmosis for producing desalinated water saves energy and improves the system's flexibility. Both emirates have also created systems to permit smaller-scale solar installations on the roofs of factories, commercial buildings and homes, leading to a boom in private

solar developers such as Enerwhere, Yellow Door and Enviromena.
These firms, along with the Abu Dhabi government's clean energy vehicle, Masdar, and Saudi Arabia-based regional power champion, ACWA, have gone out to develop renewables regionally, including solar in Jordan and Egypt, and large offshore wind farms in the UK. The Gulf's first coal power plant, at Hassyan in the south of Dubai – a collaboration between Dewa, ACWA Power and China's Harbin Electric and Silk Road Fund – should also start generating this year.

Despite the higher emissions from coal, the combination of nuclear, renewables and improved efficiency should lead to carbon dioxide emissions from the UAE's power sector falling significantly over the next few years.

Sharjah ran its first competitive bid round for oil and gas exploration last year, which attracted supermajor Eni and has found success with the emirate's first gas discovery in 30 years. Ras Al Khaimah has also awarded new exploration acreage, having announced its own energy strategy in 2018 – focused on 30 per cent efficiency savings, 20 per cent water savings and 20 per cent renewable energy generation by 2040.

In November 2018, ADNOC released its integrated gas strategy, which has the goal of making the UAE self-sufficient. This will be achieved by developing new and more technically challenging fields with international partners. ADNOC also announced an increase in reserves to 105 billion barrels of oil and 273 trillion cubic feet of gas, taking it to sixth in the world rankings for gas. Oil production capacity is intended to rise from 3.5 million barrels per day to four million bpd this year and five million bpd by 2030, making it the biggest gainer amongst OPEC nations other than Iraq. Carbon capture and storage, following on the first project with Emirates Steel, will be used to reduce greenhouse gas emissions while saving gas currently reinjected for improved oil recovery.

Early this month, Dubai and Abu Dhabi announced a massive gas find with 80 trillion cubic feet in place, in the area near Jebel Ali, between the two emirates. A mixed conventional-unconventional reservoir, type, it is still too early to know how much can be economically recovered. Yet even a modest level of production could substantially reduce Dubai's import needs. These developments are impressive, particularly when set against slow advances in most of the UAE's regional neighbours. Progress brings its own challenges, and the country has three major issues to solve in the current decade.

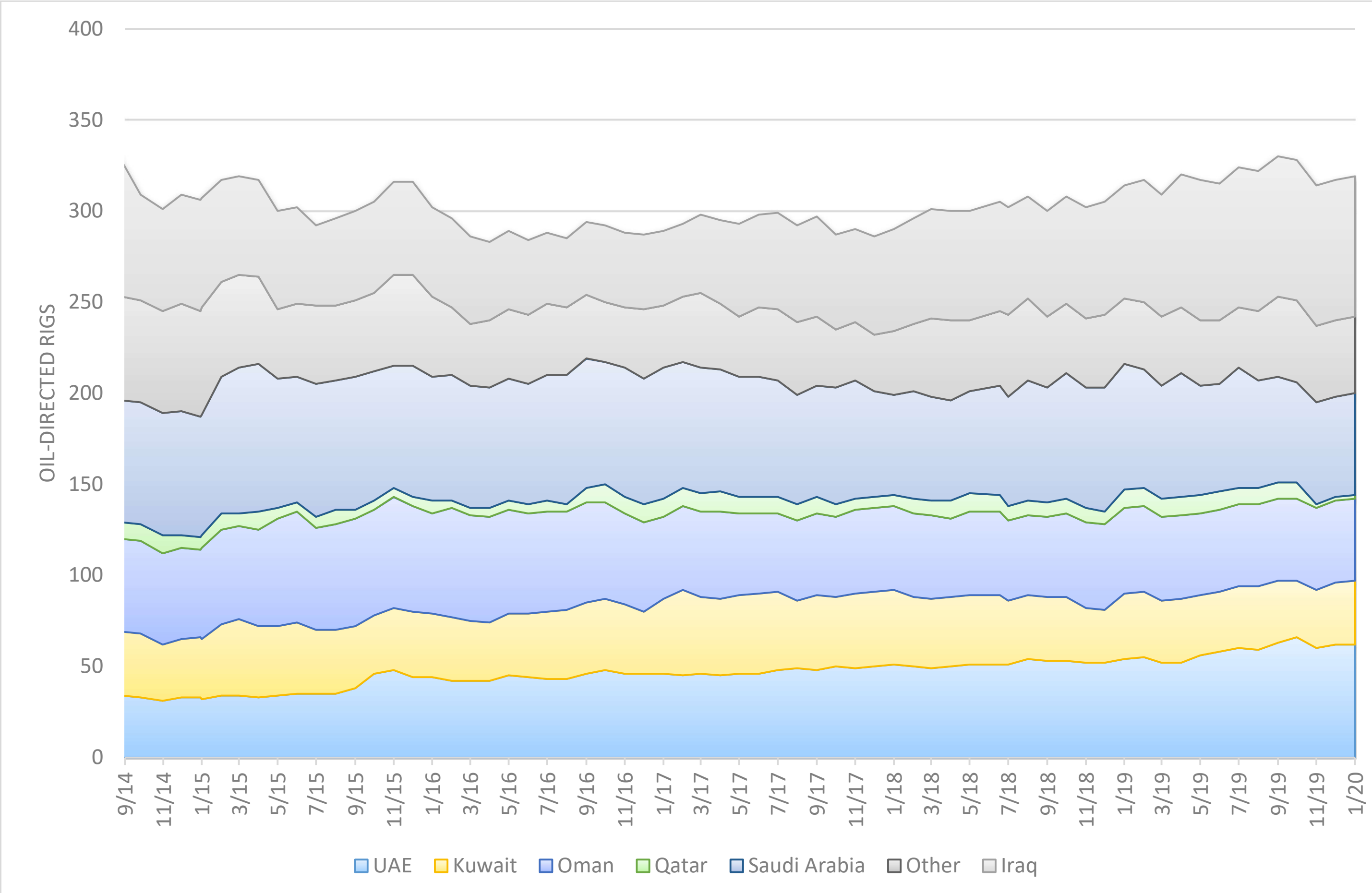
The first is how to restructure the country's gas market. A large amount of new production will reach the domestic market at a time that demand is falling, at least temporarily, because of the arrival of nuclear, solar and coal. New industries are being planned, boosting consumption, but the country needs a pricing and trading system that will keep gas competitive and direct it to the most valuable uses.

The second is integrating the growing share of variable solar power alongside large and relatively inflexible nuclear and coal plants. Within a few years, solar power generation at midday in spring might exceed demand, while on summer evenings, demand will have to be met entirely by non-solar photovoltaic generation. Dewa is building a pumped hydroelectric storage facility at Hatta, and Ras Al Khaimah has also considered one in its mountains. EWEC's Al Dhafra solar tender featured an option for bidders to include battery storage, to add to the 108 megawatts of batteries the utility already has.

The third, and the biggest challenge, is moving beyond the power sector to reducing the environmental impact of the rest of the economy. Electric vehicles are starting to appear on UAE roads, but remain a rarity. Industry still runs nearly all on oil and gas, although Dewa has begun a pilot scheme to make "green" hydrogen. The Emirates Steel project would have to be followed by more carbon capture schemes to cut greenhouse gas emissions from petrochemicals, oil refineries, cement, aluminium and the rest of the heavy industrial backbone of the economy.

One part of the solution to these three issues will be greater interconnectivity with neighbours. Another part will be technological and market innovation. The UAE is well on the path to a more diverse, secure and sustainable electricity sector. The challenge for the 2020s is to complete that task, while advancing on the rest of the energy system.

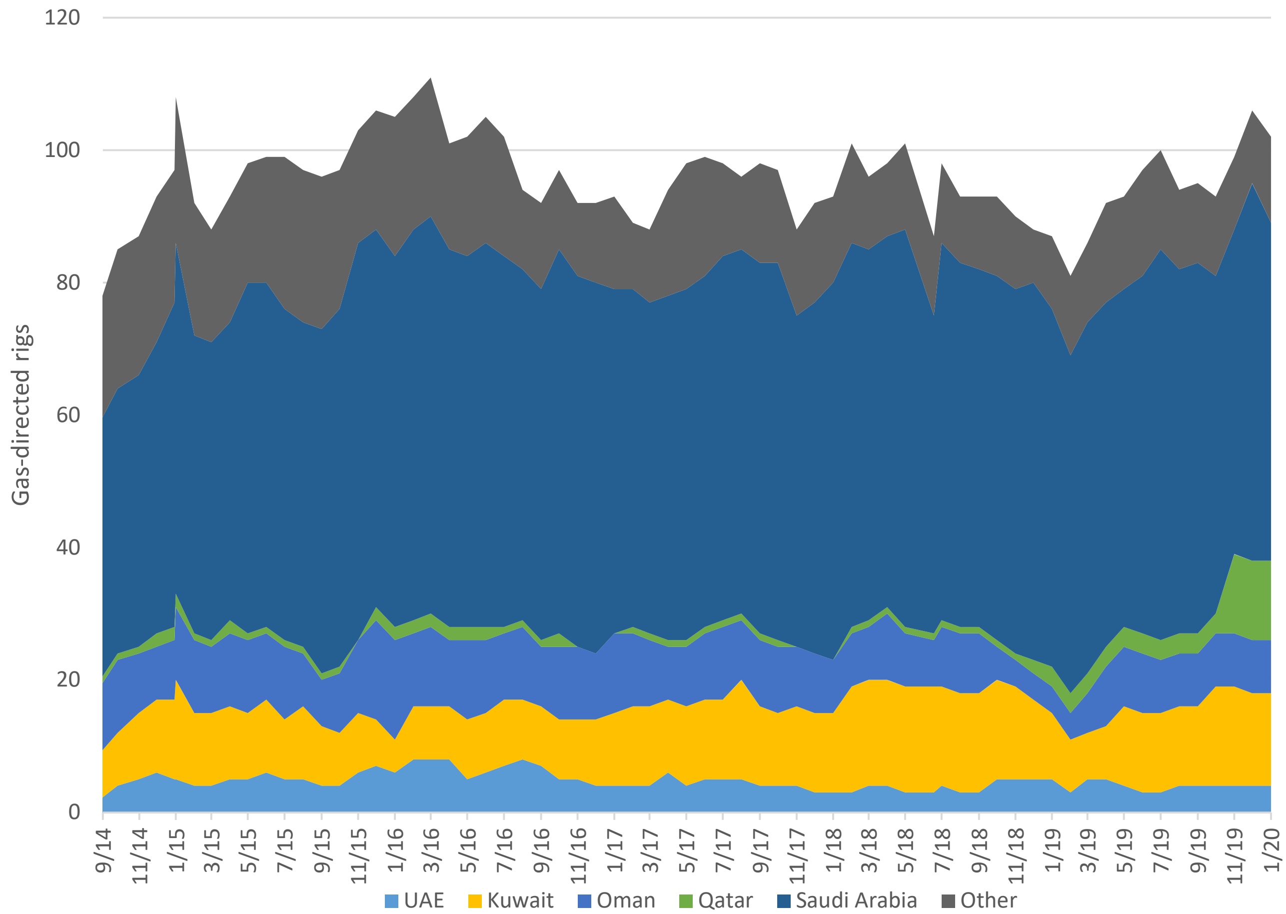
RIG COUNT SNAPSHOT: **OIL**



- The Middle East's overall oil rig count in January increased by +1 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 December 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 2019, and has remained unchanged till January 2020, with Iraq's compliance rate to jump to 108% following a 68 kbpd decline in production in January. This is mainly due to the protests that led to the shutdown of the Nassiriya oilfield.
- The UAE's rig count remained stable in January at 60, 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. This goes in line with the country's plans to increase its capacity to 4 Mbpd by end-2020, with plans to increase the use of CO_2 for oil enhanced recovery by 500% (Currently, 800,000 tonnes of CO_2 are injected in mature oilfields to stimulate production).
- Kuwait's rig count has remained steady at an average of 34 in January since H2 2019, 2.7% lower from its 2019's January figure. Production decreased by 44 kbpd in January from December's 2.70 Mbpd as Kuwait increased its compliance to 169% in January. This is expected to increase modestly once production from the Neutral Zone recommences. The zone's Khafji oil field is expected to produce 320 kbpd end-2020, while Chevron has begun preparations to restart production at the Wafra oilfield in February, expected at a 145 kbpd within a year of restarting, along with operations starting at Al-Ratqa heavy oil project, with 60 kbpd expected output in its 1st phase, all in line with the country's plans to raise its capacity by 4 Mbpd by 2040.
- Saudi Arabia's January rig count increased by +1, with output rising by 57 kbpd to reach 9.73 Mbpd in January, despite the crisis of novel Coronavirus (nCoV) on global oil demand, expected to fall by 435 kbpd in Q1 2020; production is likely to decrease as Saudi Arabia pushes for a 500 kbpd additional cut amid a slump in demand, although this received resistance from Russia.

Source: Baker Hughes; OPEC

RIG COUNT SNAPSHOT: **GAS**

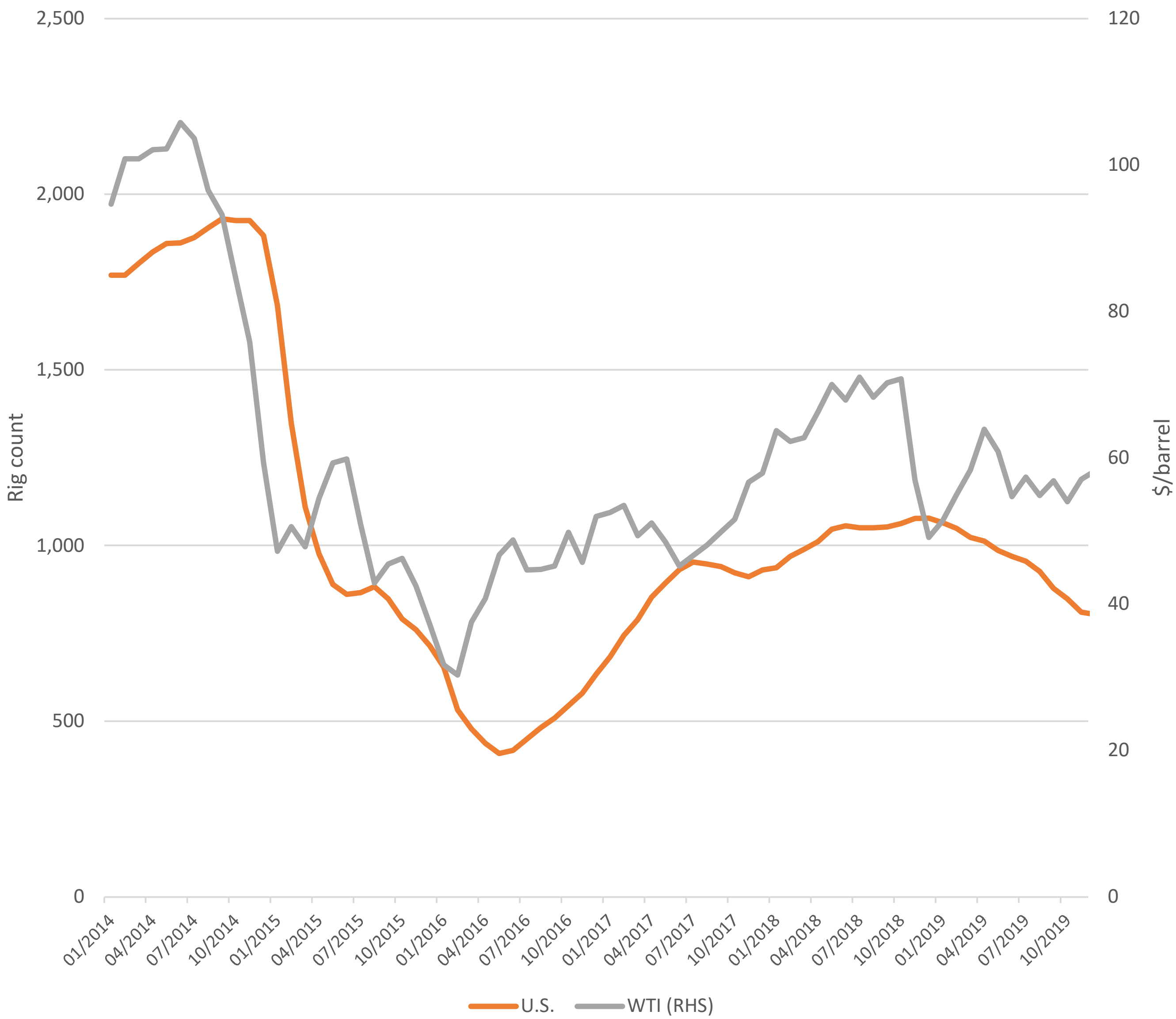


- The Middle East's overall gas rig count decreased by -4 in January at 102, exceeding July's record of 100. The region reached an overall-high of 123 gas rigs in January 2014, but has since declined, averaging 99 in the last four years. We could see this trend reverse as major gas expansion plans get underway in the UAE, Saudi Arabia, Oman, Kuwait, and Qatar.
- Oman's January rig count remained unchanged at 8 since July 2019, after gaining +3 in Q2 2019, -1 rig below its April 2018 high of 10. This might increase with (i) the expansion of the country's 932 km gas pipeline system from 64 mcm/d to 80 mcm/d (connecting Nimr with Salalah and the central gas network from Rawl to Sur), (ii) the deal with Total and Thailand's PTTEP, awarded 80% and 20% respectively, to explore and develop the non-associated gas in Block 12 and (iii) Petronas's ongoing discussions with the Ministry of Oil & Gas to expand the country's gas sector. Petronas was awarded a 10% stake in Khazzan in 2018.
- Kuwait's rig count remained stable at 14 in January 2020, up 40% from 2019's January rig count, as it targets increased non-associated gas production to meet soaring gas demand. Kuwait can finally develop its share of the 500 mcf/d Dorra gas field as the long-standing dispute between Kuwait and Saudi Arabia ended, although questionable as Iran lays claim to a part of the field. Kuwait has secured its gas imports needs via deals between Kuwait and Qatar; the first is a 15-year contract to deliver 3mn tonnes per day of LNG by Qatar Petroleum, while the second is a long-term contract between Qatargas and Shell to deliver Kuwait 1 Mtpa of LNG beginning this year.
- The UAE's January 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, construction to start on Dalma Gas Development Project after ADNOC awarded two contracts to Petrofac Emirates and a JV between Petrofac and Sapura Energy Berhad at a total of $1.65 billion and, with the largest potential, 80 tcf in-place of shallow gas resources discovered between Abu Dhabi and Dubai, which could be the world's biggest find in 15 years. A 5% stake was recently awarded to Lukoil by ADNOC in the Ghasha ultra sour gas concession, comprising Hail, Dalma and Ghasha, with a planned daily combined capacity of 1 bcf.
- Qatar's rig count remained steady at 12 in January since November 2019, as the country sets a target of 110mn t/y of LNG by 2024 under the North Field Expansion project, although it delayed selections for partnerships for several months amid uncertainty over a potentially major supply glut while global demand is declining following nCoV's impact. It also announced plans to increase its current 77mn t/y LNG capacity to 126mn t/y by 2027, up 64%.

Source: Baker Hughes; OPEC

- Saudi Arabia's rig count fell by -6 to stand at 51 in January, though expected to increase as the Kingdom plans expansion. We expect this to rise further as Saudi Arabia plans to invest $110bn to develop the estimated 200 tcf of wet gas in the unconventional Jafurah field, with production to start in 2024 and gradually reach 2.2 bcf/d by 2036.

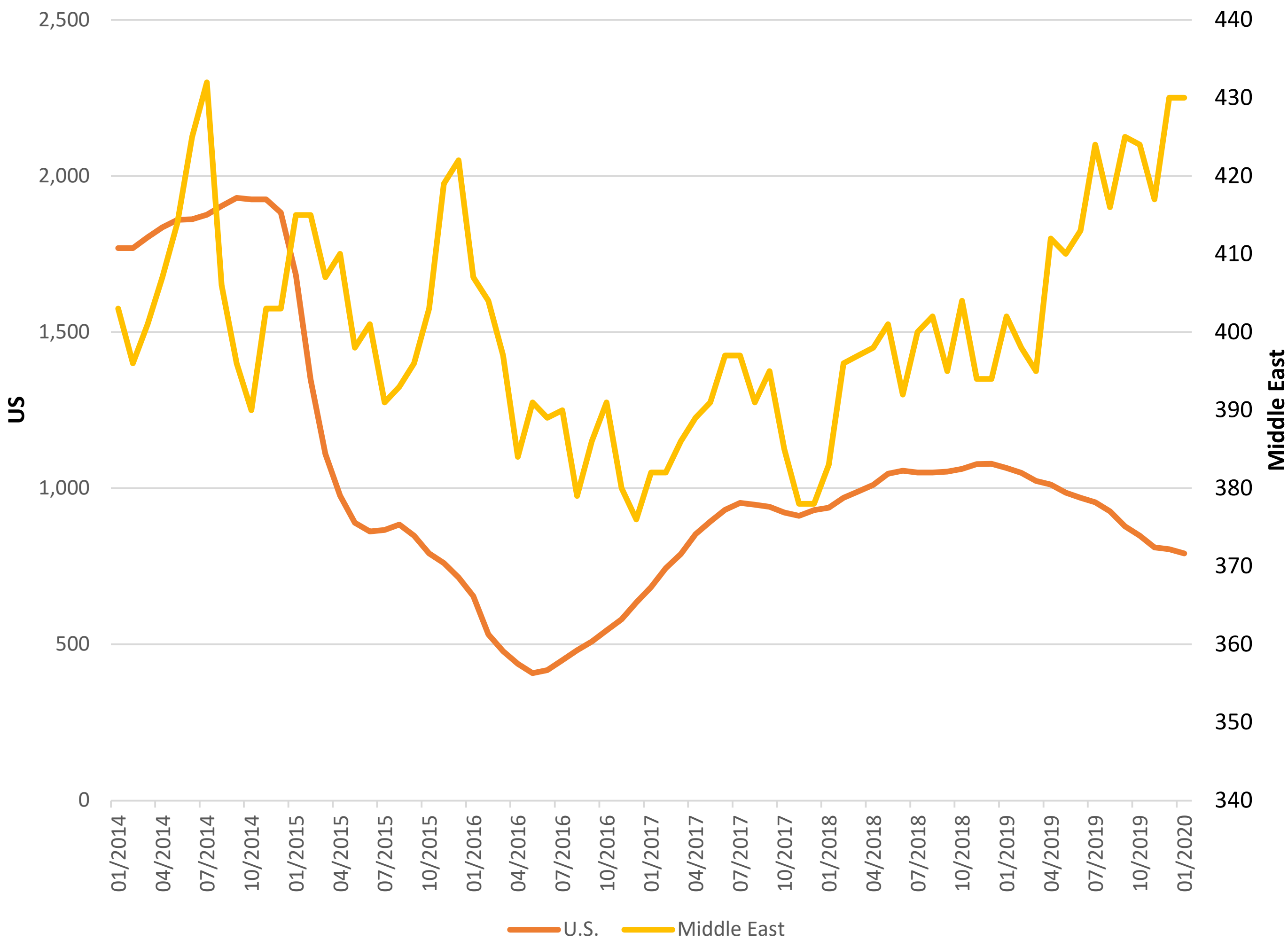
RIGS VERSUS OIL PRICES: US RIGS & WTI



- US rig count for January 2020 fell by -13 from December's 804, a y-o-y drop of 25.72% from January 2019 (-274 rigs), the biggest drop since March 2017.
- The major fall in rig count is at the Permian Basin, where rigs have fallen by -18 in the last 3 months. Overall rig count has dropped -46 (y-o-y) in Q4 2019. 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 13.2 Mbpd in 2020, up 1 Mbpd from 2019's production at 12.2 Mbpd.

Source: Baker Hughes

RIG COUNT: US & MIDDLE EAST



- The US' offshore rig count rose by +1 at 22 in February from January's figure, up +2 rigs from 2019's February rig count, even though Tropical Storm Jerry 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, and subsequent tensions, 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 remained steady at 430 in January, up +28 rigs from 2019's January 402 rigs, even though major MENA producers reported only slight-to-no gains in production (Saudi Arabia's output was down by 1.3 Mbpd).

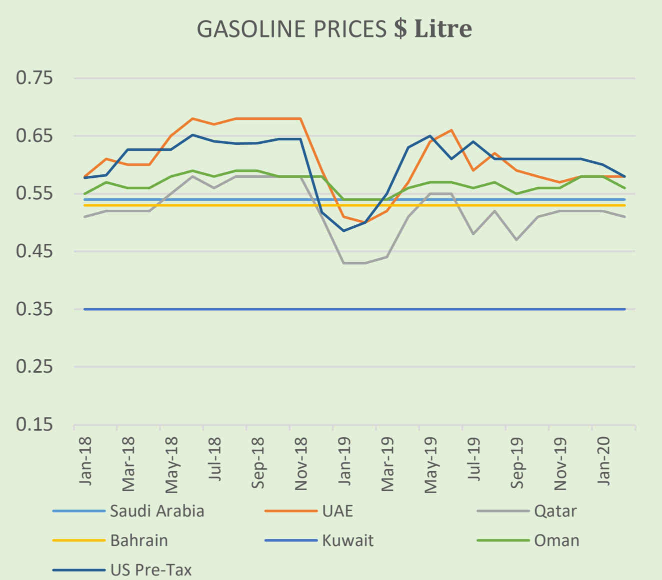
Source: Baker Hughes, EIA

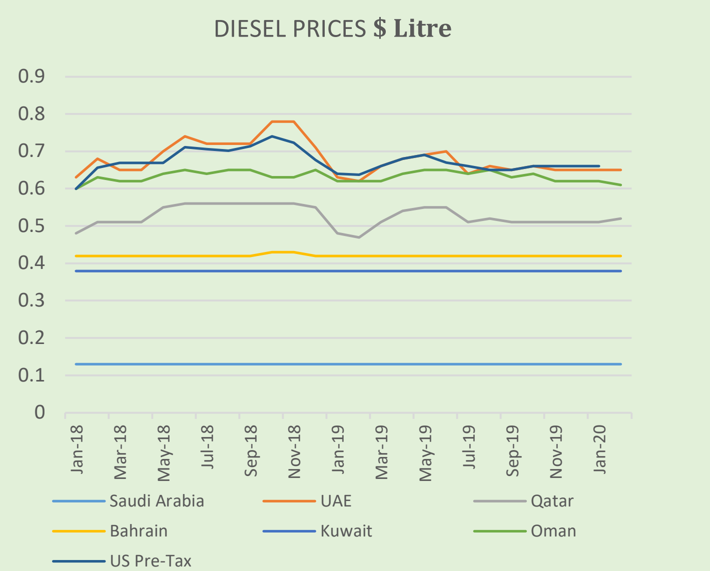
FUEL PRICES & SUBSIDY REFORMS

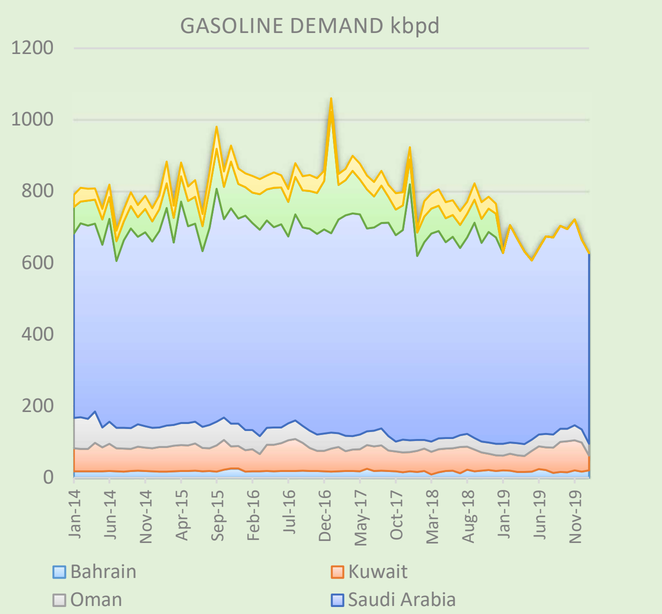
February 2020

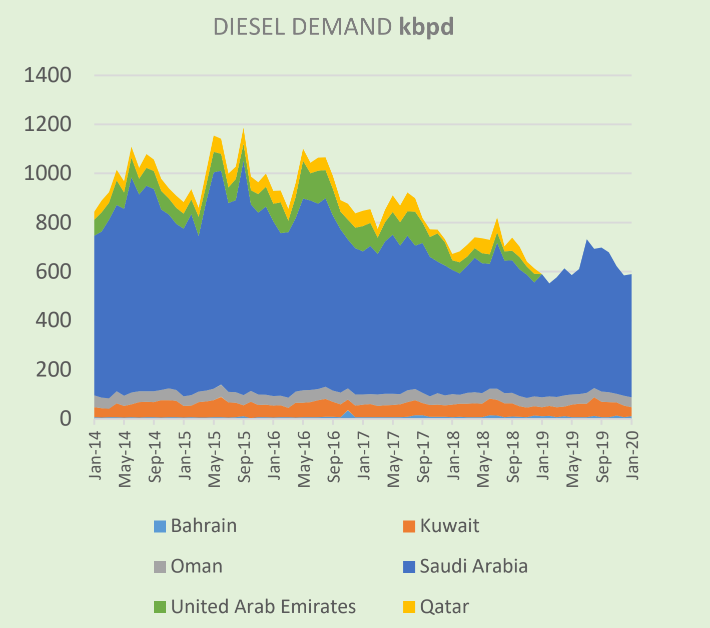
- In the UAE, gasoline and diesel February prices stabilized at an average of $0.58 and $0.65 per litre respectively since November 2019, up 16% and 4.8% from 2019's February prices.
- In Qatar, February prices for gasoline and diesel remained stable at an average of $0.51 since November, with gasoline prices up 18.6% and diesel prices up 10.6% from 2019's February prices.
- In Oman, the price of M95 and diesel decreased in January to $0.56 and $0.61 respectively, while M95 increased by 3.7% YoY.
- 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 February 2020 in the GCC countries.



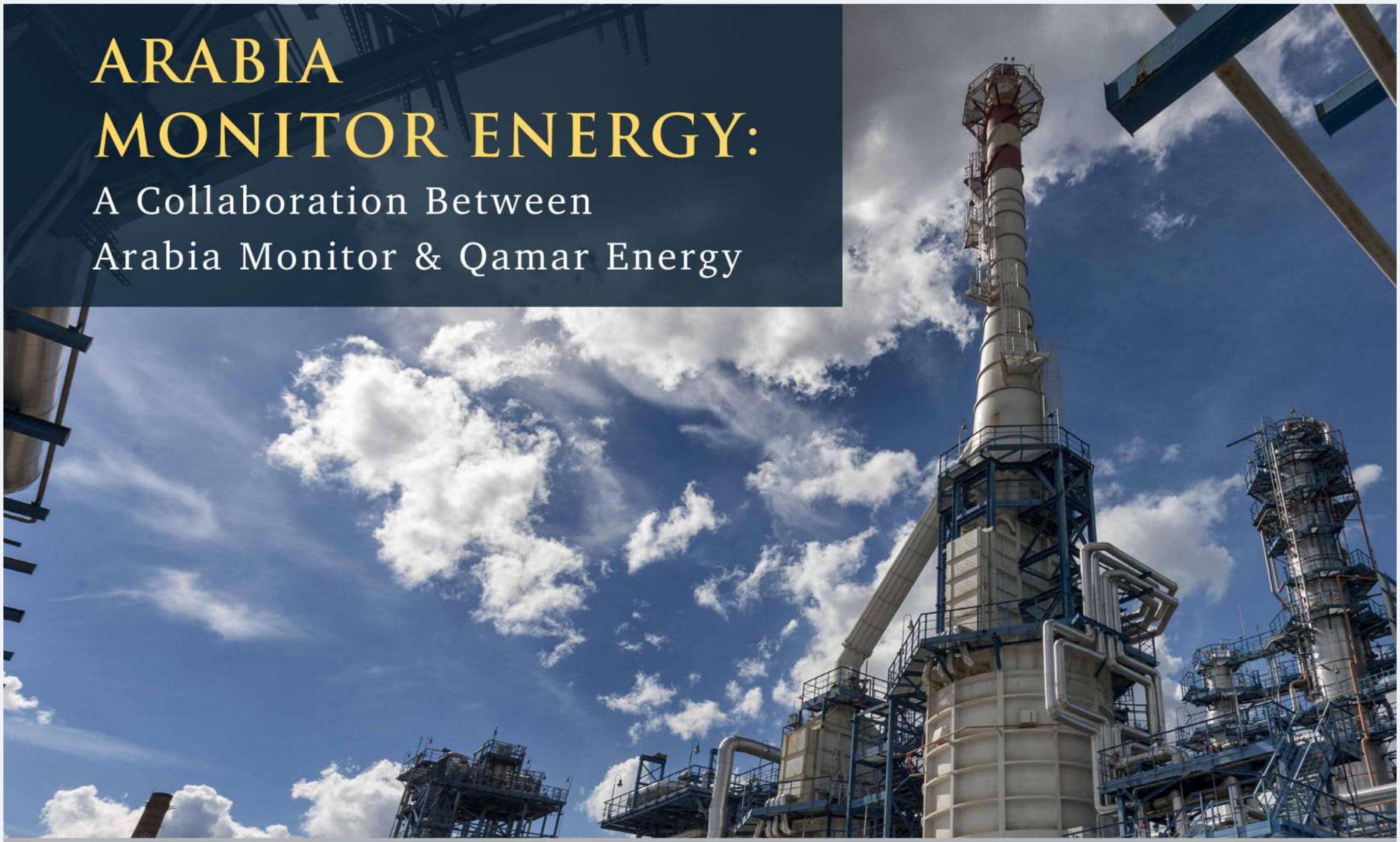






Note: JODI UAE and Qatar gasoline and diesel figures are unavailable for 2019.

Source: Baker Hughes, EIA



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
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- MENA Economic Outlook
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- 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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OPEC WATCH

AVERAGE CRUDE PRODUCTION FOR JANUARY 2020

28.86 Mbpd

- 580 kbpd

Non-OPEC Oil Supply*

70.59 Mbpd

+ 50 kbpd

from Dec. '19

*including OPEC NGLs

From December 2019

Global Crude Output

100.7 Mbpd

- 0.4 Mbpd

OPEC+ COMPLIANCE

- Overall OPEC compliance was at 143% for January, with the largest cuts coming from Saudi Arabia's overcompensation (280%) and Kuwait (169%) among key producing countries, with Saudi Arabia slightly increasing its output by 57 kbpd from December's 9.6 Mbpd.
- Russian compliance increased to 116% in January in response to the depressed oil demand amid nCoV outbreak, with output down by 16 kbpd.
- Iraq increased its compliance to 106% in January as production fell by 68 kbpd, mainly due to the rising social and political instability, while Nigeria increased its output by 25 kbpd, OPEC's largest non-complier in January, expected to fall following the closure of a pipeline that feeds the Brass terminal which witnessed an explosion mid-February. On and off protests in Abuja, and rising output from the 200 kbpd Egina offshore oilfield continue to affect Nigeria's compliance.
- The UAE's compliance increased to 140% in January as it cut its production by 29 kpbd.

NEXT OPEC MEETING: March 2020

178th (Extraordinary) Meeting of the OPEC Conference in Vienna, Austria

LATEST ORGANISATIONAL CHANGES

- At the 177th Ordinary OPEC meeting in December, OPEC+ members decided for an additional voluntary output cut of 500 kbpd bringing the total cut to 1.7 Mbpd.
- The agreement is slated to stay in force till March 2020, and a decision on its extension will be discussed at the 178th Extraordinary OPEC meeting in March.
- Russia's reluctance to introduce deeper cuts proposed by Saudi Arabia in response to nCoV seems to have fractured the Saudi-Russian OPEC alliance, especially as the Kingdom, UAE and Kuwait plan a three-way joint 300 kbpd cut, breaking from OPEC+.

OPEC PRODUCTION

- The Libyan National Army forces blocked oil exports from the country's main ports mid-January, diminishing output from 1.14 Mbpd in December to 796 kbpd in January, rendering plans to boost production to 1.5 Mbpd in 2020 nearly impossible. Output might decrease further with the political instability and repeated disturbances at oil fields.
- Saudi production rose by 57 kbpd at 9.73 Mbpd in January, despite diminished global demand caused by economic slowdown in China following nCoV outbreak; output expected to decrease as the Kingdom plans an additional 300 kbpd cut in response to nCoV.
- Iran's output has been further affected by US sanctions and dropped another 9 kbpd to average just 2.08 Mbpd in January, below Q3's 2.2 Mbpd. Overall, the country has lost 1.66 Mbpd in production from its 2018 high of 3.818 Mbpd.
- Political instability, power cuts, US sanctions and the threat of civil disturbances pushed Venezuela to secretly export 930 kbpd in January tracked by Lloyd's List Intelligence, third consecutive month with shipments above 800 kbpd.
- Kuwait raised its compliance in January to 169% to adjust its oil output to the shrinking oil demand, cutting 44 kbpd. This is expected to increase as economic growth picks up in China and production from Wafra oilfield restarts.

KEY MENA ENERGY SCORECARD

FEBRUARY 2020

QATAR DEVELOPMENTS

QP signed a deal to deliver almost 3 Mtpa to France's LNG terminal Montoir-De-Bretagne for up to 2035; Qatargas and Shell signed a long-term agreement to deliver 1 Mtpa of LNG to Kuwait starting 2020; Qatar also entered a 15-year long-term agreement to supply Kuwait with 3 Mtpa of LNG delivered to Kuwait's Al Zour Port's receiving terminal starting 2022; A commissioning LNG cargo was delivered by Qatargas to India's newest LNG terminal Mundra, carrying 250 TCM; The In-Country Value Policy of the Energy Sector was implemented to grant suppliers and contractors commercial advantage; QP signed a 5-year agreement to supply "900,000 metric tons of naphtha and plant condensate per day" to Shell commencing April 2020.

FEDERAL IRAQ DEVELOPMENTS

Amid deteriorating US-Iran relations, with each competing over power in Iraq, Baghdad approved of all 6 contracts in its 5th licensing round, stating that over 36 months, 750mn cfd of natural gas output is expected; From 3.428 Mbpd in December, Iraqi oil exports fell to 3.3 Mbpd in January. Exports from Basra terminal stood at 3.25 Mbpd, while 36 kbpd were exported from the Kirkuk Province through the Ceyhan Turkish port; 309,960 barrels out of Iraq's oil exports were sent to Jordan in January; Due to the political and social instability hampering the fields' production, these numbers are expected to fall even further in the near future, but will rise as production starts at the newly approved blocks in the long-run.

MENA ENERGY PRICE REFORM

Oil prices fell by 3% to \$56.72 a barrel in February 24, while Northeast Asia's LNG price benchmark fell to \$2.713/MMBtu and Gulf Coast LNG price plummeted to \$2.152/MMBtu, following the rapid spread of nCoV; 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 efficiency practices; the reduction follows the Federal Electricity & Water Authority's decision to slash tariffs by 40% for residents in Northern Emirates in January 2019; Egypt's domestic fuel prices remained at a steady level (92-octane fuel at \$0.55 in February) under the IMF-backed pricing mechanism; 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. Qatar rejects India's request to renegotiate the oil-indexed pricing mechanism used in its long-term contracts, while it proposes to supply more to meet India's gas demand.

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 regulators gave the green light to start loading fuel from Barakah Nuclear power plant's unit 1; 3 more units now closer to completion, with Unit 3 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%); Australian Worley will advise Egypt's Nuclear Power Plants Authority on the construction of its 1st Nuclear plant at El Dabaa (contract's value not disclosed), while Rosatom will build 4 VVER-1200 reactors and supply nuclear fuel for the entire lifetime of the plant. Rosatom awarded Petrojet, Hassan Allam and Arab Contractors the construction of the reactors.

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

KEY MENA ENERGY SCORDCARD

FEBRUARY 2020

MENA ENERGY INFRASTRUCTURE SECURITY

Since mid-January, blockades on significant oil and gas infrastructure have sent Libyan oil production plummeting more than 80% (down by 344 kbpd) in just few weeks; shutdowns took place at El Sharara and El Feel oilfields southern Libya, the combined output of which stands at 370 kbpd, putting the country's economy on edge; Pipeline vandalism sabotages and theft are on the rise in Nigeria, with the recent pipeline explosion leading to its closure and limiting output to Brass terminal; sabotage at the Trans Forcados pipeline and Nembe Creek truck line caused frequent shutdowns, and with the ageing dilapidated infrastructure, production disruptions are expected to increase by 400 kbpd.

IRAN DEVELOPMENTS

Iran's December exports averaged just under 500 kbpd, all classified as unidentified by most tanker tracking services, and reduced even more in January due to China's economic slowdown as a result of nCoV; with reduced export revenues, a $30bn funding gap and tightened US sanctions, oil Iranian production projects were reined in during Q1 2020; Iran invested $3bn in the Bidboland Persian Gulf Gas Refinery, set to be the largest APG treatment plant in Iran; NIOC and Mapna Group signed a $1.3bn contract to develop Parsi and Paranj oil-fields in the Khuzestan province, where Mapna will drill 29 new wells and repair 8 others to increase output by 85 kbpd in the coming 10 years; The jacket for Phase 11 of South Pars Gas field in Qeshm Island is now ready and will be installed before March 19; gas production expected by 2022 reported by Petropars; Decks 13A and 13C of Phase 13 of the South Pars Gas field were loaded, the capacity of each stands at 14.2 mcf, while 22-24 and Deck 24B of SP phases are ready to supply the onshore refinery, 70 MCM/d of gas expected to be added to the South Pars production by March; NIOC has halted selling diesel and mazut on the Iran Energy Exchange (IRENEX), stressing that the suspension is not related to the IMO's 0.5% global Sulphur cap; IRENEX offers $20mn Salaf contracts to finance Azar Oilfields projects.

ABU DHABI DEVELOPMENTS

ADNOC signed a 15-year agreement with DUSUP to explore and develop the newly discovered 80 tcf shallow gas resources situated between Saih Al Sidirah and Jebel Ali under the Jebel Ali Project; ADNOC awarded two EPC contracts at $1.65bn to Petrofac and a JV between Petrofac and Sapura Energy for the construction of the facilities at the Dalma Gas Development project, to be completed by 2022 and produce 340 mcf/d; ADNOC Logistics & Services and Singapore's Atlantic Gulf & Pacific signed a 15-year agreement for a 137,756 cubic meter Floating Storage Unit in India's Karaikal port, with construction starting Q1 2020 and operations before end-2021; ADNOC signed a framework agreement with Indian refining and chemicals conglomerate, Reliance Industries Limited (RIL), to develop an ethylene dichloride (EDC) facility in Ruwais; The agreement includes a feasibility study of the facility next to the already established integrated refining and petrochemical site in Ruwais; ADNOC and Aramco will build a joint-venture 1.2 Mb/d oil and petrochemical refinery in Raigad, India.

KUWAIT DEVELOPMENTS

KOC awarded Italy's Saipem an $850mn E&C contract for the development of Al Zour refinery under the "Feed Pipelines for the New Refinery Project (NRP)"; Kuwait and Saudi Arabia began preparations to resume production from al-Khafji oilfield; a trial 10 kbpd expected in February 25, while production trial from Wafra oilfield will take place in March, expected to produce 80 kbpd in 6 months; operations commenced at the heavy oil project, Al-Ratqa field, expected to produce 60 kbpd in its 1st phase; Kuwait Gulf Oil Company awarded a $22mn 5-year contract to Napesco for coiled tubing and nitrogen pumping starting August 2020; Kuwait's KNPC is moving ahead with a major project to boost production from its 2 refineries; based on data from KNPC, the 2 refineries reached a growth of 692 kb/d for FY2018-19, with jet kerosene increasing 7.2% and record annual gains.

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

KEY MENA ENERGY SCORECARD

FEBRUARY 2020

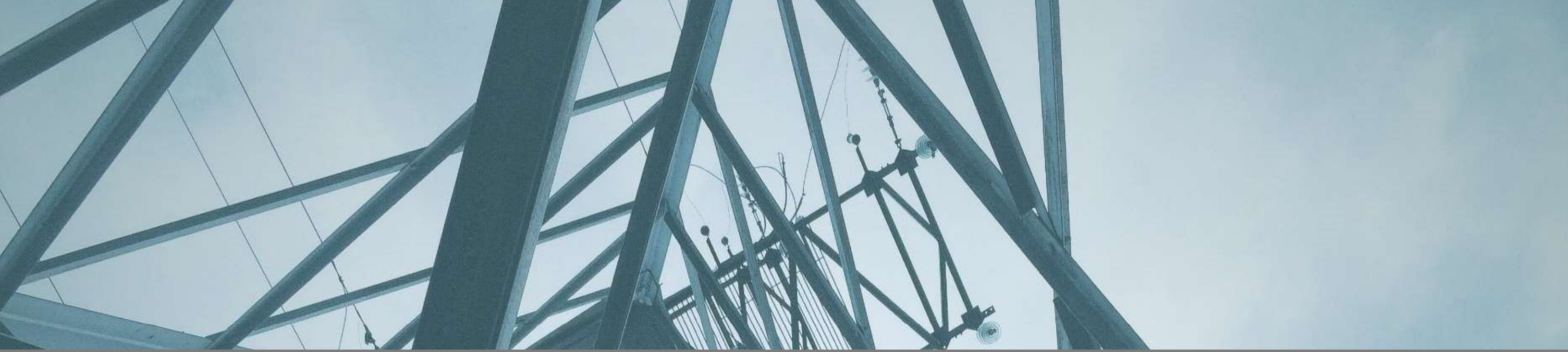
MENA RENEWABLE ENERGY

Saudi Arabia plans to invest up to $50bn in renewable energy by 2030; NEOM gigaproject, Saudi Arabia's Public Investment Fund-backed flagship, signed an agreement with Solar Water to construct the first ever solar dome-based desalination plant starting February and expected to be completed end-2020; Saudi Alfanar to become a key bidder for the 70 MW (Madinah and Rafha) solar round II project and the First Solar group under the Renewable Energy Program (REP); Yellow Door signs two agreements to install solar panels at Saudi APICORP HQs, generating up to 718 MWh (0.40 MW); The UAE launched their first ever floating solar power plant in Abu Dhabi in February; DEWA to complete the 800MW portion of Dubai solar park, the operations of which will start April; In Qatar, the 800 MW Al Kharsaah PV power-plant, the country's 1st large-scale PV project, is awarded to Siraj Energy, Marubeni and Total under a BOOT model for 25 years; In Iraq, General Electric plans to add 3GW to the country's grid before summer; Iraqi governorate of Duhok signed an agreement with United Nations Development Programme to build a new solar park with a capacity of 2MW and $2mn funds from the EU; The Moroccan Agency for Sustainable Energy began pre-qualifying developers for the first Phase of the Noor PV II solar project, setting February 28 as a deadline to pre-qualify; In Morocco, Engie is awarded a contract to build a 2.5MW solar power plant on the roof of Nexans's cabling factory; Engie-Nareva consortium to become the preferred bidder for the construction of the 120MW Gafsa solar power park in Tunisia; In Egypt, Lekela starts construction of the 250MW West Bakr wind farm, which will use 96 units of Siemens Gamesa turbines; the operations of the wind farm will be under a PPA agreement with the Egyptian Electricity transmission Company; In Oman, the Asian Infrastructure Investment Bank will lend $60mn to finance the 500MW Ibri II solar PV project.

MEDITERRANEAN GAS COMMERCIALISATION

Egypt and Nigeria established a new company, Rongas Industrial Egypt, to manufacture LPG and CNG cylinders for vehicles; The Assiut National Oil Processing Company awarded a $2.5bn contract to Enppi and Italy's Technip Fmc Engineering to build a mazut hydrocracking complex in Assiut, set to be the largest oil refinery in upper Egypt; BP is eyeing buyers for its 45.89% in the Amenas gas plant, hoping for a $2bn, after failing to sold its stake to Russian Rosneft; Production at the Nawara field in Tunisia has begun, with gas output expected to reach 2.7 MCM/d, increasing the country's gas production by 50%; In Morocco, the agreement between British Predator Oil & Gas and Canada's industrial firm Star Valley Drilling has come to effect, announcing drilling plans in Guercif Permits I, II, III and IV, 250km from the shallow gas discovery made by SDX Energy Plc; The agreement to build the 1,900 km EastMed undersea pipeline to carry natural gas from the south-eastern Mediterranean's offshore fields to Europe was signed by Israel, Greece and Cyprus on January 2. The agreement represents an opportunity for the EU to reduce its gas dependency on Russia, as it would supply an initial 10 bn cubic meters (4%) of the Union's annual gas imports but it faces major cost hurdles and political opposition from Turkey.

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 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.

UPCOMING APPEARANCES & TALKS

World Energy Policy Summit in New Delhi; 6-7th February 2020

ME-TECH in Abu Dhabi; 18-20th February

Iraq Club at the Capital Club in DIFC, Dubai; 23rd February

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