OIL AND GAS

At an energy crossroads

Diversification is no longer a buzz word in the Middle East's oil and gas market. *Michelle Meineke* reports on how blueprints are being realised – for the better.

ADNOC's al-Reyadah project is the the first officially inaugurated commercial-scale carbon capture, utilisation and storage (CCUS) facility in the Middle East and North Africa (MENA) region and aims to capture 800,000 t/y of CO_2 for EOR purposes

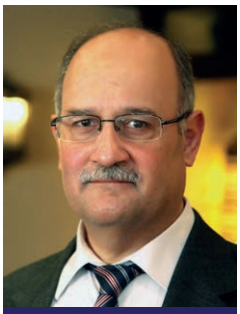
Photo: ADNOC

Sand dunes have transformed into cities thanks to the Middle East's boom of petrodollars since the mid-1900s. Now the region is at an energy crossroads that could – and should – overhaul its *status quo*. Turning left (metaphorically) means embracing the great energy transition that sees the growth of a diversified energy basket, where fossil fuels and renewables both complement energy security. Turning right means energy producers make the right political noises about lower-carbon growth but green policies inevitably exceed green action. Which way is the region turning? Leftwards – evolving into petro-allies and not victims of lower-carbon growth.

Black gold and gas will remain crucial in the Middle East's energy basket up to 2050, at least. BP's 2018 *Energy Outlook* expects the region to be the largest oil producer and the second largest gas producer up to 2040, accounting for over 34% of global liquids production and 20% of gas production. Energy security depends on it. The contribution of non-fossil fuels will increase from 1% today to 8% in 2040.

Still, oil and gas markets will grow differently as national oil companies (NOCs), international oil companies (IOCs), small and medium-sized enterprises (SMEs) and entrepreneurs broaden their focus and asset profiles. This extends to more sophisticated partnerships at home and abroad, encompassing more technology companies and financial institutions (FI). The same applies to maturing trading expertise. There is an increased momentum around plans to establish the first independent Middle East oil products benchmark, for example. All efforts hone two goals – to bolster energy security and global competitiveness.

'The US may increase production for two to three years but, when that slows down, other producers must be ready to ensure the world is well supplied. Demand is growing at a healthy rate and we must continue discovering oil,' explained HE Eng Suhail Mohamed Faraj Al Mazrouei, UAE Minister of Energy & Industry and President of the OPEC Conference 2018, at the Gulf Intelligence UAE Energy Forum in January 2019. 'Countries that have invested in technology and in increasing their output



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capacity will be able to take advantage of market share when it surfaces, perhaps at the expense of others who are losing significant production. We want to make sure that companies like Saudi Aramco or ADNOC... are not deterred from continuing to invest because of inadequate returns. We don't want to witness 2015–2016 again. That is our mission – to help keep the market in balance for all,' added Al Mazrouei.

Money matters

The investment outlook in the Middle East is tentatively bullish – for now. This is in part due to NOCs' deeper state-stocked pockets and in part due to strict operational and pay-roll cutting measures following the oil price plummet in 2014. Rystad Energy expects nearly a quarter of projects – involving more than $240bn in greenfield investments that are being sanctioned this year – to come from the Middle East. At about $56bn, this is six times higher than in 2018. Investments in gas developments are also expected to soar from $1.7bn in 2018 to $30bn this year. This may ease International Energy Agency (IEA) concerns that sliding investments in recent years would trigger a supply crunch in the 2020s.

Hatem Al Mosa, CEO of the UAE's Sharjah National Oil Corporation (SNOC), says: 'Only investing in upstream [projects] when stresses are low and funds are free-flowing causes major problems further down the line. Major forecasters' warnings that the oil market risks a supply crunch in the next few years must be heeded. There is enough price volatility without us adding to it through poor planning. Fossil fuels account for a vital part of the energy transition, so increased upstream investments make sense, from licensing rounds to enhanced oil recovery (EOR) projects. The same applies to creating long-term strategic partnerships; allies are paramount amid today's shifting sands.'

Saudi Arabia has earmarked $20bn in the next few years to maintain and possibly expand its spare oil production capacity, with the Kingdom's current sustainable capacity at 12mn b/d. The energy giant said in late-2017 that it plans to spend $300bn over 10 years in upstream oil and gas projects and foreign partnerships. State-owned Kuwait Petroleum Corporation (KPC) is spending $114bn in capex over the next five years and an additional $394bn up to 2040, with a new production target of 4.75mn b/d by 2040. The OPEC member is under intensifying reputational pressure; the initial and very public aim was 4mn b/d by 2020.

To the south-east, state-owned Petroleum Development Oman (PDO) is investing $20bn up to 2021, following a $5.8bn spend in 2017, to sustain long-term output. The sultanate's particularly challenging and maturing oil fields means EOR has played a pivotal role in this success, establishing Oman as a global leader in the field. Muscat turned the tables; a hindrance was transformed into an example of the country's penchant for innovation, lauded worldwide.

Such investments will also be critical to fully leverage the potential of black gold's favourite cousins; gas and LNG. This year should see an acceleration in the Middle East's re-engagement in one of the world's biggest energy-related juxtapositions; a region that sits atop 40% of the world's natural gas reserves pays expensive gas and LNG import bills to meet domestic demand.

Steps are being taken to reverse this trend as the Middle East – bar Qatar, a first mover – revives conversations to establish a network of interconnected gas pipelines and floating storage and regasification units (FSRUs). Nearly half (44%) of respondents to a survey by the Middle East LNG Institute said three steps, among others, are key to successfully establish a Middle Eastern LNG hub by 2025 – build more LNG storage, establish a Middle East LNG benchmark price contract and remove gas subsidies. Momentum to tread these stepping stones will go up a notch as swelling demand pushes the decimal point on the receipt for LNG imports further to the right.

Asian attraction

Deepening its foothold in Asian, European and African markets is vital for the Middle East, especially China. China is one of the world's biggest buyers of oil and one of the biggest importers of gas and LNG, while the Asian Development Bank expects energy demand to almost double in the Asia and Pacific region by 2030. This is gold dust for ambitious Middle Eastern energy exporters who can leverage their position at the crux of east-west trade and proximity to the UAE's Port of Fujairah, the world's second largest bunkering hub.

To the west, Arab Gulf exporters must sharpen their elbows to nudge the US, vying to capture the coveted Asian deals, off its increasingly tall pedestal. Despite being a net energy importer since 1953, the Energy Information Administration (EIA) says the US shale market will enable it to be a net energy exporter by next year. This staggering change in fortunes extends to the gas and LNG market. The US could challenge Qatar's crown as the world's biggest LNG exporter by 2022, the IEA says. For now, the Middle East must charm Asia via its historic alliances stretching back millennia – think Silk Road – and track record of reliable deliveries.

'Never before have the energy ties between Asia and the Middle East needed to be so robust – a fact that stakeholders on both sides of the Indian Ocean are waking up to. Be they public or private, stakeholders must collaborate on clarifying supply-demand balances, technological advancements, joint local capability and talent development and ensuring geopolitical calm. We may be different countries in

Climate matters

Stress points in the oil and gas industry are real – and intensifying. Energy consumption in the Middle East could rise by 54% up to 2040, estimates BP in its 2018 *Energy Outlook*, while the region's population growth generally exceeds the global rise of 28% to 9.7bn by 2050. Oman's population is expected to nearly double (45%+) by 2050, to 6.7mn, for example.

Pockets of frosty geopolitics and oil prices – be they catapulting or crashing – add to the unpredictable outlook.

In the last quarter of 2018, oil prices rose sharply to $85/b before sliding by 37% to $54/b at the end of the year. Against this backdrop, the environmental drum bangs louder than ever as countries reconfigure energy strategies to support the Paris Agreement.

Such management efforts can't come too soon. Germany's Max Planck Institute for Chemistry and the Cyprus Institute in Nicosia warn that high temperatures under the current climate scenario could make some areas uninhabitable from the mid-century onwards in the Middle East and North Africa. Economic and social crises would ensue. ●

Oman's Miraah project uses concentrated sunlight to generate 6,000 tonnes of solar steam a day to support EOR operations at the Amal field

Photo: GlassPoint

different regions, but we all thrive or fail together. No country is an island when it comes to energy security,' comments Abd Malik Jaffar, Regional Director, Petronas Subsidiaries Middle East.

Merging worlds

Projects that merge the two sides of the energy coin – fossil fuels and renewables – are particularly attractive to investors who are keen to hedge their bets. Two notable examples are Oman's Miraah project and the UAE's al-Reyadah project. Miraah, which means 'mirror' in Arabic, uses concentrated sunlight to generate 6,000 tonnes of solar steam a day to support EOR operations at the sultanate's Amal field. The project cuts carbon dioxide (CO_2) emissions by more than 300,000 t/y – the equivalent of taking 63,000 cars off the road. ADNOC's al-Reyadah project is the first officially inaugurated commercial-scale carbon capture, utilisation and storage (CCUS) facility in the Middle East and North Africa (MENA) and aims to capture 800,000 t/y of CO_2 for EOR purposes.

Lower-carbon methods are also being explored to comply with the International Maritime Organisation's (IMO) 2020 ruling; a point marked in red bold type and underlined on stakeholders' calendars. The ruling to reduce sulphur limits in bunker fuels to 0.5%, from 3.5%, starts on 1 January 2020 (see *Petroleum Review*, December 2018/January 2019). The ruling caught many by surprise, as 2025 was the industry's preferred start date. Ambiguity over the supply-demand of compliant fuels and policing methods sparked a blame game; one that continues to burn. Very lower sulphur fuel oil (VLSFO) and LNG bunkering tend to be environmentalists' preferred options.

'There is no silver bullet for post-2020 bunkering. The entire value chain is still working out the logistics and associated economics. But amid this myriad of uncertainty, we do know one thing – VLSFO is a good bet for the Middle East,' details Chris Wood, Managing Director at Uniper Energy DMCC. 'Ensuring an affordable and steady supply means closer alliances between shipping companies, ports and upstream operators with the region's refineries, many of which are modern and flexible facilities. Quick action and collaboration are imperative. The effort will pay off as it puts a very positive spotlight on the Middle East's ability to adapt and thrive to global regulatory changes,' Wood says.

The same must apply to the looming change in aviation fuels, especially for a region that is home to some of the world's busiest airports. All links in the oil value chain, from producers to traders, must do their homework on how to affordably and efficiently adapt to the Carbon Offset and Reduction Scheme for International Aviation (CORSIA). The global CO_2 offsetting scheme aims to reduce any annual increase in total CO_2 emissions above 2020 levels, including adjusting the fuels used. Mandatory compliance starts in 2027 (see *Petroleum Review*, November 2018). Proactivity will pay off – literally. Aviation counts for 20% of the UAE's non-oil GDP alone, according to the country's General Civil Aviation Authority (GCAA) in 2012.

Digital diamonds

Are energy stakeholders fully embracing the world's biggest economic paradigm shift – the digital toolbox of the 4th Industrial Revolution? No, but they have started uncovering digital diamonds to bolster efficiency, cut costs and encourage lower-carbon growth. Digital savviness is no longer a slim slice of the financial pie; it really matters. Digitalisation could unlock up to $2.5tn of industry and societal value in the global oil and gas markets in the medium-term. Benefits include reduced emissions and $170bn in cost savings for customers, according to the World Economic Forum (WEF).

Many in the Middle East have taken steps to leverage digital benefits. More than half (57) of the world's 100 largest oil and gas firms – several in the Middle East – are using or have plans to use predictive analytics, according to Lloyds Register's latest *Technology Radar Special Report* (see *Petroleum Review*, February 2019). Predictive analytics are saving companies $7mn on gas pipelines in the eastern US by forecasting failures, and $325,000 per rig using machine learning to predict drilling locations. Few can afford to give such savings the cold shoulder, especially with oil prices in the $60/b range.

Every new tool comes with risks. Cybercrime cost the world almost $600bn, or 0.8% of global GDP in 2017, McAfee estimates. Unsurprisingly then, energy stakeholders are evaluating the inclusion of 'digital sheriffs' on their payroll. Realised threats drive the reality home; the world's new and largely invisible mafia is formidable. In 2017, the National Industrialisation Company Tasnee, a privately-owned Saudi petrochemical company, and Sadara Chemical Company experienced cyber attacks. (See *Petroleum Review*, February 2019, for more on cybersecurity.)

A mixed bag

The outlook is multifaceted; simple equations to success in the new energy basket remain elusive. But so far, the historical epicentre of fossil fuels has smartly opted to change rather than be changed.

This is just the beginning of the search for the holy grail – affordable and low-carbon energy security while climbing the global ladder of influence. The next step? Stride ahead with gusto. ●